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Preface

Message, Method and Question

To be included in the next version

Chapter 1

The Co-evolution of Experimentalist Business Systems and Enabling Welfare States

Peer Hull Kristensen

1.1. Introduction: Benchmarking the Nordic Countries

Over the past couple of decades, the enigma of mechanisms for and barriers to economic development has not become smaller for social researchers. They have seen first a move from a Keynesian to a Washington Consensus, the latter then being questioned by quick and radical shifts in country names from which have been drawn new and shifting and less than comprehensible benchmarking lessons for economic development. This book is both a continuation and a critical re-examination of this flow in the emerging tradition of comparative studies of the performance of divergent forms of capitalisms, as our aim is to understand how and why the Nordic welfare states, against previous predictions to the contrary, are currently doing well in international comparisons. We shall search for causes of their success, what they might learn from each other, i.e. whether they jointly constitute a model that can be perfected by learning from each others. Finally, we want to know how they compare to and what lessons may be drawn from them for other transitional economies, exemplified by Slovenia, against which we will discuss what can be transferred as helpful lessons. We embark on this mission from the conviction that institutions, and institutional experimentation, matter and that it is a distinct match between the experimental search for improved institutions in a society and the ongoing transformations of the international economy that may explain of how distinct societies at given moments may create benchmarking performances that can inspire other countries to institutional search and experimentation. Obviously, as more and more researchers leave grand theories of universal capitalist development mechanisms as an inspiration for how to engineer economic development, the benchmarking and comparative study of prosperous nations serves only as a less than optimal solution for our navigation. However, it does look more promising than encapsulating and reducing enigmas of post-modern capitalist development to the dual positions of Keynesianism and Neo-liberalism. The route we take is shaky, but the known alternatives are dangerous.

In this light recent changes in debates over the futures of welfare states constitute itself an interesting subfield within social research. For those who witnessed the neo-liberal revolt against Keynesianism after the first oil crisis, the present debate is as surprising as was the debate then, when Margaret Thatcher and Ronald Reagan signalled a return to the “market”. The expectation was that de-regulation and globalization would force even strong unions and Social Democratic welfare states to retrenchment in a race to the bottom (Pierson, 1994) as international competition would force countries to lower standards of social protection to reduce social charges on enterprises:

This perspective sees the welfare state as having to cede place to a “competition state”. The latter seeks to protect the competitiveness of enterprises located in its territory by reducing the legislative and tax demands it makes on them, including by intervening minimally in the labour market (NESC, 2005, p 12).

Current debates are more subtle. Some welfare states are doing well, e.g. the Scandinavian, while others have alternately been seen as “miracles” (e.g. “the Dutch Miracle” (Visser and Hemmerich, 1997); Finland’s Information Revolution (Castells and Himanen (2002), Moen (2002)). Some even hold the view that the race has rather been towards the top as less developed welfare states narrowed the gap towards the more developed by increasing their tax as percentage of GDP (Baldwin and Krugman, 2000). Yet Ireland broke this alternative pattern and lowered taxes while performing very high scores in GDP-growth from the mid-1990s (Arnal et al. 2001, p 7). Whether this is part of an explanation of why it is now in crisis is another question? Before the financial crisis in 2008, it was becoming increasingly significant that two, seemingly very opposite systems, represented by Anglo-Saxon and Nordic countries were competing for the highest scores of growth. This despite the fact that while Nordic countries show tax-rates between 46.6 and 52.2%, the Anglo-Saxon only “carry the burden” of 31.9-36.3% tax levels (NESC, 2005; Campbell, 2005; Sachs, 2006). Countries that have taken a middle-road concerning tax levels, such as Germany, France and Italy, seem to the contrary to have become rather static with lower growth and high unemployment. This paradox has caused a shift in debates on the welfare states as it has been suggested that the Nordic countries constitute a viable alternative to the neo-liberal orientation of the Anglo-Saxon world:

“The “Euro-pessimism” in many parts of the continental Europe, and the claim that Anglo-Saxon liberalization is crucial to economic well being, is belied by

the persistent high performance of the Nordic economies. For decades, these economies have maintained high levels of GNP per worker, low rates of poverty, high rates of innovation, and high levels of labor force participation.

The continental European countries seem to be caught, in some ways, between two urges: the social welfare impulses of Northern Europe, and the liberalizing influence of the Anglo-Saxon model. The result may actually be the worst of both two worlds. The continental European countries spend like the Nordic states, but do not generate the tax revenues to support that high level of social spending. They instead run chronic fiscal deficits. (Sachs, 2006, p 19-20).

The reason for the vitality of the Nordic countries is not that pressures from globalization to lower costs have been less than forecasted. From 1973 to 2003 the share of low wage countries in developed countries imports of manufacturing products has grown from 11 to 47% (China alone from 1 to 16%) (Sapir, 2005), and rivalry over the flow of Foreign Direct Investments (FDI) has strongly intensified. Measured by the weight of the public sector, the level of wages and union power, the Nordic countries could have suffered most from this development.

The truth is that they actually did for a time. By 1980 Denmark saw itself as moving towards an economic disaster, creating huge and fast growing deficits in public budgets, foreign trade, etc. Shocks came later to Finland (around 1990) with the collapse of its economic relations to the Soviet Union and an early, failed attempt to globalize its national enterprises, and to Sweden, which in the mid-1990s faced a financial and currency crisis that seriously questioned the continuation of the “Swedish Model”. Due to huge, but volatile, incomes from North Sea oil, Norway has been the least effected of the Nordic countries concerning the dramatic shifts that have taken place from 1973 until recently. Because of its huge extraordinary incomes from oil, Norway has been forced to take a cautious view on balancing activities and spending as an optimistic exploitation of its economic room of manoeuvre would have caused enormous inflationary pressures and dramatic deficits in manpower.

During the 1990s, so it seems, the Nordic countries underwent a major shift in the constitution of their economies. The in- and outflow of Foreign Direct Investments (FDI) increased from being a marginal phenomenon to becoming a major characteristic of their economies.

Table 1.1 : Foreign Direct Investments (stock) in percentage of GNP 1990 and 2002

Country	To/from	1990	2002
Denmark	To	6.9	41.7
	From	5.5	43.4
Sweden	To	5.3	46.0
	From	21.3	60.5
Finland	To	3.8	27.0
	From	8.2	52.8
USA	To	6.9	12.9
	From	7.5	14.4
England	To	20.6	40.8
	From	23.2	66.1
Germany	To	7.1	22.7
	From	8.8	29.0
France	To	7.1	28.2
	From	9.1	45.8
Ireland	To	72.3	129.1
	From	24.5	29.9
China	To	7.0	36.2
	From	0.7	2.9

Kilde: Eriksson et al. 2006: 9.¹

Where their interpenetration with the global economy by 1990 was considerable lower than the Anglo-Saxon and Continental countries, the Nordic countries were contesting the leading countries in terms of globalization by 2002.

Today, 10 to 20 years after these major crises and restructurings of the Nordic welfare states we can see that they did not effect a major retrenchment or “race to the bottom” of their welfare states. It is our hypothesis that instead, crises and restructuring co-evolved with a drift away from the Keynesian welfare state, focusing on demand management, incomes transfers, macroeconomic regulation and standardized forms of social security, toward, what we will

¹ This overview gives no indications about Norway, Eli Moen, however have calculated that the level for Norwegian stock of outbound FDI ranges a little less than 30% of GNP in 2002.

call, an enabling welfare state. The latter is supply oriented, offering individualized services that enable micro-dynamic adaptation to constantly changing economic environments, where individuals and enterprises share with the state in the Nordic countries² the risks of experiments. We call this a co-evolution and not a reform or a planned change, because the change is an outcome of unintended consequences stemming from compromises, which neither of the negotiating parties opted for or foresaw. In the Nordic countries political discourses over the future were probably worded in similar ways as in other countries, where the neo-liberal turn perhaps pointed in a more definitive direction. However, Social Democratic resistance was probably better organized, unions stronger and therefore the parties happened to take very heterogeneous routes in reform, very seldom guided by a clear vision for its direction. Ironically and gradually neo-liberal critics of Social Democracy in these countries were forced to advocate savings on social spending and state regulation for the sake of better protecting the welfare state. None, however, developed a new vision for an offensive form of welfare state that could help people and enterprises master or better adapt to the changing circumstances that came with globalization, intensified innovation and competition. As a result we have only ambiguous knowledge about what is actually the new form of welfare state that is in the making and why it has developed important complementarities with firms.

The aim of this study is to collect empirical evidence on the nature of roles that institutions and states in Nordic countries are developing by following each their non-teleological experimental process. We think it can be studied by studying employees, enterprises and regions engaged in constant attempts to reorganize their economic activities within a global context. Our aim is to discover and disclose how they, in different ways, make use of institutions in accomplishing a process of constant transformation in beneficial ways, and how the state and wider public sector enter into these processes in distinct ways in each of the Nordic countries. By comparing similarities and differences and aggregating across the experiences of the four Nordic countries, we are aiming towards a synthesis of what the emerging enabling welfare state is all about. What can distinct countries learn from others so

² A number of observers have introduced new notions to capture the transformations going on in the nature of Welfare states. Bob Jessop (2000) has seen the transition to a Schumpeterian Welfare State. Salais and Villeneuve (2004) speak about a Capability Welfare State. Perhaps the most highly elaborated attempt to develop a new vision comes from the Irish NESC (2005) using the notion of the Developmental Welfare State. Zeitlin and Trubek (2003) offer a richness of observations on the heterogeneous experiments that are going on the American and European continents.

as to create richer and more appropriate forms of institutional complementarities to the experimentalist economies they are evolving?

As already indicated by Jeffrey Sachs in the citation above there currently seems to be good reasons for taking a closer look at the Nordic countries both individually and as a group. Over the last decade, Nordic countries have been among the countries that have improved their position the most on a number of indexes on growth and competitiveness. Thus from 1996 to 2003 Denmark moved from rank 11 to 3, Finland from 16 to 1, Sweden from 21 to 4 and only Norway moved in the opposite direction, from 7 to 9 on the index provided by the World Economic Forum (see www.maaw.info/WorldCompetitivenessReports.htm). On an index on the aggregated health of national OECD economies in 2004 (including factors such as unemployment, deficits on public sector, inflation, inflationary stability and balance of payment deficits) Norway ranks 1, Denmark 3, Sweden 8 and Finland 15 (Økonomi- og Erhvervsministeriet, 2006, p 204). Among the OECD countries, the Nordic countries dominate the list of countries that show surplus on public accounts (ibid., p 205), have the lowest public debt (ibid., p 206) and the highest surpluses on balance of payments (ibid., p 209). These achievements have come without destroying the general humanitarian situation as they have been able to better defend high positions on Index of Human Progress than other highly ranked countries such as the US and Japan (see The Index of Human Progress on www.FraserInstitute.org) in the latter part of the 1990s, with Denmark ranked 2, Finland 7, Norway 5 and Sweden 8 in 2000. Norway is the only OECD country that in terms of GNP per capita really challenges the number one position of the US economy in 2004. Achieving 80% of the US level, Denmark is positioned 7, and Finland and Sweden 12 and 13, the latter two reaching approx. 75% of the American level (Økonomi- og Erhvervsstyrelsen, 2006, p). The Nordic countries have reached these levels with approx. 10% less working hours per capita than in the US (Norway 25% less) and by being 10-15% less productive per working hour (except for Norway with a 22% higher productivity than the US) (ibid., p 33). A very high participation rate of women in the labour force is one of the most significant examples of the distinctiveness of the Nordic societies (Ibid, p 39).

Despite the resulting high gross participation rate in the labour market, since the mid-1990s the Nordic countries have been able to reduce unemployment more drastically than other OECD-countries. In 2004 Sweden and Denmark shared with USA an unemployment rate of less than 5%, Norway fared best with just 4%. Finland, though celebrated for its high

international competitiveness, shared the ill fate of a number of EU countries with unemployment around 9% (ibid., p 171). Since then unemployment went down to extreme low levels through 2007 while increases were seen in Anglo-Saxon countries.

Perhaps it is one of the most important achievements that the Nordic countries managed to reduce the above average unemployment among the labour force with short education (ibid., p 50) without introducing a dual labour market structure as in the US. Compared to the US with wage differences between high and low educated at the level of 160%, Denmark is the most equal with only a difference around 40, Sweden 50, Finland 59 and Norway 62% (ibid., p 51). This is also reflected in Gini-coefficients, where all the Nordic countries, together with Slovenia show the lowest coefficients (from 22 to 24) among the EU-countries (European Commission, 2004, p 161). In Denmark, and to a lesser extent in Norway, wage differences between the two groups were reduced, while in Sweden and Finland it increased (10-15%) (Økonomi- og Erhvervsstyrelsen, 2006, p 52).

The proportion of long-term unemployed (more than 12 months) as percentage of all unemployed was especially reduced in the Nordic countries from 1994 to 2004. In Norway from nearly 30% to only 9%, in Sweden from 25 to 19%, in Denmark from 32 to 22%, and in Finland from 38 to 23% (ibid., p 171). In short, the Nordic countries seem to have been able to improve their abilities for creating social and economic space, i.e. inclusion, for an increasing number of social groups, though globalization has made it increasingly difficult for many to hold on to usual jobs.

These measures – international competitiveness, the high proportion of the population being economically active, low unemployment, low or no public and foreign debt, etc. – indicate that the Nordic countries have solved the crisis and the short-term threats that came with globalization. It does not say how well they score concerning long-term development potential. In need of a comprehensive theory of development in the new economy, we are unable to predict the longer-term prospects. The World Economic Forum Lisbon scorecard constitutes an index in which the focus of interest is on how well countries develop the characteristics that enable them to change towards modern, knowledge intensive economies, and as such it is at present one of the few indexes that aim at comparing how well countries have developed a development potential. In 2002 Finland was the only EU country that on average outperformed the US on the Lisbon scorecard (World economic Forum (WEF),

2002). In 2004 Denmark and Sweden followed Finland on the 2nd and 3rd place, all three outperforming the US and the UK (as they had done in the latter case since 2002) (WEF, 2004). In 2006 6 EU countries ranked higher than the US, with Denmark in the top followed by Finland, Sweden, the Netherlands, Germany and the U.K (WEF, 2006). What is remarkable in these developments of comparative development capability is that not only that the Nordic countries but also a number of likeminded welfare state countries like the Netherlands and Austria have improved their relative position vis-à-vis the Anglo Saxon countries.

Most benchmarks that position the Nordic countries in high rankings, including the Lisbon scorecards, are concerned with how well the regulatory regime gives space for capitalist enterprise, entrepreneurship and the free reign of market forces. Some emphasize the outcome of a free enterprise economy in terms of employment/unemployment rates, income distribution and innovative performance, which are all areas where markets and public policies need create dynamic complementarities so that theoretically recognized market failures do not lead to sub-optimal welfare outcomes. Others emphasize the ability of the state to create a healthy macro-economic set of balances of public budgets, trade-balance, inflation, etc. The Lisbon scorecards take us a step forward by assessing how well the infrastructure is developing in favour of sustaining an information- and networked economy, and to which extent the population is taking part in it.

However, none of these measures readily address the more structural and newly emerging characteristics of the new economy, characteristics which are poorly recognized by general economic theory and abstracted concepts of markets and firms. Under globalization industries are restructuring in a very fundamental way, creating a shift in innovation modes that leads to an experimental economy, constantly redefining the roles and boundaries among firms (Herrigel, 2007). A deeper understanding of this process is needed before we can hypothesize why the Nordic welfare states may have reached a match between the economic process and their institutions.

1.2. Transformative dynamics of Innovation and Industry

Among policy circles and social researchers a broad consensus has spread that for highly developed countries to stay competitive under intensified globalization, they must move up the ladder of the global value chain and focus on innovative activities. Measured in inputs to

and outputs from such activities, the US is still the uncontested world leader according to all comparative indexes, but two Nordic countries – Sweden and Finland – seem able to contest the American leadership in most respects, while Denmark moves close if a broader set of data on innovation is used to construct the index. The growing debates about how to measure both innovative in- and outputs (Jensen et al. 2007; Innometrics 2008) are related to how production and innovation are becoming integrated in networks in the most advanced countries, and how societies “enable” firms to evolve in these new directions may be decisive for their macroeconomic performances. The U.S and the U.K may have been leading during the first phases of these transitions in both industrial and innovative organization, but the Nordic and other welfare countries may be quickly picking up?

Paradoxically the US leadership owes itself to a very strong leadership in the old Chandlerian Innovation System (ChIS) and to a first mover advantage in the new Networked Innovation System (NeIS), but with the emergence of the NeIS, new constellations of social institutions may provide better complementarities between industry and the state than in the US? In what follows, we shall try draw up the contours of the new economy as we see it.

1.2.1. The Chandlerian Innovation System (ChIS) and its pitfalls

In the aftermath of WWII and deeply associated with Fordism, the growth of large scale scientific, primarily military, programmes, Keynesian welfare states and the Cold War rivalry among social systems, we saw the emergence of what we will term Chandlerian Innovation Systems (ChIS). In the US this system was cultivated to the extreme by the reinforcement mechanisms of large corporations and military programmes. In ChIS governments were, in principle, responsible for advancing general science and basic research, while firms were building research laboratories that could guard scientific advances and turn these into novel generations of products and enterprises, gradually changing corporations from being functionally integrated into divisional forms. Schumpeter (1970, Part II) saw the emergence of the modern industrial laboratory as a routinization of innovation and entrepreneurship, as novel products would flow continuously from these labs and put an end to the traditional capitalist entrepreneur that had been the prime mover of technology during early capitalism. Freeman (1974) confirmed statistically this picture. An increasing number of manufacturing branches were dominated by firms that invested in large labs comprising a large number of persons, representing a multiplicity of scientific disciplines, seen to be necessary in order to develop products within advanced sectors. To Freeman this gave a new twist to oligopolistic

competition, as firms had to pay a certain price or pass a certain threshold of scientific personnel in order to become first movers or early followers in the contest of bringing new products to the market (or to the military).

Some saw this innovation mode to pose a new problem for small developed countries. These would face a competitive squeeze between large countries able to build up highly diversified scientific infrastructures and industrializing countries, able to enter mature product markets with a huge army of cheap workers (Kristensen and Levinsen, 1982). There seemed hardly to be any space in international competition for such small countries as the Nordic welfare states – though Sweden seemed much better than the other Nordic countries to follow suit with this evolution, with a number of large scale technology programmes and highly advanced firms. To be in the game, small countries seemed forced to pick a winner strategy and specialize R&D in a coordinated way, but this was also very risky. In many ways Sweden constituted a test-ground, creating military high-technology programmes, concentrating much power in the hand of a financial elite that could coordinate the allocation of resources to a limited number of very large enterprises that quickly grew international.

In the ChIS, firms create research labs that include all the scientific disciplines necessary to develop a new product and to protect new products from competitive imitators by concealing the development process and taking out patents before releasing the products. In such laboratories the development work is often split up into pieces and deliberately kept away from the normal factory floor to disable individual researchers, engineers and employees from getting the whole picture of an emerging product, which rests with project managers and top executives, whose loyalty economic and positional incentives secure. Obviously, this way of organizing innovations in the making is highly costly. The advantage for the involved corporations is that only a few players can afford to be part of the game. For that reason monopoly or oligopoly profits can be expected from the innovation process – not to speak of the societal gains in terms of employment, trade balances and military power for the country in which innovation takes place.

In many ways, the ChIS still constitutes the basic framework from which politicians, economists and state bureaucrats have coined new policies for how developed countries can move towards knowledge societies. They believe the knowledge society constitutes the necessary context for firms to renew, on a continuous basis, oligopolistic market positions by

holding and continuously renewing patent pools, making it difficult for new entrants to compete. The perspective has nested a whole generation of innovation system scholars that have tried to discover and invent new linkages between the public and the private sector in search of new supply-oriented policies for enhancing innovative performance of mature economies. The latter is believed to allow for employing highly paid employees, trade surpluses, cheap global finance, etc., making it possible for mature economies to achieve prosperity at a time where Newly Industrializing Countries (NIC) challenge their traditional industrial products.

From the 1970s these visions became shared throughout the world. If a country had no indigenous firms capable of establishing large R&D labs, governments would often step in and finance large programmes or labs that could compensate for and lead to the evolution of ChIS. Countries such as France, Sweden and Norway, with strong planning ties between firms and the state, became early adopters of such policies, making it possible to enter post-war programmes in nuclear energy, computer-development, weapon systems, etc. In Finland such policies used to be more oriented towards core-sectors such as pulp-and paper, while in Denmark innovation support more came in the form of general technical institutes supporting whole industries, on the one hand, and advanced demand from an advanced public sector (medicaments, hospital- and measurement equipment, hearing aids, etc.). Picking winners among firms and technologies, and supporting their build-up of large labs, was also a favoured strategy, for instance in many NICs such as Taiwan, Israel, Ireland. All over the world there were examples of such moves, leading to the diffusion of ChIS – but increasingly in a variety of different distinct constellations.

No doubt, therefore ChIS and its peculiar dynamic still makes itself felt, in particular in the military sector and pharmaceuticals, where secrecy is vital not only in relation to competitors, but also because government procedures for approving and testing novel products make the R&D process very lengthy and costly. Since Freeman (1974) investigated its foundational characteristics a huge number of confusing problems and phenomena has, however, contested the functionality of ChIS, which has led first to questioning its mode of working and then to a qualitative change in a number of core characteristics. Researchers are, perhaps a little reluctantly, in a process of discovering and understanding that a much more Networked Innovation System (NeIS) transgressing corporate and national borders are in the making?

First, by diffusing the ChIS to a multiplicity of countries, the probability of firms gaining monopolistic or oligopolistic positions in a complicated new high-tech product is reduced, because many corporations and countries are rushing to develop similar future products and markets. Together with a number of other factors this has effected an increase in the speed of innovation and a shortning of the product cycle. Thus the costs of pursuing the ChIS model for individual countries and corporations may increase, while the probability of harvesting gains is being reduced. ChIS has become a high-risk business. In effect, the rate of failure has increased exponentially. Due to its exceptional fast diffusion the ChIS is facing a so-called crowding out or poison effect. Second, by building up ChIS in many countries, knowledge and innovative search has spread from a few, large Western countries to most of the world, offering the world an enormous complex of different sources for inventive inputs. Third, investigating large R&D labs, von Hippel () found that research organizations of the ChIS type would first be quite unproductive, then witness some years of high productivity and then decline in inventiveness, suffering from the “not invented here syndrome”. Probably what happens in such research labs is that they become closed around themselves, partly because of imposed secretes among members and towards the outside. They become so to say self-limiting by coming of age, and yet one of their ways of protecting their assets is to keep people tied and loyal to the lab. Sweden, in particular, seems to have suffered from this as it proves low outcomes of very high levels of spending in R&D in large firms (Mariussen, 2006).

1.2.2. External Challenges to the ChIS

Against this background it was hardly surprising, though observers at the time when it started to be recognized were surprised, that small- and medium sized (SME) firms were more inventive than large firms. However, it was believed for a while that large firms’ R&D labs were more efficient in bringing novel ideas from a premature to mature level in the innovation chain, not least because such labs were embedded in environments rich on resource and thus better on marketing capabilities.

Yet, from the 1980s onwards it became clear that clusters of SMEs in industrial districts were not only able to compete with large firms in mature industries, but also to organize production in flexible ways. In effect new product-cycles could be launched with higher frequency and be more differentiated to different groups of customers than was possible for ChIS that was heading for significant changes in product models for mass-markets, supported by large scale

investments in productive facilities. Often gradual differentiation and product-modification of SMEs ousted the new products that ChIS had in the pipeline, making the latter products obsolete from their introduction. This period was the heydays of Italian industrial districts. Also Japanese and German car manufactures were increasingly basing their products on networks of suppliers each capable of innovating on parts and subsystems of the car, leading to continuous improvements of products – even during the same “model” (Piore and Sabel, 1984). One could say that the ChIS and the emerging NeIS were being integrated.

But the ways of organizing innovation activities were also contesting each other. Even in the core economy of the ChIS, the USA, observers discovered that areas such as Silicon Valley were based on many small innovative companies, connected by a very fluid labour market in which employees would be moving among various projects, depending on which firms were active in inventive processes and could offer challenges that permitted high-tech engineers to keep abreast with the fast moving and changing skill requirements (Saxenian 1996, Barley and Kunda, 2004). One of the reasons why Boston was less inventive during these years was probably the tendency of firms in that area to be more inclined to organize R&D labs after the model of ChIS, even in medium sized firms, reducing the options for re-combining and developing new skills as technology changed.

Numerous large firms tried adapt to these new tendencies by setting up venture departments to search for and invest in up-coming stars from the outside, to use these to speed-up their internal innovative performance. The Boston Consulting Matrix created a mind framework for working with divisionalized firms after a novel concept of how portfolios of investments should be distributed. On the other hand, small inventive groups of researchers and development engineers started to organize themselves in ways making them visible to large investors – to gain riches though they were far from or even wrongly routed for a successful product. Such mutually adaptive ways of behaviour, rather than giving way for a new self-reinforcing innovation system led to bubbles – such as the bio-tech and the IT-bubbles.

These were confusing years – also in the Nordic countries. Whereas Norway generally moved away from an economy with high state-ownership in industry and a high profile in government funded industrial research; Denmark liberalized its sector- and branch-institutes; Finland took a very different route and leap-frogged its public and private spending in R&D,

creating one of the most admired Innovation Systems around 2000. Nokia emerged as the focal enterprise of this transition from a raw material based to a high-tech economy.

1.2.3. Steps to an ecology of a new innovation system

Yet, the outcome of these successful and failed experiments moved the world from a pattern of discontinuous cycles of innovation followed by stable mass-markets to one in which innovation has become continuous as new parts and pieces for integrated products pop up from everywhere in increasingly decentralized, global value chains. *Wintelism* was used for a while to signify the new situation where firms use components from famous, innovative suppliers of parts and programs. Under such conditions organizing product innovation after the earlier ChIS recipe is almost self-defeating. According to ChIS, R&D personnel will work in a highly planned way with the new generation of a product shielded off from the external context and in such a way that nobody – apart from project managers - can see the whole blueprint towards which the lab is heading. To make proper use of outside suppliers the boundaries of corporations must be opened up.

For this reason, and to speed up the innovation process, labs have experimented with novel ways of organizing work. A new template for doing innovation is concurrent or *simultaneous innovation* (Helper, Duffie and Sabel, 2000) where the idea is to bring people together across specialties and let them communicate rather than separating them to secure secrets:

Design follows a disciplined, decentralized process known as simultaneous engineering. Each subunit (internal or external – PHK) responsible for a constituent component proposes modifications of the initial plan, while also considering the implication for like proposals from the other subunits for its own activities. Provisional designs are thus evaluated and refined, and the cost of each attribute is compared to its contribution to functionality using the technique of value analysis/value engineering.

Once production begins, systems of error detection and correction use breakdowns in the new routines to trigger searches for weaknesses of the design or production process that escaped earlier examination. As in pragmatism, the continuous adjustment of means to ends (and vice versa) is both the means and end of collaboration among the producers. (Ibid., pp, 29-30).

Together simultaneous engineering and systematic error detection has created a new *experimentalist dynamic* in a number of sectors and places of the world, and for any nation, sector, region or firm to become truly innovative it must cultivate endogenously the new ways of working with innovations and connect to firms and regions that already work in novel ways (Unger, 2007). Seen from this perspective, globalization do not only offer tense competition but also ongoing promises in the form of possible networks among highly experimentalist economic entities that may bring societies, employees, regions and firms with quantum leaps in development. A major question for this book is whether, to what extent and how the Nordic countries have been engaged in these new dynamics?

The new practices do not come automatically and are not equally easily implemented in companies throughout the world. For instance, as Lam (2005) shows in her comparative study of British and Japanese engineers collaborating on an innovation project, differences among countries are largely dependent on the structuring of the general labour market. Where in Japan the *nenko* system makes it fairly easy to practice simultaneous engineering as people can work jointly on a first draft of a product, and then engage in multiple and shifting combinations of continuous improvement of it, because they expect to be recognized by their colleagues and superiors within the firm, British engineers are in a very different situation. They neither expect nor opt for life-long employment in the same firm. Thus if they want to advance their career through the external labour market, they need to have their own separate contributions recorded in their CVs. This in turn requires that their tasks are specified and can be isolated from the larger project. This again calls for close planning from the outset of a project and the recruitment of different specialists qualified for specialized, distinct and pre-specified tasks within the larger project. This makes it very difficult to practice simultaneous engineering. Thus if firms want to reform their labs by increasing the flow of manpower in and out of their facilities with shifting projects, they may face difficulties in changing their internal work organization towards a mode of working that faster produces better results. Thus the very form of organizing innovative activity in ChIS is limiting its possibilities for reform.

But corporations are generally forcing economies to take steps in the direction of experimentalist practices. First, as trendsetters within financial “markets” started to question some of the basic organizational traits of the divisionalized firms, managers were forced to change behaviour. While divisionalization into diverse activities that could mutually stabilize

cash flows and business cycles was earlier regarded as beneficial, financial institutions in the late 1980s held the view that this would lead to managerial incompetence and make it difficult for shareholders to assess the performance of a corporation. Concepts such as “core-competencies” have since become tantamount to strategic planning for corporations wishing access to cheap financial resources from the stock-market. But this is also undermining the rationale behind centralized large scale R&D-departments and increases pressures for outsourcing. Second, chasing cheap financial resources lead to waves of mergers and acquisitions as corporations try to regroup from earlier conglomerates of businesses towards being more focused on core competencies. In effect large corporations buy up entire corporations with many individual subsidiaries, sell off both new and old subsidiaries, essentially winding up with corporations where only a few HQs top executives know what is going on. To show results for financial investors, they eagerly impose on their subsidiaries monitoring principles that lead to simultaneous engineering and pressures for continuous improvement. Subsidiaries of corporations are mutually rivalling over innovativeness and cost-effectiveness to improve their position. Some of the best try to comply by innovating into new mandates partly to serve their owners to the best of their knowledge, partly to break out of the deadlocks that they feel their owners are opting towards. In any case subsidiaries try pursuing low budget innovative strategies by building ties to the contexts in which they are embedded and to innovate through collaborative ties with customers, local institutions and suppliers (Kristensen and Zeitlin, 2005; Sölvell and Zander, 1998). In this way the institutional environment, the labour market and the larger local cluster of enterprises becomes highly important for the ability of different subsidiaries to gain comparative advantage over their sisters. As some MNCs see this as an opportunity to gain cost reductions in innovation activities and start deliberately distribute R&D budgets globally, subsidiaries rather than corporations develop portfolios of novel potential technologies that provide for them an enlargement of future possibilities (Sölvell, 2003) – more connected to the science parks, industrial districts or clusters in which they are embedded than with the multinational of which they are part.

As Herrigel (2007) demonstrates this means that firms must constantly redefine their roles towards other firms so that the division of labour among them is constantly being revised to reduce costs and speed up the innovation cycle in the global value chains of which they are part. Consequently, firms, as parts of global value chains, are engaging in mutual ongoing redefinition of roles and rules.

The point is that relations are extremely dynamic and heterogeneous in contemporary manufacturing, both within firms and between firms. The role of customers and suppliers in any given bidding round are fundamentally ambiguous, even to themselves. The division of roles only becomes clear through repeated interaction and reciprocal efforts to define the possibilities and limits of a jointly defined project. And even then, it is merely provisional, stable and clear only until the end of the project and the beginning of another bargaining round.

This role ambiguity is accompanied by, bound up with, and exacerbated by a growing ambiguity regarding the territorial scale of production. Under pressure to innovate and reduce costs, customers and suppliers seek to achieve their goals wherever they can: components can be drawn from far away or nearby, collaborators identified in foreign locales or in neighbouring cities. As in the distribution of roles, this ambiguity is only resolved in the process of interaction. Customers and suppliers both have an incentive to expand the terrain in which they can both learn about new technologies and produce them profitably. Crucially, this does not involve abandoning the most local and proximate locations for production. Rather it involves supplementing the capabilities of local agglomerations with those of other places.

Role and scale ambiguity are currently constitutive of industrial practice across the world's industrial economies. Continuous pressure for innovation and cost reduction are the drivers of this ambiguity and a vertically disintegrated supply and value chain with highly volatile and heterogeneous relations are its manifestation. The emergence of these kinds of relations in industry has generated tremendous pressure for change on all the institutions that constitute national business systems—in industrial relations, vocational training, finance, welfare provision, regional industrial policy. (Herrigel 2007).

However to be able to make constant external re-definitions of roles, firms must internally decentralize to operative levels responsibilities for continuous improvements so they can be quickly recomposed. So-called high performance work organizations (HPWO) striving for

continuous learning become part of the experimental landscape, such as team-based organizations and lean managerial techniques. But decentralizing to teams the responsibilities for continuous improvements, demands more skills of the employee, which simultaneously enable them to contribute to innovative activities, in turn undermining the traditional demarcations of jobs within firms between those that work with formal R&D and those in production, making it less than easy for managerial apexes to coordinate these activities.

Life in organizations shifts character and means:

- a. a levelling of hierarchical distinctions,
 - b. an interpenetration of units designed to enhance the integration and maximize the coordination of previously autonomous functions
 - c. a dramatic increase in the amount of behavior that is not rule-bound,
 - d. hiring and promoting people who are creative and have a feel for the job,
 - e. shifting assignments in and out of flexible work teams, and
 - f. more widespread access to information within and across organizations
- (Carnivale 1991; her citeret fra Hage and Powers, 1993:5)

Compared to the bureaucracy of Weber, these changes are radical. Whereas bureaucracy so to speak structured social interaction between fixed and stable routines and roles in a rule-bound way, continuous interaction (mutual negotiations, adoption of new ways of coordinating and governing) triggers change in emerging organizations leading to the formation of roles that are non-bureaucratic. A number of forces further reinforce this:

- a. As the pace of technological change increases people change roles more often, and these requires adjustment.
- b. As technology releases people from more routine activities, roles focus more on problem solving, which requires that people be able to "read" clients in order to ascertain what their problems are.
- c. The more advanced technology becomes, the more progress we make in overcoming small, disciplinarily narrow problems. Consequently, we spend more time addressing interdisciplinary problems with people from different fields, who speak different disciplinary languages, with all the communication problems that this entails.

- d. Demand for customized products, services, and personalized attention means that scripts must be supplanted by individualized treatment.
- e. The breakdown of traditional institutions throws even the most clearly defined roles of the past open to renegotiation.
- f. The deconstruction of occupation, department, hierarchy, and even organizational boundaries means that scripts in jobs are being replaced by high amounts of interaction and role redefinition (Hage and Powers, Ibid: 93).

Re-defining the roles of firms in larger value chains and the organization of work in HPWO is self-reinforcing because teams can easily be eliminated or new ones created. This process may in itself offer employees opportunities to learn to be reflective and communicate with associates to deliberate the constant change of work-arrangements within and among teams. But though the process could be self-propelling, when first initiated, it might involve many institutional preconditions to allow for it to happen in the first place. Whether employees are willing and able to take on such responsibilities depends on how institutions co-create employees through education, community life, etc., and the way in which professions balance openness and control over job jurisdictions.

Sabel (2006) sees the transformation of firms as one of introducing “revolutionary routines” or routines which are constantly changing by trying to transgress existing boundaries of work – both in terms of innovation and of improvement. They do that by expanding search and the networks through which search takes place. In this way, one may imagine that a firm can expand its search-network by expanding the number of employees that have access to search-networks. This again is often dependent of with whom external to the firm that different employees are interacting, and how they move in and out of companies (Barley and Kunda, 2004). The more employees meet with colleagues from other corporate settings, the better they may be able to overcome the barriers for creating search-networks. This again may depend on institutions, such as centres for continuous training, professional societies and union arrangements.

Whereas government funded research and universities used to be the dominant institutional matrixes for such open communication and search-networks, today we are witnessing a set of revolutions much closer to the boundaries of firms. Saxenian (2006) gives an example in her

latest book demonstrating that the influx of especially East-Asiatic students to elite universities such as Stanford provides an important ground for creating the mobile labour market that has made Silicon Valley so innovative in the first place. As many of these foreign students later return to their native countries, often very rich in terms of money and experience, the foundation for worldwide nexuses are created. Another example is the Linux-network within which IT-workers jointly can expand their knowledge and innovativeness during spare time and turn gained experience into skills that can be harvested economically, when working for private firms during temporary contracts. Such networks may simultaneously have a social dimension, such as the quasi-professional networks created in the labour markets that Barley and Kunda describe. In Denmark, we have found such networks among e.g. CNC-workers, who have met during a number of further training courses, got to know one another, and are now drawing on each other when facing novel problems. Such networks might become communities for developing and assessing skills much more properly than either their general profession or the firm in which they are working. Obviously, the Internet provides an ideal media for easily organizing such webs of contacts that help form temporal sub-professional communities. IT-professionals say that on average it takes 15 minutes over the Internet to find a solution to a programming problem, if one knows how to address the right communities in the right way.

The existence of collaborative communities changes the role of entrepreneurs, designers, etc. To bring a number of representatives from diverse communities together under a joint aim in a process of simultaneous engineering makes it possible not only to re-combine a number of specialties, but also to benefit from a number of other commons with each their different vegetation of skills and knowledge. The problem of capitalist corporations, however, is that they would like to draw on these resources, but owe their future prosperity to their ability to privatize the use they make of them and by returning as little as possible to the commons. Existing professions might in a similar way have an interest in relating their own members to such commons, but try keeping other professions and groups of workers away to protect their own interests. The possibility of opportunism and free-riding is huge, also at the level of individuals (Boltanski and Chiapello, 2007). Dependent on how national innovation systems were organized in the past, different routes to and versions of NeIS may emerge in the future. For that reason, in what follows, we will first give a gross-picture of what the national systems looked like in the different Nordic countries to preliminary assess their functioning in the transition from ChIS to NeIS.

1.3. Innovation and Business Systems in the Nordic Countries.

If we search for a general explanation of why the Nordic countries have performed well in the last 10 years, it is certainly not because they have developed a distinct and similar innovation system. The state seems to play very different roles in the four Nordic countries in terms of public spending on R&D. For instance, Denmark is a middle-range country in term of public spending on R&D (together with countries such as Germany, Netherlands, Japan and Great Britain – i.e. close to the EU-average). On such indexes Finland, Sweden and Norway (in that order) score much higher (Økonomi- og erhvervsministeriet, 2006, Figure 6.6., p 99). Concerning Gross Expenditure – that is when private sector spending is included - on R&D as per cent of GDP, Sweden leads the Nordic league (more than 4% and close to the American figure), whereas Finland follows right after (3.5%) and with a gap to Denmark (2.3%) and Norway (1.6%), because the private sector is a low-spender) (Mariussen, 2006, p 229). This indicates that in Finland and Sweden, the state shares risks in R&D with private companies.

Mariussen has analyzed how these input-factors correspond to different new measures of output, showing that whereas Finland and Sweden by these inputs generate a share of turnover by new or improved products at the level of 25%, Denmark follows at the level of 20% and Norway at 10%. If only new products are included, the ranking shifts with Finland at the top (22%), Denmark second (10%), Sweden third (only 6%) and Norway at the bottom (3%). In terms of efficiency (turnover divided by innovation costs), Denmark performs markedly above the rest, followed by Finland with a gap to Norway and with Sweden at the bottom. Mariussen uses these data to characterize the differences in their business systems' way of transforming and innovating (Mariussen, 2006, p 228-232):

- Most Norwegian companies are process-oriented, focussing on incremental process innovations rather than new products. Engaging in too much R&D is seen as increasing costs, whereas gradual rationalizations save on costs and manpower.
- Swedish corporations share many similarities with advanced Japanese and German firms by having sophisticated and advanced knowledge bases, highly developed industrial organizations, owners with a profound interest and financially backed commitment to technology and knowledge. Large-scale projects organized across firms and between the public and private sector characterize the innovative dynamic.

- Finland demonstrates a “transformative” ability as it is able in a coordinated way to re-allocate industrial and knowledge resources into novel areas and turn-around the entire economy after the 1990 crisis. Nokia serves as a paradigmatic case in point, showing that coordinated market economies are indeed able to undertake major transformations.
- Denmark is able to make rather modest investments in R&D very effective in producing a high output of new products by making use of skilled employees (a craft system of innovation) and tight contacts to customers. Interestingly, in no other country are SMEs as R&D intensive and spend as high a percentage of GNP on R&D as in Denmark (Økonomi- og Erhvervsministeriet, 2006, p 109).

Consequently public spending on R&D is supportive of very different innovation processes in industry in the different countries, and the different patterns could indicate that there are problems involved in changing towards NeIS as they mostly were created in support of ChIS. The inner working of these national innovation systems are difficult to comprehend. For instance, in both Norway and Finland private business co-finances to a high degree public research, which is not the case in Denmark and Sweden (*ibid.*, p 102). Paradoxically universities are more frequently the sources of innovations to a higher proportion of firms in Sweden than in Denmark, Norway and Finland, with Finland at the bottom, probably because universities in Finland cooperate with a smaller segment of firms. Within this segment, however, the ties seems very close:

A comparative survey conducted by the European union in various member countries shows that by the turn of the century 70 per cent of all innovating companies Finland had established contact with R&D institutions or educational institutions On this indicator Finland had the highest position among EU countries. (Moen and Lilja, 2005: 370).

Whether this is an indicator of a transformation towards a NeIS or an integration towards a ChIS remains to be seen. The range of search and networks are here the determining factor. But the Nordic countries’ seem all to cultivate their infrastructure for innovative collaboration. This is expressed in phenomena such as e-readiness and digital infrastructures

where they all rank among the 10 best in the world (Økonomi- og Erhvervsministeriet, 2006, p 201; Arnal et al. 2001, p 12).

The current situation in the Nordic countries is an outcome of very different moves within them. For instance, in Denmark a rather well-developed sector-oriented system of technical service institutes have been subject to radically reduced public financial support, making most of them dependent on their ability to sell services to customers. The same has happened in Norway, where large scale technology programmes have been “privatized” in a similar way. In Sweden, the debate has often focused on how its large MNCs have engaged in re-allocating globally its R&D facilities. But to our knowledge no analysts have assessed what these moves in the Nordic countries have implied for their evolution towards globally NeIS. Only in the Finish case do we know that a more coherent national innovation system has developed, but the question is whether this is simultaneously used as a platform for better integrating into the world of experimentalist practices? The same is true for the “innovation systems” of the other countries, where the current situation is in need of in-depth case-studies of how firms have reoriented themselves to be assessed.

On the level of enterprises, however, European Working Conditions Surveys demonstrate that work seems to be organized in the Nordic in ways very different from most other countries. As is indicated in the following figures, the three Nordic countries within the EU have all developed towards the “learning” form of work organization (Lorenz and Valeyre, 2003, p 13).

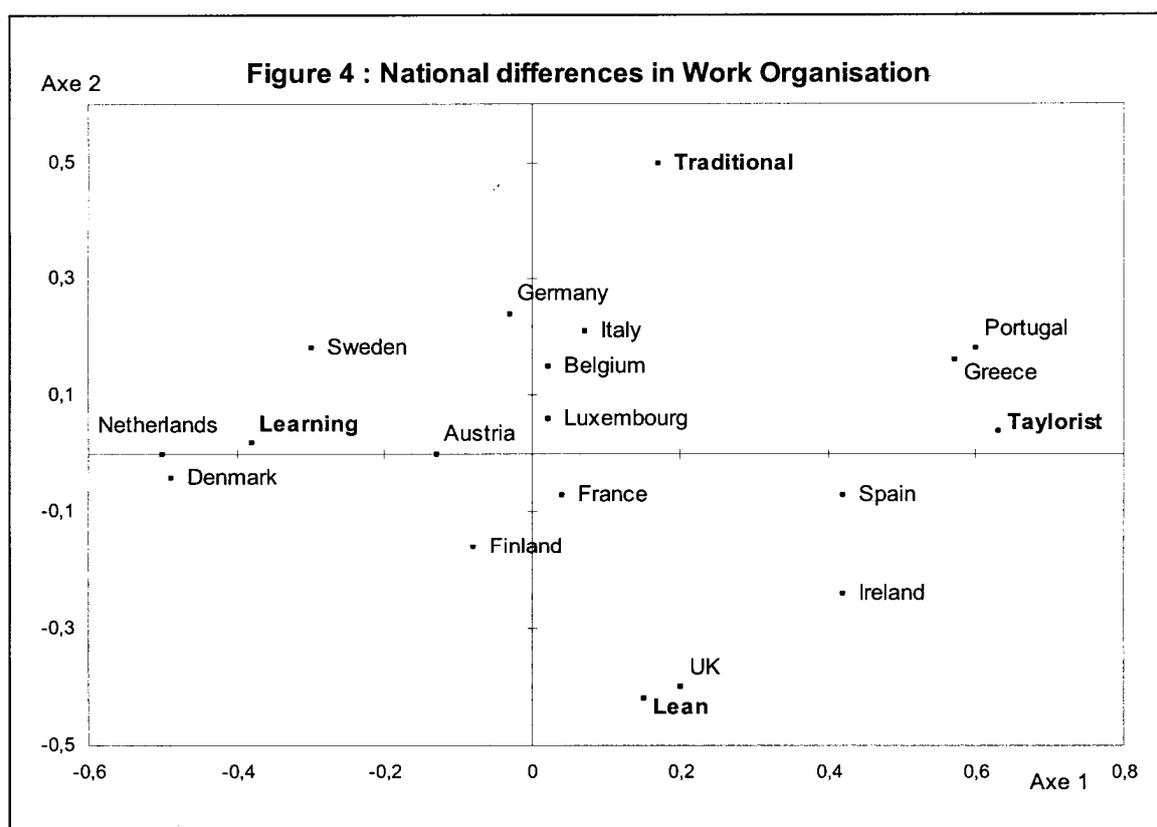


Table 6
National Differences in Organisational Models

(percent of employees by organisational class)

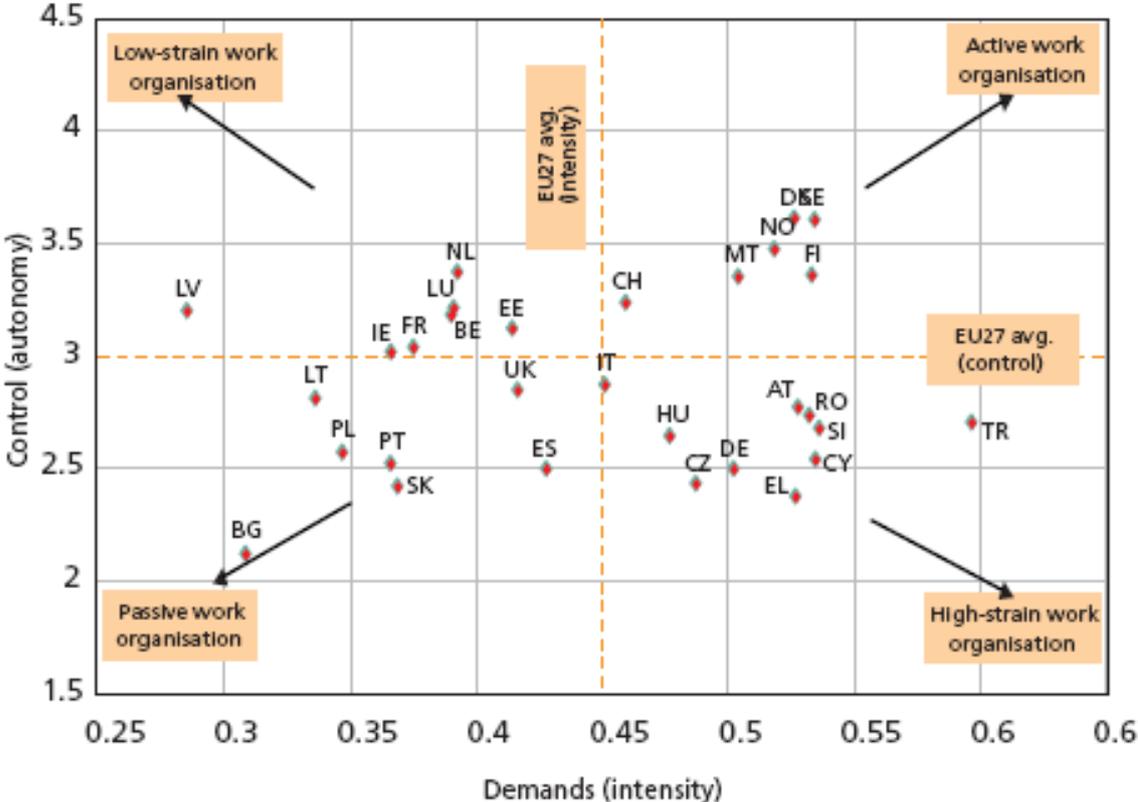
	Learning organisation	Lean production	Taylorism	Traditional organisation
Belgium	38,9	25,1	13,9	22,1
Denmark	60,0	21,9	6,8	11,3
Germany	44,3	19,6	14,3	21,9
Greece	18,7	25,6	28,0	27,7
Italy	30,0	23,6	20,9	25,4
Spain	20,1	38,8	18,5	22,5
France	38,0	33,3	11,1	17,7
Ireland	24,0	37,8	20,7	17,6
Luxembourg	42,8	25,4	11,9	20,0
Netherlands	64,0	17,2	5,3	13,5
Portugal	26,1	28,1	23,0	22,8
United Kingdom	34,8	40,6	10,9	13,7
Finland	47,8	27,6	12,5	12,1
Sweden	52,6	18,5	7,1	21,7
Austria	47,5	21,5	13,1	18,0
EU-15	39,1	28,2	13,6	19,1

Source: Third Working Condition survey. European Foundation for the Improvement of Living and Working Conditions

This “learning” form of work organization is “characterized by over-representation of the variables autonomy and task complexity, learning and problem solving to the extent of the variable measuring individual responsibility for quality management. The variables reflecting monotony, repetitiveness and work rate constraints are underrepresented. This cluster would appear to correspond to the Swedish socio-technical model of work organization or to what Freyssenet (1995) has referred to as “reflexive production” “(ibid., p 6). The learning mode of organization and the room for applying own ideas at work seem systematically to co-variate with universal welfare states, placing the Nordic countries in a very distinct situation compared to other EU-countries. Thus these data suggest that in the Nordic countries, organizations have shifted faster toward NeIS than any other comparable European countries, when it comes to work organization.

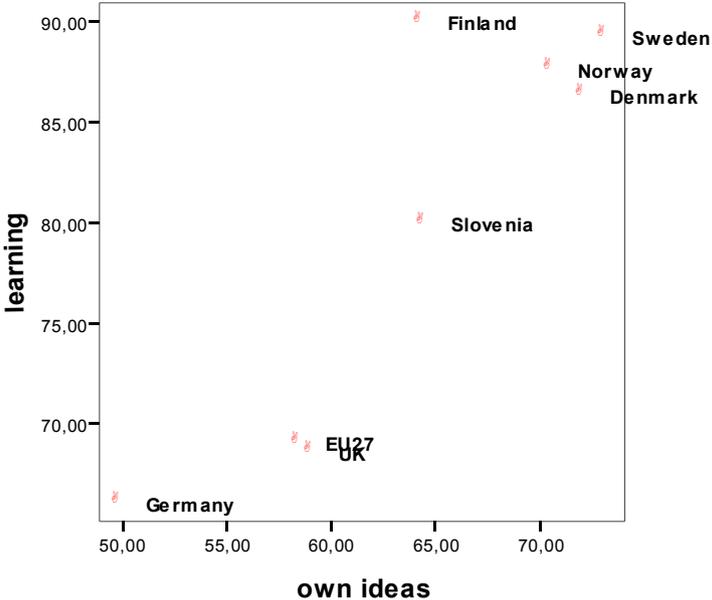
This co-variance becomes even more pronounced, when we consider the following figure from the Fourth European Working Condition Survey (European Foundation for the Improvement of Living and Working Conditions, 2007: 60):

Figure 6.12: Job demands and control, by country



The figure clearly shows that all the Nordic countries (NO, FI, DK and SE) are uniformly combining the highest degree of work autonomy with the highest degree of demands on work-intensity. Interestingly, if different occupations in Europe are sorted after the same criteria, the general work situation in the Nordic countries resembles mostly that of managers (Ibid, Figure 6.13) – but in the Nordic countries all employees work as if they were managers. Work-intensity is high neither because the pace of machines (Ibid:54) or high demands of superiors (Ibid: 57), as these factors are lower in the Nordic countries than anywhere else. Demands from people (customers, suppliers, colleagues) set the pace of work, suggesting that employees work in a way that we would expect if they were engaged in NeIS. The same is indicated in the figure below, showing that people to a higher extent than in any other European countries is both learning new things and applying own ideas at work in the Nordic:

Nordic countries, Slovenia, EU27, UK and Germany:
Generally, does your main paid job involve learning new things ..
You are able to apply your own ideas at work
 Fourth European Working Conditions Survey



Source: Åge Mariussen adapted from (Ibid)

Thus the Nordic countries seem to have made it possible for firms and employees to develop work organization that may be highly compatible with globalization and the new experimentalist economy.

Though these forms of work organization are highly intense they seem not to cause dissatisfied workers. The two countries ranging lowest on the proportion of employees dissatisfied with their jobs are Denmark (5%) and Finland (7%), while in Sweden it is 15% (European Commission, 2004, p 166). In the Nordic countries working conditions are among the best concerning health and safety risks, and working hours are much more compatible with family and social life. Because of highly elaborated organs for employee participation, workers become co-designers of jobs and work organization. This leads not only to the protection of workers, but, as Arnal et al. (2001, p 47 ff) argue, also a high correlation between worker representation and the scale and speed of the diffusion of novel work practices.

1.4. The Distinctiveness of Nordic Welfare States in the transformation to experimentalist economies and NeIS

The question is whether the significant co-variance between “learning organizations” and the Nordic Welfare States can be seen as an institutional effect? The transition to experimentalist economies, new forms of work organization and NeIS has, in most countries, been painful for most social classes. In the US it has led to a dual labour market in which the ever-expanding number of new projects offers the financial community, lawyers, R&D-personnel, etc., great opportunities, while it has led to stagnating incomes for most middle-classes and factory workers and to low salaries or poverty for emigrant service workers (Reich, 1991). Similarly Boltanski and Chiapello (2007) have seen the emergence of the *projective city* as one that puts a premium on those that are highly mobile in networks making one project the admission to a new. This favours certain mobile elites of the French society, whereas those who are bound by young age, space, family, traditional occupations are outright excluded from entering the projective city, partly being exploited by the new economy. In some societies the networkers, the immobile and the excluded may co-create a complementary dynamic between “great men” and “small people”:

In a connexionist world, where high status presupposes displacement, great men derive part of their strength from the immobility of the little people, which is the source of their poverty. The least mobile actors are a salient factor in the profits that the mobile derive from their displacements. ...

If it is true that some people’s immobility is the precondition for the profits others derive from their ability to move around, and that mobility procures

incomparably greater profits than those who remain *in situ* can aspire to, then we may say that the immobile are exploited in relation to the mobile. They are exploited in the sense that the role they play as a factor in production does not receive the acknowledgement it merits; and that their contribution to the creation of value added is not re-numerated at the requisite level for its distribution to be deemed fair (Ibid, p 363).

Mobility in Boltanski and Chiapello's universe is foremost a question of being able to move among projects – physically or mentally. It is a question of not being tied to existing routines, loyalties, habits of life or possessions of property. But seen from this perspective most people from “humble stations” (Smith, 1969) do indeed seem quite immobile. They are simultaneously inscribed within a narrow or low education, tied to family obligations – both children and parents - dependent for the little they have achieved in terms of incomes on loyalty to a single employer and risking a lot if they neglect their space-bound obligations.

On the other hand, if we imagine a family, where both husband and wife should be able to live a mobile working life, engaging themselves in shifting projects with shifting working hours, where they temporarily have to be away from their house, their children and their normal jobs taking new courses or new educations, perhaps going abroad to set up a new plant, join an international project team, the challenge seems clear. Everything else being equal such a working life only seems possible for people with incomes high enough to pay for the services of others that can help them look after children, parents, the garden, etc. For that reason, it seems very difficult in France as well as in the US to transform from the ranks of the immobile to the ranks of the mobile.

The question is if the welfare state makes a difference? Could it be that the Nordic welfare states enable firms and employees on a broader scale to engage in the mobile life of learning organizations and NeIS? Mostly, observers hold the view that high taxes and incomes redistribution explain why the Nordic countries are more egalitarian than other societies. This might be the explanation in the past, but today this egalitarianism may be much more related to features that enable a higher proportion of the population to become mobile citizens of the experimentalist economy or the “projective city”.

André Sapir (2005, p 7 ff.) suggests that the Nordic Model combines high efficiency (as it provides sufficient incentive to work and therefore relative high employment rates) with high equity (as the risk of poverty is relative low). High efficiency the Nordic Model shares with the Anglo-Saxon Model, which is, however, low on equity. High equity it shares with the Continental (European) Model, which however is low on efficiency. The Mediterranean Model is low on both equity and efficiency. Efficiency in employment rates seems easier to achieve by unemployment insurance (as in the Nordic countries) than by employment protection legislation (as in the Continental and Mediterranean countries). According to Sapir, redistribution (via taxes and transfers) can only to a limited extent explain equity and the avoidance of poverty risk. However, “the correlation coefficient between the index of poverty and the measure of educational attainment” is very significant. “The proportion of the population aged 25-64 with at least upper secondary education is highest in the Nordic (75%) and Continental (67%) countries and lowest in Anglo-Saxon (60%) and Mediterranean (39%) countries, a ranking that perfectly matches the position of country groups in terms of poverty risk” (ibid., p 8)³. Perhaps there is no guarantee that education gives access to the projective city, but it seems quite evident that it provides individuals with an armoury to become more flexible and to get access to the means that make it possible to redefine one’s role more easily.

Hacker (2006) offers another clue to the difference. In his detailed discussion of retrenchment in American welfare he shows that such retrenchment has not taken place at a general statistical level. Rather, it has come in the US by an increase in risks themselves combined with state and political actors having abstained from recalibrating social programs to the new risk-profile that have come with globalization and changed family structures (ibid., p 12). Hacker summarizes the new risks and their consequences for the American society in this way:

The constellation of risk that citizens face has changed significantly in the past three decades due to linked changes in work and family (Esping-Andersen 1999; Skocpol 2000). In the employment sector, the shifts include rising levels of earning inequality, growing instability of income over time, increased employment in services and in part-time and contingent work, and increased structural (rather than cyclical) unemployment. In the realm of family relations, the changes include rising rates of divorce and separation, declining fertility (a

³ This may be further elaborated by the fact that apart from a few other countries in the Nordic countries less than 10% (and for Norway only 5%) leave school without a qualification (OECD, 2006, p 138).

root cause of population ageing), and the increasing prevalence of lone parent, female-headed families. Connecting the two domains is perhaps the most and fundamental shift in the worlds of work and family – the dramatic movement of women into paid employment. (Ibid., p 20).

Increasing inequality and a tripling of instability (between 1970 and 1990) of incomes follows in the wake of these new social risks in the US (ibid., p 23). Framed within the language of Boltanski and Chiapello many try or are forced to be mobile in the American economy, but fail and are faced temporarily or permanently with drops in family incomes. In such a system the threat of winding up in poverty, divorce and social de-route is huge – at least for the lowest strata. But the American outcome is not unavoidable:

In principle, U.S. social policy could have adapted to changing social realities. As the path breaking feminist writings on the welfare state show (e.g. Orloff 1993; Steson and Mazur 1995), some nations – most strikingly, the Scandinavian welfare states – have dramatically expanded public protections that help women enter the labour force and balance work and child-rearing. Many of these same nations have also tackled the new realities of the labour market with active employment and training policies (Levy 1999). Putting aside some modest exceptions, however, the United States did not follow this path. (Ibid., p 24-25)

As Wheelock and Mariussen (1997) show, the core characteristics of welfare states may influence to a high degree the dynamics within families and their relations to the labour market. For instance, in means-tested systems as in the US, there might be economic incentives for a breadwinner becoming unemployed to ask his wife to withdraw from a part-time job in order to get the maximum benefits, while in a universalistic welfare state where the social benefits follow the individual, an unemployed breadwinner might do household work to enlarge the labour market activity of his wife. In the first case, bad luck may double; in the second it may be exploited as an offensive opportunity. Social protection schemes in the Nordic countries may allow families to fail in the projective city without risking a dramatic social de-route, and on the other hand social services may enable the family members to take part in the unpredictable working life of the experimentalist economy.

Combined, this suggests the following reasons for why Nordic countries may differ from most other western countries:

- First, by offering their citizens much more equal educational opportunities they equip a larger proportion with the educational background for handling risks, shifts and changes⁴;
- Second, by sharing these (family and working life) risks with their citizens, the states help citizens transform from one job to another, from one life-phase to another, from a high to a low-income situation, etc., so that citizens can be continuously more economic active than in other types of societies.
- Third, by providing social services that make it possible to live a non-routinized, non-space- and profession-bound life for both females and males, it becomes possible for families to enter the experimentalist, projective economy and in this way enable “learning organizations”.

The institutions that support such risk sharing and servicing, we hypothesize, have grown in importance, sophistication and significance with globalization and increasing participation rate in the labour market in the Nordic countries. In most other social models, we expect these risks and the costs of services to have become privatized and therefore must be insured against or paid for by either employees or employers, thereby creating, among the population, very unequal capabilities to deal with them. Differences become bigger between the included and the excluded, and it is close to impossible to move from being excluded to become included, whereas the other direction is a permanent risk.

The state can share risks with families in two ways. First, by transferring cash benefits to compensate for lost or missing incomes in times of problems, temporary un-employment, etc., supporting families so that they can concentrate on getting a new job. Second, by providing services the state creates an infrastructure making it possible for families to live under the hectic pressure from the new forms of work organizations or, if in trouble, to help the individual back on her feet. NESC (2005, table 2.4) shows that the great differences between high and low performing countries in terms of employment to population ratios are their abilities to engage older people, women and persons with low levels of education into active employment. Not only are these latter groups exposed to greater risks than others, but they

⁴ This does not imply that they have solved the educational problems. Compared to Finland, Norway and Denmark and to a lesser degree Sweden performs poorly in PISA-tests

“exhibit significant heterogeneity with specific constraints potentially facing – for example – lone parents, people with disabilities, members of ethnic minorities” (ibid., p 30). In particular the very heterogeneous needs of such groups evoke a demand for tailor-made, individualized public services that can help them out of difficult situations. Developing an ability to provide such services for particular groupings may spur welfare state institutions to learn to act in ways that enable other social groups, for instance through active employment policies.

In terms of public services Sweden and Denmark ranked 1 and 2 among EU-countries in both 1993 and 2001, while Finland moved from 3 to 7 (ibid., table 4.1). The generosity of the Nordic countries is in particular significant when it comes to expenditures on disability and unemployment services (where Denmark is the number one spender) (ibid., table 4.7). But public spending on childcare, probably the most urgent for maintaining a family in the experimentalist economy, was also highest in the Nordic countries:

As a result of the system of comprehensive public financial support for childcare, enrolment rates for very young children under three years of age are around 40% or above in Finland, Norway and Sweden. Enrolment rates are even higher in Denmark and Iceland, the countries with relatively short periods of paid leave. On average across the OECD countries for which data are available, 23% of zero- to three-year-olds use formal childcare; in Austria, the Czech Republic, Italy, Greece, Germany, Mexico and Poland, it was less than 10% in 2004. (OECD, 2007: 135).

Child-to-staff ratios in childcare institutions in the Nordic countries are fairly low (lowest in Denmark and highest in Finland) (Ibid, p 144) and the staff is generally better educated in the Nordic countries (Ibid, 15 ff). In Denmark and Sweden similar services are provided for out-of-school-hours for school-children. In all Nordic countries, the percentage of a salary parents pay for these services is among the lowest of the OECD-countries.

The effects are quite convincing. Fertility rates are comparatively high, 1.77 for Sweden. 1.80 for Denmark and Finland and 1.84 for Norway, against the OECD average of 1.63. The general participation of women in the labour market is comparatively very high and extremely high for mothers and sole parents compared to other OECD countries, while child poverty rates are very low (2.4 for Denmark, 3.4 for Finland and 3.6 for Norway and Sweden)

(OECD, 2007: Table 1.1. p 16). In 1980 data suggested that fertility rates were lowest in countries with the highest employment rates for women (as we should expect), but surprisingly in 2005, OECD (Ibid, p 35) found that fertility rates are highest, where also female employment rates are the highest. However, without the Nordic countries' influencing the slope of the curve this latter relation could hardly be established. This is so more interesting as the tendency for women to work full time in double-income families is also highest in the Nordic countries (Ibid, p 47 n)

This situation does not necessarily mean that Nordic families generally find that they are in an ideal situation. An OECD (2007 B) study showed that Nordic families are indeed working many hours per week. Double-income families (aged 20-50 and with a child under six) are typically well off and both these and those who "just manage" have a high preference to get reduced working hours. Stress is rapidly spreading in the Nordic countries, indicating that people are "included" in the turmoil of the experimental economy. Without the support of an enabling welfare state this degree of inclusion would hardly be possible. The table below gives an overview of the extent to which the Nordic countries provide support for families (including the elderly) compared to the Anglo-Saxon liberal market economies and it is obvious that here lies a major explanation for their diverse constitution:

Table : Public spending as percentage of GDP on families and on elderly 1998 (1):

	Public spending on families	of which Services	Public Spending on elderly	of which services
Denmark	3.77	2.23	9.77	2.95
Finland	3.36	1.44	8.53	1.54
Sweden	3.31	1.68	11.17	3.71
United Kingdom	2.22	0.49	10.58	0.81
United States	0.51	0.29	5.20	0.05

(1): Cash amount for a two-earner family with two children as a percentage of GDP.

Source: OECD, 2007 B, p 66.

The Next table shows that among the Nordic Countries there are huge differences in how public services and transfer incomes are allocated on different activities, and it is obvious that the different Nordic countries act as enabler for very different types of behaviour.

Table 1: Expenditure on chosen benefits in PPS per inhabitant, 2005

Category / Country	SI	DK	SE	FI	NOR	A	EU-15	EU-27	SI vs. NORDIC	SI vs. EU 15	NORDIC vs. EU-15	
1 Paid sick leave	194	265	485	302	940	301	227	197	55%	85%	154%	
	In-patient care	444	990	610	592	1301	900	937	810	61%	47%	78%
	Out-patient care	729	449	873	806	689	775	725	631	103%	101%	98%
2 Disability pension	177	503	700	523	1020	410	287	255	31%	62%	200%	
	Accomodation	32	169	154	27	15	49	67	57	27%	48%	174%
	Home help	0	101	217	50	69	5	22	19	0%	0%	558%
3 Old age pension	1255	2055	2256	1787	1991	2318	2404	2096	62%	52%	85%	
	Anticipated old age pension	496	529	198	147	52	262	100	98	170%	496%	291%
	Accomodation	9	34	473	103	380	84	60	51	4%	15%	339%
	Assistance with daily tasks	0	455	191	71	261	21	38	32	0%	0%	629%
4 Survivors pension	69	0	179	233	109	103	287	245	50%	24%	48%	
5 Maternity allowance	41	152	181	113	195	29	40	35	28%	103%	372%	
	Parental leave benefit	68	-	-	58	60	1	17	16	117%	400%	341%
	Family or child allowance	163	273	214	232	294	627	306	263	68%	53%	78%
	Child day care	106	440	241	240	309	105	73	63	35%	145%	421%
	Accomodation	4	139	83	52	60	33	18	15	4%	22%	507%
6 Unemployment	52	371	330	393	205	217	254	215	14%	20%	144%	

	benefit											
	Early retirement for LM reasons	38	-	0	112	8	17	25	22	68%	152%	224%
	Vocational training	7	-	36	39	6	34	19	16	19%	37%	197%
7	Rent benefits	3	199	147	69	15	28	147	127	2%	2%	94%
8	Income support	99	178	86	71	114	14	41	37	89%	241%	272%
TOTAL		3986	7302	7654	6020	8093	6333	6094	5300	55%	65%	119%
TOTAL other benefits in kind		158	1338	1395	582	1100	331	297	253	14%	53%	372%
TOTAL in-cash benefits + health care		3828	5964	6259	5438	6993	6002	5797	5047	62%	66%	106%

Source: Eurostat, 2008; own calculations

Legend: -other benefits in kind

Functional groups:

- 1 – Sickness / Health care; 2– Disability; 3– Old age; 4– Survivors; 5– Family/ Children; 6– Unemployment; 7– Housing; 8– Social exclusion

Observe for instance that Norway spends on sickness-, disability- and old age expenditures and services, while relatively less on unemployment and vocational training. It is also apparent that Slovenia falls in a very different category, when we compare it to Nordic countries and Italy, which is apparent in the following table:

Table 2: Social protection as share of GDP and share of other in-kind benefits within it

Country	Social protection as % of GDP (2000-2005)	Share of other in-kind benefits
Slovenia	24,6 – 23,4	4
Italy	24,7 – 26,4	3

Greece	23,5 – 24,2	11
UK	26,9 – 26,8	12
Denmark	28,9 – 30,1	21
Sweden	30,7 – 32,0	23
Norway	24,4 – 23,9	18
Finland	25,1 – 26,7	16
EU-15	27,0 – 27,8	9

Source: Eurostat, 2008, p. 3 and 6

Comparing the structure of social benefits, two things can be noticed. First, Nordic countries generally spend a smaller share on pensions and healthcare, but spend more on other cash benefits and other in-kind benefits. Second, focusing on in-kind benefits only, an interesting pattern can be seen: Nordic countries tend to spend a lower share on healthcare and a higher one on other in-kind services. Other countries go the opposite way round.

This second pattern could mean two mutually excluding things. One explanation could be a simple different treatment of certain expenses in Nordic countries which would underestimate the healthcare expenditure and overestimate other in-kind benefits. Another, and possibly a more plausible explanation would however be that Nordic countries have in fact taken an “enabling” approach to social protection resulting in replacing hospital care with domestic care and assistance. Data from Table 1 support this reasoning. While expenditure for in- and out- patient care in Nordic countries is below the EU-15 average for 22% and 2% respectively, Nordic countries spend 74% more on accommodation and 458% more on home help to disabled persons, 239% more for accommodation and 529% more on assistance with daily tasks for old people than the EU-15 average.

Table 3: Structure of social benefits for selected countries (%)

Country	Cash-pensions	Cash-others	Kind: Healthcare	Kind: Others
Slovenia	47	21	28	4
Italy	59	13	25	3
Greece	50	13	26	11

UK	42	17	29	12
Denmark	38	23	18	21
Sweden	41	18	18	23
Norway	34	25	23	18
Finland	43	20	21	16
EU-15	47	20	24	9

Source: Eurostat, 2008, p. 6

1.5. Active Labour Market Policies and Flexible Labour Markets

In macroeconomic terms there are very good reasons for why the Nordic welfare states should be on the move in reducing structural unemployment and increase participation rates. OECD (2006, p 187-189) has calculated how 1% reduction in unemployment effects potential GDP growth and cyclical adjusted public budget balances in different countries. While the effect on potential GDP only varies between 1.1% and 1.6% in all OECD countries, the Nordic countries get consistently the largest effects (1.5-1.6% compared to an average within the EU-area of 1.3%). Variations in effect, however, are very considerable on public budget balances. Whereas countries such as the US and Japan are only effected by 0.3% and the Euro-area with an average of 0.6%, the effect is 1.2% for Denmark, 0.9% for Finland, 1.0% for Norway and Sweden. Obviously the problem is much more pressing for states in the Nordic countries when they run into periods of high unemployment. They have good reasons for investing more readily in institutions and services that may assist their populations in finding employment quicker. However, by doing so they paradoxically increase the costs of unemployed and the potential effects of bringing unemployment figures down – or up. Obviously this means that Nordic welfare states might either enter a very vicious or a very virtuous economic dynamic in different time periods. Perhaps this was the very lesson that the Nordic states had learned by the beginning of the 1990s?

Soon after the first oil crisis in 1975, international organizations like the OECD held the view that generous and long term unemployment benefits might not only prevent market forces from reducing wage-increases but also amplify external economic shocks, for instance by making it attractive – not least for young, old and single family workers – to continue on unemployment benefits as long as possible. This - basically neo-liberal - point of view has continuously and persistently been activated in proposals for reforms throughout most

countries, also the Nordic, and all countries have continuously cut back in one way or another on levels or/and duration of replacement rates. A number of countries, e.g. the Netherlands, Ireland, Denmark, Sweden and Norway rather than simply making these reductions initiated a number of instruments to activate unemployed by providing social services and controlling that unemployed became active in seeking employment.

In a recent study, OECD (2006, Ch. 7) assesses the effect of unemployment benefits taking into account the combined existence of activation programmes. It shows that in countries with a strong activation programme, unemployment is much less self-propelling than in countries with no such activation programme (ibid., Figure 7.4, p 217). Following just after the Netherlands and Ireland, measured in terms of expenditures per unemployed as a percentage of GDP per capita in 2000/2001, are three Nordic countries, Denmark spending 60%, Sweden 50% and Norway 40%. Only Finland seems to have embarked on a different route, spending only around 20%⁵. Comparing level of activation services with unemployment figures (see for instance Madsen, 2006, p 341) there seems to be a very convincing co-variation: the higher the activation expenditure the lower the unemployment figure and the higher the employment frequency of the population.

Especially in Denmark Active Labour-market Policies (ALP) is emphasized to constitute a third pillar of the “golden triangle of flexicurity”, the other two ones being a generous welfare system and a flexible labour market (Madsen, 2006, p 331). Flexible labour markets have preliminary been seen as systems that avoid restrictive practices on employers’ rights to hire and fire employees, while rigid labour markets may be institutionalized through Employment Protective Legislation (EPL). Consistently, the Anglo-Saxon countries have the less restrictive EPL, expected to give the employers the most free hand in hiring and firing workers. But Denmark stands out in terms of flexibility both among the Nordic and the Continental welfare states. Thus in an aggregated index of OECD countries Denmark is numbered 10, Finland 14, Norway 21 and Sweden 22 in terms of flexibility (Økonomi- og erhvervsministeriet, 2006, p 175). Mobility analyses confirm this picture, showing that in Denmark more than 20 % of employed change workplace during a year (1998), while the figure for Finland is 19%, 17% for Norway and 12% for Sweden. In 2001 the average seniority in the same job in Denmark was less than 8 years, close to 9 in Norway, close to 10

⁵ A similar pattern – though with some deviation especially concerning the Netherlands - is found in Salais, 2003, figure 12.3., p 339.

in Finland, while Sweden topped at a level of 11 years (ibid., p 167). Ironically, Norway and Denmark were simultaneously the countries in which employees felt the highest degree of job security (ibid., p 168). This is highly contrasting with Spain where the proportion of yearly job shifts is higher than even Denmark, but in Spain employees feel very insecure in their jobs (ibid.) (see also Arnal et al. 2001, p 26). Another dimension of the labour market flexibility of the Nordic countries is a high participation rate in vocational training courses. Typically, (in 2003) in the Nordic countries around 60% with higher education participated in such training, 40% with craft skills and 30% of the (so-called) unskilled workers. While the level in the US was similar for the two former groups, the difference was sharp with respect to the unskilled, only 13% (Ibid, p 169). Denmark spends the most public resources on adult- and further training (0.85% of GNP), primarily on unemployed and marginalized groups (0.67%) but is also the biggest spender in relation to employed. Finland comes much lower, spending only 0.2% of GNP, primarily on unemployed (ibid., Figure 11.6, p 170). As Table ?? above indicated a dramatic shift seems to have happened in Norway, becoming a low spender on active measures (unemployment benefits and vocational training) and a high spender on paid sick leave and disability pensions.

These issues all have effects on the so-called “transitional labour markets” (Schmid and Gazier, 2002), emphasizing that during a life course individuals run through a number of “transitions” (from education to employment, between family life and employment, between employment and unemployment and back and between employment and retirement). In general the Nordic countries seems to master such transitions most effectively and to the effect that they also prolong employment age the longest, in particular Norway, Sweden and Denmark (OECD, 2007 B, p 155; Hult and Edlund, 2008). A quite clear pattern among different welfare states and capitalisms seems to emerge:

In the United Kingdom, Ireland, Denmark, the United States and Australia, employment rates are high for all age groups. In Belgium, Greece, France, Italy, Germany and Luxembourg, employment is heavily concentrated on the middle of the life cycle, with low employment rates for both youths and seniors. Observations available for two further country groups show asymmetric situations: Austria and the Netherlands have relatively high employment rates for youths but low rates for seniors; by contrast in Sweden, Finland, Portugal and Japan, they are relatively low for youths and high for seniors.

.... In the so-called “liberal” countries, the relatively low level of social protection and the more limited role of education and training create incentives to work throughout a life-time, while the Nordic countries favour better equilibrium between training (education and in-career training) and employment. Note that the case of Denmark is special in this respect: youth employment rates are high in the country but this mainly reflects the employment of students, compatible with continuing education. (Ibid).

This means that in continental and South-European countries careers become compressed to the median age group (age 25-54), which is simultaneously also the period of child rearing. This gives the lower strata very bad conditions for cultivating the skills and capabilities that it takes to live in learning organizations and by the experimentalist economy and to progress along its emerging career routes of frequent role- and project shifts. Another interesting aspect that emerges by studying the Nordic model from a life course perspective is that interpersonal redistribution is much less than the intrapersonal redistribution of incomes. Basically the system can be seen as a way for the individual in periods of high earning through taxes to pay for the periods of “trouble” (unemployment, education, retirement) or transition (OECD, 2007 B, chapter 8).

Several authors have emphasized the importance of flexible labour markets for the emergent new economies. Obviously, the standard macroeconomic point of view has been that the easier it is for employers to fire workers, the more and faster will they expand employment during upturns, thereby bringing about the positive effects on the potential GDP growth rate and in improvements on public budgets that we mentioned above. However, perhaps the effects of less flexible labour markets are worse when it comes to innovation and adaptability. A number of authors have compared the US and Germany and found that the German pattern of long-term careers within a single company together with employment protection systems favour large and established companies that can offer the most promising R&D personnel better career opportunities than the small and less consolidated. Thus it is almost impossible for Germany to create a labour market – as for instance in Silicon Valley – that redistributes competencies among firms as the innovation processes change location (Casper and Vitols, 1997; Casper et al. 1999; Casper 2000; Whitley 2000). This innovation dynamic is only a fraction of a much wider issue of relocating labour from firms that encounter problems in adapting to ever shifting roles in the international division of labour to such firms that are

experimenting with actually defining new, prospective roles for themselves. In a recent paper Zysmann and Schulze-Cleven (2007) emphasize this aspect, as they argue that flexible labour markets offer much better space for experimental processes on a broader scale than merely technological innovation more narrowly defined. ALP and further training complement the process of experimenting within and among firms.

1.5. Situational Negotiated Economies: Agency, Recombinant Associational Ties, Local Autonomy, Industrial Relations and Governance

Obviously the Nordic countries with a high element of personalized public services easily could develop clientelism making public bureaucracies a means for sorting up the ex- and included, and whether this is indeed becoming the case in Norway, given Table ??, is an important question, but generally they position themselves very high (usually among the five best) in terms of good governance on indexes including co-determination and responsibility, political stability and absence of violence, bureaucratic efficiency, quality of regulation, rule of law and control with corruption (Økonomi- og Erhvervsministeriet, 2006, Table 13.3, p 193). Probably universalism instead of means-testing, the use of “framework laws”, a dense system of institutions for appeals and decentralization constitute part of the explanation. But it could also be the case that public institutions have learned to combine in networks to supply these services in more relevant ways than under the more bureaucratic welfare states of the past?⁶

A major reason for why Nordic economies may be able to explore global opportunities much more efficiently than other economies may reside in their constitutions, which tend to hand over major responsibilities to local levels both through the division of labour among state, regions and municipalities and among the local and central levels of unions and employers’ associations. It is a generally held view among those studying local autonomy (see e.g. Rattsø, 2004; Demokrati-udvalget, 2004) that it is very high in the Nordic Countries, in general because they decentralize more widely spending and administration of larger welfare schemes to local levels that hold taxation rights. Sellers and Lidström (2007) has constructed a comparative index that systematically proves this. They also shows that in Denmark, Sweden

⁶ This call for studies along trajectories that have been suggested by Dorf and Sabel , 1998 and Liebman and Sabel (undated). For a condensed argument, see Sabel 2005.

and to some extent Norway The Social Democratic Welfare State was pre-conditioned by high degrees of local autonomy:

Both functionally and politically, local empowerment of this kind helped make the construction of the Social Democratic welfare state possible. First, the resulting infrastructure gave local governments the administrative, legal, and fiscal capacities to pursue the universalistic, egalitarian aspirations of the welfare state. Second, in conjunction with the strong national system of local parties that had emerged across the country (...), empowered local government provided a vehicle to mobilize local support for the welfare state. National legislators in the coalitions of Social Democratic and Agrarian parties that passed welfare legislation could trust the political leadership in the local governments to carry out new welfare-related policies. (Ibid, p 624)

Finland stands as a contrasting case, as it was only by learning from the other Nordic countries that the central state level initiated the construction of a modern welfare state, and for that reason initiated also the up-scaling of local administrative capabilities.

The effect is that institutions mutually and their users are much closer connected in tight networks than in any other countries. As Sabel (2005) emphasizes, this makes possible situational co-design of public services, which may in this way be recombined in many different ways, dependent on how institutional actors, private citizens and enterprises forms various forms of “polyarchies” to help solve novel problems in experimental ways. In this way experimental ways of organizing may spread from the private to the public sector – and vice versa..

Simultaneously, the Nordic countries early on developed an elaborated form of corporatism, based on a high unionization rate. By still holding unionization rates at the level of 70-80% (Norway being at the level of 55%) compared to levels between 20% and 40% in most other EU countries, the Nordic countries stand out concerning the nature of their corporatism (European Commission, 2004, p 17). During the heydays of Keynesianism this provided the basis for a strong system of centralized negotiations in which wages, working conditions, etc., could be effectively negotiated and coordinated with state spending on welfare schemes. Finland and Norway seem to have stuck to this centralized pattern, whereas Sweden and

Denmark have moved to sector-levels, and in Denmark in particular, to local enterprise bargaining and –agreements (ibid., p 36 ff).

With these tendencies a new overarching pattern of interaction among the state, social partners and municipalities has been evoked simultaneously:

- Probably it is impossible to explain why the Nordic countries have been able to reduce nominal wage increases to a reasonable level and combine it with modest, but quite steady growth in real wages, while at the same time reducing unemployment significantly (ibid., p 46 ff; Madsen, 2006, p 329) without taking this into consideration. The strength of unions and employers now seems to be used to modify wage drift in tune with macro-economic policies of the state, so that the business sector is better able to exploit, in a competitive way, international cyclical upturns.
- Towards municipalities, the state has simultaneously delegated the implementation and administration of welfare services, while at the same time initiated negotiations that limit the spending level to secure that public deficits do not go out of hand, though there might, in principle, be an unlimited demand for free social services (Demokratiudvalget, 2004, ch 2).
- With the growing implementation of the welfare state at local levels, corporatism has increasingly moved from centralized levels to localities or regions, has broadened its scope and included increasing numbers of associations (environment, housing, culture) that try influence the local specification of how services should be designed and developed.

In Denmark, for instance, this movement has in particular led to the involvement of users in the governance of welfare services (patient groups to hospitals; parents on school boards, etc.). As most of these services have run under continuously reduced budgets, institutions have been forced to innovate and collaborate across boundaries to deliver individualized services in novel and cost-reduced ways. This has led to what Bogason (2001) terms “fragmentation” of the public sector as decisions are, apart from the budget, increasingly taken by the individual institution. Demokrati-udvalget (2004, p 29-30) summarizes Bogasons findings in this way:

- The various institutions of a municipality (schools, childcare, etc.) are increasingly independent. Professionals draw up strategies – for politicians remain budgetary decisions.
- Users’ governance of institutions, area councils, etc., gives non-elected decision-makers influence over part of the enterprise.
- Municipalities have increased free choice among public and private suppliers of services. Citizens can exercise power as customers, in addition to their power as electorate and citizens.
- The increasing use of ad hoc projects creates temporary organs that parallel more permanent institutions and organizations.
- External changes increase the need for cross-municipal collaboration, moving another layer of decisions and initiatives outside the normal, hierarchical decision structure.
- Changes in system of financing and governance call for collaborative negotiations among different layers of the public sector to develop services and initiatives in novel situations.
- EU membership increases the opportunities for municipalities to initiate novel projects and various types of collaborative partnerships, but introduces a novel set of rules that influence independence and self-determination.

The result is a local system of institutions interacting in a network that has lost its former rule bound, routinized and predictable way of functioning. In many, but diverging, ways the public sector may itself have become part of the experimentalist, networked “projective city, where services can be innovated, combined and recombined, according to changing circumstances and needs. The participation of users, interest groups and social movements may mobilize a much larger segment of the population in determining the social use of institutions, and the public sector may be used for highly shifting ways of co-constructing complementarities. In this way, the public sector itself may serve as a gateway for being included into the high mobility mode of the new experimentalist economy.

The described evolution is based on a Danish study, and though the Nordic Council uses this to describe a general Nordic tendency, it might be the case that this evolution has progressed more significantly in the Danish society than in the others. In Denmark interest in and

understanding of politics (Demokratiudvalget, 2004 p 65), satisfaction with democracy (ibid., p 67), participation in elections nationally (Ibid, p 71), etc., are higher than in the other Nordic countries, though for all Nordic countries these indicators are generally higher than the EU average. In Denmark, Norway and Sweden the average number of associations to which a citizen holds membership is 1.6, 1.7 and 1.8 respectively, while in Finland it is lower (0.9%), probably reflecting that local empowerment is a recent and perhaps only coming phenomenon. This pattern, thus, reflects the changes in the pattern of local corporatism mentioned above, where a number of new self-help movements are expanding (local activists, self-realization groups, culture clubs). The propensity to make use of possibilities for participation and influence in the Nordic countries is at a significantly higher level than the EU average, especially in working life, where the indicator for Denmark is 69, Norway 66 and Sweden 61, while it is 44 for Europe (Ibid, p 93). This may also be another reason for why learning organizations have evolved quicker and more consequently in the Nordic countries – as we saw above.

1.5. A Re-interpretation of Findings and Hypothesizing a Closer Enquiry

No wonder then that the public attitude toward globalization is rather positive. “A recent Eurobarometer survey shows that the proportion of those considering that globalization either represents a threat to employment or has a rather negative effect on employment is far greater in continental (52%) and Mediterranean (45%) countries than in Anglo-Saxon (36%) and Nordic (37%) countries” (Sapir, 2005, p 9).

The Nordic countries seem (for the time being) to have found one of the answers to the current challenge. The issue is what kind of society they have in the making? What questions are the Nordic countries answering with such virtuosity?

In his highly imaginative book, Roberto M. Unger (forthcoming, p 201) poses the question in this way:

How can society and culture be so organized that large numbers of ordinary men and women have a better chance to awake from the narcoleptic daze, outside the circle of intimacy and love, without having to do so as pawns and belligerents? This same question presents itself in another form, unburdened by the struggle between friend and enemy or by the terrible ambiguities of war. How can an

individual born into a small country live a large life? How can the state help him redefine the stage on which he can live such a life?

Unger answers his questions in a way that more than anticipate and may offer a re-interpretation of the course on which the Nordic countries have embarked:

The general answer to all these questions is the development of political, economic, and social institutions that both equip the individual and multiply his chances of changing pieces of the established setting of his work and life as he goes about his ordinary activities. Diminishing the dependence of change on calamity they raise him up; they make him godlike. The specific answer to all these questions is that the state should help the individual not to be little. (Ibid., p 201-202)

What is needed is an experimentalist democracy, where individuals experimentally change identities in tight association with others that are able to recognize their contributions as well as future potentials, and where all may participate in redesigning the institutions that allow for such transformations at group and individual level. By doing so the citizens of a state may simultaneously discover new comparative advantages.

As the business systems of the Nordic countries are very different, the path for transforming themselves into vanguard experimentalist practitioners must by necessity be very different. The difference between Denmark and Finland might be the most pronounced, why these two countries might show two very different routes of transformation.

We would hypothesize that in Denmark, people are going through complicated cross-corporate working careers that also engage them in occasional continuous training that makes employees highly autonomous, ready for open-ended experimentation and rich on collegial networks to enterprises and institutions. Thus in Denmark enterprises may change practices as a way of being better able to recruit people in a labour market where competition over the most promising potential employees has always been intense and is currently becoming extremely intense. In Finland, to the contrary, the logic seems to be that an advanced national innovation system set up by the mechanisms of the coordinated market economy has made it possible for a number of firms to use this system to jump to vanguard sectors. This again has

transformed the work organization of firms and these are now in the process of transforming the identities of their employees and their mutual interaction. With Finland and Denmark as extreme poles on the scale, we expect to find Sweden and Norway to be positioned between the two, eventually pointing to other variant forms and pathways of experimentalist economies.

Particular challenges for societies to engage in co-evolution exist when regions are struck by the collapse of their economic systems. In such cases there might be a high need for a locality to negotiate a whole set of jointly coordinated ways of making use of institutions to restructure both firms and the nature of the locality. Hanell and Persson (2006, p 190) show that the differences among regions in terms of unemployment rate and employment change are very narrow in Denmark, extremely dispersed in Finland with Sweden and Norway taking the middle-ground. Whether this is cause or effect of transitions already made in the four countries must be a core question in our analysis. In Finland, Sweden and Norway industrialization often happened by creating mill-towns (Brukssamhälle) in peripheral localities. Transforming such entities in an age of globalization, rapid innovation and restructuring calls for more overarching co-design by a coordinated type of market system than the Danish, where craft communities have connected the periphery to the wider national labour market through vocational training centers. Is mobility – regionally, socially, in terms of jobs and roles, of firms – inscribed into the foundational construct of the Danish society? And does it have to be installed in other Nordic countries? Have they been able to do so?

Are the transitions going on in the Nordic countries similar to that going on in other transitional societies? Or are there lessons to be learned from the Nordic for other countries?

To answer such questions, we have included Slovenia, formerly a part of Yugoslavia, in this study. Slovenia forms an interesting contrast, because it resembles in many ways the Nordic countries. It is small, had a developed form of corporatism, was famous for its co-determination laws concerning firms, share with the Nordic countries an egalitarian income-distribution, a high participation rate for women and high intensity at work. In contrast it seems not to have developed high autonomy forms of work organization, not to have created jobs that satisfy their holders, is rather constructing from scratch than restructuring a national innovation system and is poor in terms of public services like most other South European societies, where the family plays a core role. Can Slovenia develop similar modes of

globalizing as the Nordic countries, will they be able to cultivate learning- and high performance work organization without expanding their enabling public services and risk sharing institutions?

In all these countries we set out to study firms, localities or networks that represent traditional industries that may only survive globalization through radical restructuring processes. We want to study whether and how such firms, employees and localities are able to make use of existing institutions in traditional or innovative ways, enabling them to transform their organizations, identities and outlooks to resemble local and global practices of the vanguard sectors. To create “vanguardism outside the vanguard” (Unger, *ibid.*, p 198) by the mutual transcendence of identities of employees, of organizational practices in enterprises and of the way in which a dense network of welfare state institutions constantly is being recombined is what we expect to be able to study in the cases that will be investigated. In this way we hope to be able to say a lot more about the variety of experimentalist processes by which enabling welfare states take form, the way in which working lives can be explored outside the realm of well-defined hierarchies, and how firms may look when they more resemble a ship setting out for exploration than for merely fishing. We hope this will allow us to point to important cross-country lessons to be learned, enabling the Nordic countries to progress even further and perhaps provide lessons that ease the road for transitions in other countries.

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Chapter 2

Fighting for Global Mandates from Peripheral Regions of the Finnish Innovation System

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1. Introduction

This chapter approaches the Finnish case by constructing two interrelated historical narratives at two levels of analysis. The first narrative focuses on the change in the Finnish national business system since the mid-1980s to the current situation until the break out of the global financial and economic crisis. This is done by presenting three theses and giving justifications to them. The second narrative has its starting point in a shake-up process of a large family-owned company, called Ahlstrom Corporation. The shake-up process started also in mid-1980s. This latter narrative has its focus in the subsidiaries that were divested from the diversified multi-divisional corporation when it accelerated its internationalisation process. Thus the second narrative complements the first one from a locality and business unit points of view. The subsidiaries in question were located in the town of Varkaus, situated about 400 kilometres from Helsinki. The narratives and their temporal and structural contextualisation help us to explore how dynamic complementarities may emerge within a national business system.

As to the narrative on the systemic change, the first thesis is that in the mid-1980s *Finland was a prototype of a coordinated market economy (CME), based on several strong coordinating mechanisms beyond individual companies*. The second thesis is that during the 1990s *the national business system (NBS) was transformed via radical reforms in several subsystems*. One significant outcome of this transformation was that internationalised corporations became the main drivers of the economy at the same time as foreign owned companies became integrated to the Finnish economy via increasing amounts of FDIs (cf. chapter 1, table x, p.). However, despite the internationalisation of Finnish companies, the acquisition of Finnish based business units by foreign MNCs and the reforms in several subsystems, non-market forms of cross-sectoral coordination were not abandoned. Mobilisations of cross-sectoral elites to national projects helped to convert institutional resources to new uses (Tainio and Lilja 2003). This facilitated the next step that took place

after the turn of the century. Our third thesis thus states that *since the turn of the century business renewal occurs in globalised value constellations where managers and employees of both Finnish-based companies and foreign owned subsidiaries are in search of new roles for their business units and for maintaining and enhancing their mandates within MNCs under changing rules of the business game.*

In order to give further justifications to the nature of change implied in the second and the third theses, the second narrative is based on fieldwork in Varkaus and in subsidiaries that were sold by Ahlstrom to other corporations (Kosonen 1994; Lilja and Laurila 2003; Jääskeläinen and Lovio 2003). Ahlstrom's all business units operating in Varkaus were sold to other companies and all of them - except one - was foreign owned.

In our narrative we concentrate on three of the business units and we intend to justify three claims. First, *all three subsidiaries have been able to secure and even widen their mandate within the MNC*, despite the fact that their proportional contribution to the turnover of their parent corporations has reduced dramatically. Second, *the subsidiaries have carved new niches and roles in global value constellations* via introducing new business models and explorative business operations. Third, *such mandate maintenance and role redefinitions have been based on managers and employees drawing on institutional resources, embedded in the Finnish national business system and tailored to compensate the loss of previously dominant risk sharing mechanisms.*

By linking the two narratives, it becomes possible to explicate a multi-level and interactive dynamic process within the tradition of actor centred institutionalism. By identifying actors and cycles of events in distinct institutional settings it becomes possible to explore whether complementarities have been created between the local and national contexts or between the societal subsystems, to the extent that they could be characterised as being dynamic, implying a pro-active and enabling capacity with respect to the unfolding contingencies. We are especially interested to explore how actors gain agency in force fields where they initially are under-dogs. Gaining of agency can be based on luck, on historically accumulated competences and mobilisations of institutional resources that were originally earmarked for other uses or by the formation of new institutional layers that direct resources better to new needs. In addition, by detecting limits in sub-systemic complementarities contra-factual reasoning can be used. Both forms of analysis can produce relevant viewpoints for policy-

making and for transnational learning. This is the more so when accumulated understanding emerges from cross-national comparisons.

2. The old national business system in Finland and the globalisation process: Still a coordinated market economy?

In this section we go through the three theses on the change in the Finnish business system and justify them with various kinds of indirect evidence. We first show that Finland was a prototype of a CME, based on several strong coordinating mechanisms beyond individual companies. Then we proceed to demonstrate that the national business system was during the 1990s transformed via radical reforms in several subsystems of the NBS. Third, we describe how the fact that the internationalised corporations became the main drivers of the economy then facilitated individual subsidiaries to maintain and enhance their mandates within MNCs under the changing rules of the business game. Hence, our intention is to reconstruct the overall pattern of economic and political games in the Finnish context. We also provide tools for inductive reasoning that is needed to conceptualise the distinctive style of operating in the Finnish business system, at each phase of its development.

Thesis 1: Finland as a Prototype of a CME

The mid-1980s Finland had strong resemblance with the post-war Japanese and West-German national business systems. Strong coordinating mechanisms beyond individual companies made the NBS very centralised. While in the other Nordic countries the neo-corporatist system of collective bargaining and macro-economic regulation constituted the core of the non-market based coordination mechanism, Finland started to share this feature only in the 1960s (Lilja 1992). But in Finland there were also other and even much more dominant institutions and power structures. Besides the bank spheres of influence, the state was a major economic actor. It was an owner of major industrial corporations and banks and controlled from the Finnish side a distinct governance system used for negotiating and implementing bilateral trade with the Soviet Union. Because the economy was specialised in one dominant sector, i.e. the forest sector, especially from the exports point of view, there were strong domino effects across all the coordinating mechanisms. This supports the point made that in CMEs there are strong complementarities across sub-systems.

In business life, banks that provided full range of services were dominant economic actors. Prior to the early 1980s, loans from banks were the only way to finance business start-ups,

expansion and the need for working capital, because private risk capital was not available. This turned banks to the centre of the economy. They could increase their market share by providing more loans to companies. In this way companies became more and more tied to banks. In times of economic crises, banks could shift their loans to ownership stakes and get stronger control in companies. The system of corporate governance was also inseparable from the bank groups to which industrial and commercial companies belonged. Moreover, there was reciprocity between the directors of companies and those of banks. Both groups of directors were sitting in each others' supervisory and/or executive boards. Strategic decisions were based on insider knowledge of companies and their business prospects.

Specialisation of the Finnish economy in the forest sector meant that each bank group wanted to have at least one flagship company in the forest industry. Because production of pulp and paper is capital intensive such companies were especially dependent on the financing of banks. It was typical that the amount of debt exceeded the annual turnover of forest industry companies. These companies also started to diversify their businesses early on. One obvious direction was mechanical engineering to which they could enter by expanding their own maintenance workshops and by buying relevant suppliers. Banks shared the business risks also here when the companies that belonged to the same bank groups made deals with each other for prototypes of machinery and other supplies. Such deals helped especially companies in mechanical engineering to develop their prototype machinery (Laurila 1998). After being adopted, the technology was improved incrementally in continuing collaboration between technology suppliers and users (Alajoutsijärvi 1996). Finnish pulp and paper companies did not suffer from product specialisation because for foreign sales, the forest industry had set up joint sales organisations. After the WWII, these sales companies were market leaders in most west European countries, (Heikkinen 2000).

Because Finland gained most of its foreign currency from the export of forest products the competitiveness of the forest industry was a critical macroeconomic variable. If investments to new capacity occurred at a wrong time with respect to the business cycle, they led to overcapacity and drops in prices of products. Such cycles threatened the survival of forest industry companies. To help out, the Bank of Finland had to intervene and devalue the currency. After the WWII, this happened approximately once in a decade. Shocks in the economy caused by devaluations of the currency made it difficult for small and medium sized companies to take risks and grow which was also materialised in the slow the diversification

of the Finnish economy. As a further act to avoid over-investments and overcapacity, forest industry companies jointly regulated the pecking order for new investments. One criterion for its decision-making was an estimate of the availability of raw material for the new production line (Kuusela 1999?).

The need to diversify the economy had been on the political agenda of the state, since Finland became independent in 1917. The state started to expand its role also in the economy. In the early 1920s, the state took over a forest industry corporation, Gutzzeit Ltd., founded by a Norwegian entrepreneur. This was a start for setting up state-driven businesses in mining, engineering, oil industry and others not to mention investments in the infrastructure and public services. The expansion of the state owned sector was especially strong after the WWII. The political backing for this came from the social democratic party that wanted to expand state owned core manufacturing companies, and from the agricultural party that wanted to develop the more rural areas and keep the vast country inhabited. The state-owned companies were grouped around a state owned bank that constituted the core of an additional bank group in the economy. It helped to diversify the economy by risky investments but from a top down approach, giving substance to the notion of a developmental state.

After the WWII, trade between Finland and Soviet Union started to grow. Deliveries paid as war indemnities were a natural bridge for trade relations. Soviet Union continued to be interested in buying modern machinery, ships, equipments and later on textiles, clothing, shoes and other consumer goods. Finland, on the other hand, bought oil. This type of trade was turned into long term bilateral agreements, containing specifications for annual trade levels and quotas for different types of products. A bilateral trade commission was set up for the operation, chaired by persons who were nominated by the states. Private companies had to put considerable lobbying efforts first to the Finnish side for getting suitable quotas in the trade agreements for certain types of products. After that they were competing with each other for the deals with the Soviet authorities. Export incomes generated from the Soviet trade were very significant for the industrialisation of entire Finland.

On the whole, the centrally coordinated system of business and the state was highly effective. Since the early 1970s, Finland started to catch up Sweden, with respect to the GDP per capita, and almost closed the gap by the end of the 1980s (see Kokkinen et al 2007). The deep

economic crisis in the early 1990s, however, worsened Finland's position in comparison with the EU countries including Sweden. Due to external shocks, mistakes in the liberalisation of the financial market and a real estate bubble, the Finnish economy dived deeply and the business system was pushed to a transition phase. In the early 1990s, the outcome could not at all be forecasted.

Thesis 2: From Centralised Coordination to Flagship-Company -Driven Internationalisation and Indirect Support for Competence Formation

The period from the beginning of the 1990s to the start of the new millennium turned out to be the end of centralised coordination across all sectors of the Finnish society. The collapse of the Soviet Union in 1991 and the deep recession in the early 1990s were the watersheds. The share of exports by Finnish companies to Soviet Union was around 25 % of all exports. But there is a saying that half of the profits in Finnish companies came from the Soviet trade. When the Soviet part of exports dropped radically, the liquidity and finally also solidity of many Finnish companies eroded.

The recession, the burst of the real estate bubble and the devaluation of the currency led to a financial crisis. The largest bank went bankrupt and two dominant commercial banks merged. Since 1993, restrictions on foreign ownership of Finnish based companies were totally abolished. This opened the market for corporate control and increased the liquidity of shares in the stock market. This occurred at a time when the share prices were at the bottom due to the deep recession. Some pioneering investors made quickly huge profits and new financial investments started to flow in. All banks sold controlling ownership stakes in companies to the increasingly liquid financial markets. This was the end for the bank spheres of influence. Also the state re-evaluated its role in the economy and started to privatise its ownership stakes in companies. The government stopped to provide direct subsidies for industrial sectors. Instead, the state increased its funding for R&D activities, despite the huge deficit in the state budget and the increasing burden of debt.

By the mid-1980s, major Finnish industrial companies had become highly diversified. Managerial competences were concentrated to a few dozen flagship companies linked to dominant banks. Such companies had both the financial and intellectual power to enter into new industries by internal new business development or via acquisitions of promising companies. Nokia is one example of these companies. It was then a conglomerate involved in

various products such as rubber, paper, cables, consumer electronics and telecommunication networks and mobile phones (Häikiö 2001). In the early 1990s, many of Nokia's product areas were unprofitable. The consumer electronics division suffered from particularly huge losses due to acquisitions in Sweden and Germany. The board intervened and nominated a new top management team in 1992. Under the leadership of Jorma Ollila the team decided to accelerate internationalisation with step-wise narrowing the business portfolio. After several divestments, only the telecommunication businesses remained. This high risk corporate strategy turned out to be a success due to the fit with the technological mega-trend in the ICT sector. Simultaneously, Nokia became also a globally targeted stock. Listing in the New York Stock Exchange was a major facilitator for the explosion in Nokia's market capitalisation from the lows of the 1993 to the highs of the turn of the millennium. This development was also a strong signal to global financial markets and helped other Finnish companies listed only at the Helsinki Stock Exchange to become international investment targets. During a short period of time the sources of financing for established and start-up companies multiplied (Tainio and Lilja 2003).

In 1995 Finland joined the EU, at the same time with Sweden, and in 1999, became member of the EMU. To prepare for the EMU, devaluations were abolished from the economic policy repertoire of the state.

The characteristics described above imply that several cornerstones of the Finnish business system were complemented by new ones or were completely replaced. Firstly, the Finnish economy became less concentrated as the strong forest industry based sector was complemented with the ICT sector and the pace of growth of the latter surpassed quickly the old driver of the economy and international trade. Secondly, with the collapse of the bank-groups the so-called patient capital became scarce. Companies previously linked to bank groups had to search for new funding sources. For that need, the vitalisation of the stock markets and the opening of the markets for corporate control turned out to be beneficial. In line with Nokia, other diversified Finnish corporations analysed their business portfolios carefully during the 1990s and increasingly concentrated on businesses in which they had opportunities to become international or even global. Other divisions and business units of these corporations thus became potential targets for foreign MNCs. Within a period of ten years, the rules of the game in corporate strategy were changed. In stock listed corporations,

the board and the top management were forced to bring in finance-driven objectives in corporate practices and culture (Tainio 200x).

The above means that during the 1990s several coordinating mechanisms beyond the company level were abolished. Despite this, the business and political elite was able to negotiate a new “national project”. It could be called “indirect support for competence formation via upgrading the national innovation system”. Several intellectual cornerstones and governance mechanisms of such a national project had been crafted already during the 1980s (Miettinen 2002). But the shock caused by the recession helped to join forces across the private and public spheres of the society to facilitate funding for a scheme with four elementary parts.

The first part implied that in 1993 the ministry of commerce and industry launched a cluster-based strategy for concentrating and upgrading competences. In many ways this was based on the good experience gained from the existing inter-organisational practices typical in the forest sector. Other already existing or potential clusters were now being sought to fuel the renewal of the economy. Secondly, the government set the target to increase the R&D spending from two to three per cent of GDP. This target was reached within half a decade mostly due to significant expansion of R&D in the private sector. Thirdly, a reform on tertiary education was implemented by giving the status of universities of applied sciences/polytechnics to 29 institutes with operations in 80 locations. They got, after a probation time, the right to provide Bachelors degrees and be central institutions in regional development and in diffusion of knowledge and technology. A large number of vocational institutes, like technological and commercial colleges and occupational educational institutes for health care and service businesses were merged and upgraded. All these initiatives had interrelated objectives, funding sources and relations to the existing system of universities and research institutes. Fourthly, also at the regional level new funding programmes were introduced. These gave incentives for companies, the two types of universities and research institutes to form regionally relevant competence concentrations. Based on proposals specified centres of expertise were selected in 1994 for a five year a period. Such competitive bidding process has been continued thereafter.

The upgrading of the Finnish innovation system during the 1990s was hence a national project. It indicates that the forming of new decentralised participatory and experimental

governance mechanisms did not delete all coordination mechanisms typical for CMEs. Besides the new tools for setting up a regional innovation system, the centralised neo-corporatist system of collective bargaining had a strong role in the macro-economic recovery of the Finnish economy since the middle of the 1990s. The Social Democratic Party had special reasons to support wide incomes policy agreements because it had the prime minister position in coalition governments during two consecutive parliamentary terms.

After the turn of the century, the surprising outcome of the Finnish business system was that despite cross-sector complementarities built between the WWII and the end of the 1980s, radical transformations in several subsystems took place. The main indicators for these transformations were (1) the shift from a national bank-based financial system to an open financial market based system, including the strong role of the stock market, market for corporate control and reform in the system of corporate governance; (2) successful globalisation of several Finnish based corporations and (3) the redirection of the state involvement in the economy for different purposes and functions. These concern the way state-owned companies were privatised and the way state agencies were turned into joint stock companies, many of which were then privatised. The state also withdrew from the use of direct subsidies and increased the use of indirect support through the enhancement of the national innovation system. This co-evolutionary process between companies and the formation of new institutional structures and policy making tools laid the competence stock that could be used during the next phase of globalisation after the turn of the century. This phase was triggered by the collapse of the Internet bubble, new competitive pressures from Asia and the several failed globalisation processes of individual companies.

Thesis 3: Business Renewal in Globalised Value Constellations: Managers and Employees in Search of New Roles for Companies and Business Units to Secure Mandates within MNCs

During the first phase of globalisation the renewal of the Finnish NBS was still based on relatively centralised initiatives to diversify the economy. After the turn of the century, the Finnish business system allowed path creation at a more decentralised level. We may distinguish three types of strategic games played by MNC in global contexts. The first type is characterised by Nokia because as the first mover, it has been able to change the rules of the game whenever it has been fit for it. The second type is much more reactive and from the

point of view of path creation, at an early stage. The forest sector makes a typical example. The third type is linked to foreign owned MNCs that have acquired business units in Finland. Below we will elaborate each of these three types in more detail.

Nokia has gained considerable attention in academic research and media due to its excellent performance since the mid-1990s. Thereafter, Nokia's management has had to reposition their company's accumulated competences to the changing competitive arena at an interval of two to three years. For this reason the top management took the concept of strategic agility as the cornerstone for their strategic management agenda. The key dimensions of strategic agility are sensitivity, collective commitment and resource fluidity (see Doz and Kosonen 2008: 3-36). To contribute to all these capabilities, all kinds of interactive forms of collective action are needed within the corporation and in relation to the external arenas of work. In the case of Nokia, a major breakthrough is related to the orchestration of resource fluidity. Divisional hierarchies have been complemented with matrix organisations, centralised functional management processes based on the ICT technology and platforms supporting global virtual organisations. This means that managers have to accept that they miss dedicated resources for strategy implementation. The turmoil is intensified by periodic changes in the divisional structures and reallocations of businesses and project portfolios for innovations.

There is no doubt that the shuffling of organisational structures and the rotation of managers to new responsibilities also has negative consequences for individuals. High potential managers, used in expatriate assignments, typically leave before their mistakes become visible. Opportunism in career games may also intensify (cf. Kristensen and Zeitlin 2005). In the R&D context, projects are terminated due to changes in technology regimes, strategic reappraisals and changing competitive situations. For these reasons it is difficult for experts to exploit the knowledge accumulated in earlier projects. Heavy weight human resource management and generous compensation principles are needed to fill in the mistakes, frustrations and voluntary turnover of experts. Otherwise it is not possible to balance collective commitment and personal feeling of injustice.

The picture of decentralised experiments to produce innovations, new business models and cost reductions becomes even more complicated when experiments are made in inter-organisational networks of several companies. Designing such networks has been one of the sources of Nokia's success. Networks and alliances with customers and suppliers, however,

include not only collaboration but also competition. The competition concerns the division of value, even before it is created. On a longer term, the competition concerns the issue: which companies will be included in the value constellation in the future? Thus during the ongoing phase of globalisation efforts for radical innovation resembles patchwork. Governance of such processes can only be based on pre-sensing, pilots, deliberations on their progress and redefinitions of roles and identities of the participating actors (Sabel 1994; Herrigel 2007; Scharmer 2007). Typically radical new path creation starts from small initiatives, leads to unintended consequences and gets momentum from unexpected contingencies. Policy discourses that outline road maps for radical innovations are typically silent on vast amounts of efforts that do not lead to success. In the case of Nokia, by being tolerant to the experimentations done in its Venture Division and in the huge global R&D arm, it has been competent to move to new businesses and create completely new markets and end-user needs.

The forest sector can be used as an example of the second type of strategic game, played in the global context. The flagship companies in this sector became locked into their strategy to become global leaders in printing and publishing papers. Few years after the turn of the millennium, it turned out that by taking a strong role in the mergers and acquisition wave they went too far. They had to face the eroding demand in paper in the USA and the stalemate in Europe. This led to overcapacity in many product groups in Europe, sliding down of paper prices and the ensuing profit squeeze, also caused by increases in the price of raw materials. The overcapacity was also caused by simultaneous massive investments in Greenfield sites in Latin America and Asia. In these continents the demand for paper has been growing substantially. In Latin America forest plantations provide raw material and advantages in logistics that outcompete the opportunities in the Northern hemisphere.

It took some time before the largest players in the forest industry started to tackle the lowering return on capital and the restlessness of investors. Among the Finnish based companies, UPM was the first to respond to the worsening scenario. It had two advantages to be the first mover in cutting capacity. First, it lost the bidding competition in the US market for Champion to International Paper, the largest forest industry company by turnover. UPM was not burning excessive amounts of capital on the market for corporate control at the time when the stock prices were at the peak. For many years its annual return on capital was the best among the Finnish based forest industry companies. Secondly, a new CEO was nominated in 2004 and a new top management team was formed. Thus in 2005, UPM made the unexpected decision to

close a whole paper mill in Voikkaa, one production line in a mill in the same neighbourhood and to announce a cut in the number of its personnel in Finland by 2557 within a three year period.

StoraEnso and M-real, the other large Finnish based companies, were much slower to react. In the autumn 2006, StoraEnso made the first intervention to cut production capacity. The main target was one production line in the mill integrate in Varkaus. In the summer 2007, a new CEO had taken over and had formed a new top management team. Already in September, the North American based operation related to Consolidated Paper was sold to an investor consortium, acknowledging at the same time huge losses from the acquisition done in 2000. The next downsizing step came quickly after that. In November a decision was announced that a whole paper mill in Hamina, one production line in Anjala and two pulp mills will be closed down, affecting 1700 employees. In addition, considerable reduction of employees in staff functions elsewhere was announced. Over the same period, M-real has gone through several downsizing rounds since the turn of the millennium, closing also mills and production lines in many European countries and selling both core and non-core business units to increase its liquidity and solidity.

In connection with the sale of the Consolidated Paper, the new CEO of StoraEnso declared a redefinition of the strategic vision that may have profound impact on the strategic moves for the next five years. He claimed that the reason for selling Consolidated Paper was that the forest industry is not a global industry. Within the industry there are completely different competitive force fields, value chains, products and modes of operation. For instance, to be on the leading edge technologically in the industry there is not need to have a presence in North America as a producer. On the contrary, there is a danger that companies in the Nordic countries and continental Europe may experience a similar drift in their technological leadership that occurred since the 1950s onwards when the technological leadership travelled from North America to the Nordic countries and Germany. New production lines with newest technology were invested in the latter ones, giving assignments to local engineering companies to experiment with customers and incrementally producing new generation process technology with the help of accumulated tacit knowledge. Similar type of drift may occur during the forthcoming decades from Europe to Latin America and Asia. For instance, in 2000 StoraEnso formed a joint venture, called Veracel Celulose with Aracruz corporation to

build a new pulp mill. When it went on line in 2005 it was the largest single line pulp mill in the world, with the capacity of 800 000 tn/pa (Toivanen and Barbosa Lima Toivanen 2007).

Thus it is not a surprise that the expansion of the forest industry to Latin America and Asia is interpreted to be a threat to the knowledge intensive activities within the sector in Europe. To proactively counteract the potential loss of technological leadership and to support radical product innovations, the EU has set up a distinct technology platform, called Forest based sector Technology Platform (FTP. It is based on a long history of collaboration and competition between forest-related research institutes, universities and companies (see Lilja et al. 2008).

The third type of strategic game occurs in MNCs that have grown through acquisitions. Within such MNCs, subsidiaries are competing with each other for distinct mandates and within global value chains for distinct roles (Kristensen and Zeitlin 2005). In this strategic game the subsidiary management team is in the driver's seat. It needs to legitimate a mandate, maintain or enhance it and at the same time negotiate a role with customers and suppliers in value chains or more complex constellations. Negotiations of mandates and roles are further intensified due to deverticalisation as value chains involve increasing number of companies, product life cycles get shortened and because MNCs are searching for production regime - based cost savings in new host countries. In Finland, like in many other European countries, these types of restructurings have led to massive closures of plants, firings and threat of unemployment. Until the end of the 1980s, the intended and expressed strategies in Finnish companies were transparent and communicated in a top down fashion. This has taught several generations of managers to act like boy scouts in strategy implementations (cf. Morgan and Kristensen 2006). That is why it has taken some time for middle managers to learn issue-selling skills that are needed to influence top management decision-making in foreign based MNCs.

It is, however, possible to promote new mandates within a MNC by explicating business opportunities that are, for instance, based on local and national institutional resources. For instance, work systems in Finland have in most industrial workplaces and in the service sector been under constant renewal. One important facilitator for that has been the increasing level of education and further training of employees. Even a half of all employees attend annually to courses that improve their occupational skills. In OECD surveys, Finland scores high on

indicators that measure phenomena related to the “learning organisation”. In the public sector, several policy-related reforms have been made and many more are underway. In the national innovation system, the reforms implemented in the 1990s have recently been complemented with the identification of strategic concentration areas in research and development, with a university reform by merging many of them and providing new tools for the support of start up companies via TEKES, the R&D funding agency of the state. Because in Finland, there are more than 400 municipalities, the government has from 2007 onwards encouraged municipalities to merge with each other. By so doing they are expected to secure better service level for citizens and a simultaneous increase in efficiency. In addition, municipalities use extensively services of private companies based on competitive bidding.

However, there are also subsystems that have not undergone radical changes. One of them has been the industrial relations system where work organisation related reforms have only partially been decentralised to the workplace level as part of the practice of collective bargaining. We may discern a duality that is very much linked with industries in question. In the metal, engineering and electronic industries representatives of employers and employees gave leeway to experiment at the workplace level that led to new organisational practices and allocations of working time. Breakthroughs were made already in the middle of the 1990s, when the recession had taught new competitive realities to the representatives of the strong blue-collar union. However in the pulp and paper industry, similar decentralisation of experimentation has not occurred. This is mostly because shutdowns of production lines were, until recently, compensated by new technological investments, resulting to significant increases in the volume of production and productivity. As a result, the number of blue-collar workers has gradually, and until recently without shocks, gone down from 42 000 in 1980 to 24 000 at present. Due to its bargaining power, the Paper Workers’ Union has blocked further experiments that have been perceived as threats to workers’ interests.

On the basis of our discussion of the recent national-level developments in Finland we may thus conclude that globalisation has enforced both the private and public spheres of the society to a search for new paths at multiple levels of action. From the point of view of the national business system, this means a shift *from centralised coordination to decentralised experimentation that occurs at multiple levels and requires implicit synchronisations both vertically and horizontally*. This shift in path creation reflects recognition that radical innovations occur increasingly in a context that is characterised by the open innovation

paradigm. New modes of competence development, that have the character of creative destruction, are a major challenge to managers, experts and employees. They have to build new professional and occupational identities due to changing organisational structures and modes of operating. Managers have to constantly negotiate temporary orders at multiple levels of the company and in inter-organisational horizontal networks of the value chain. In the next section of the chapter we examine how different types of actors use available resources when competing for mandates within MNCs and for renewing roles in value chains and cross-company value constellations.

3. From the national to the local

Sampling of a Locality and Subsidiaries for a Case Study

As explicated in the introductory section, the second narrative has its starting point in the shake up of a diversified corporation that had a significant presence in Varkaus. We chose this specialised industrial town as the case because it differs radically from the Helsinki metropolitan area and the regional centres. They have so far succeeded relatively well in the contemporary phase of globalisation, contributing to the positive image of Finland in international comparisons. The metropolitan area of Helsinki benefits from the fact that major corporate administrative and most government activities are located there. Thus the Helsinki metropolitan area has for a long time been able to attract more inhabitants. The same is true with half a dozen regional centres that typically host a university, local government bodies, small and mid-size firms and subsidiaries or production facilities of major Finnish-based or other MNCs. In contrast to these regions, rural areas have been in difficulties since the 1960s but the problems in specialised industrial towns are much more recent. For this reason Varkaus, as a research setting, provides evidence of acute problems and a variety of attempts by the local actors to tackle them with various policy-making practices and tools.

Since the early 20th century, the industrialisation of Varkaus happened hand in hand with the development of the Ahlström Corporation. In the 1930s, Ahlström Corporation was the largest manufacturing company in Finland, having at that time 5000 employees. By the mid 1980s, Ahlstrom was a diversified and internationalised company but pulp and paper was the core business of the company and among its several production sites in Finland, Varkaus was the largest (Jääskeläinen and Lovio 2003; 2004; Lilja and Laurila 2003). In the middle of the 1980s, owners of several family owned paper industry companies in Europe and the US

started to ask whether they can continue to invest in this very capital-intensive industry and grow under the simultaneous wave of mergers and acquisitions that was accelerating in the Western economies. Krister Ahlström, a fourth generation family member of the extended family behind Ahlstrom Corporation, was hired in the early 1980s from the outside to become the CEO of the corporation. He was soon exposed to the emergent process of consolidation in the forest industry. As a result, he started at the same time to internationalise and to streamline Ahlstrom Corporation (Kosonen 1994). In 1987, the pulp and paper manufacturing facilities in Varkaus were divested. The buyer was Enso Gutzzeit, a state-owned forest industry company. This was a start of a transformation of the industrial setting in Varkaus. Thereafter several other MNCs have landed to the town in the form of a FDI.

Table 1 Examples of acquisitions of Ahlstrom's businesses made by MNCs in Varkaus*

MNC	MNC country of origin	MNC turnover and number of employees	Time of acquisition	Number of subsidiary employees	Line of subsidiary business
Andritz	Austria	EUR 1,481 million 5,314 employees	2000	300	pulping technology
CAE (Canadian Aviation Electronics)- AFT (Advanced Fiber Technologies)	Canada	EUR 50 million Ca. 500 employees	1992; 2001	150	screen plates
Foster Wheeler	USA	USD 2,660 million Ca. 10.000 employees	1994	450	energy technology
Hartmann	Denmark	DKr 1,642 million 2,593 employees	1999	50	egg cartons
Honeywell	USA	USD 25,601 million 109 000 employees	1992	350	industrial automation
StoraEnso	Finland/ Sweden	EUR 12,396 million 43 779	1987	1,300	pulp, paper, board, and sawmill

		employees			products
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*Statistics indicate the situation in 2004

Since the late 1980s, a large number of business units belonging to Ahlström corporation have become parts of MNCs originating from different countries. These MNCs include Foster Wheeler and Honeywell (both USA), Andritz (Austria), Hartmann (Denmark), Stora Enso (Finland-Sweden) and CAE-AFT (Canada). To elaborate our three main claims, we concentrate on subsidiaries in three parent companies: StoraEnso, Foster Wheeler and Honeywell. The post-acquisition development of these three subsidiaries and their relation to the local, regional and national environment forms the focus of the present section. In particular, we will explore the relations of these subsidiaries and their management teams to the other actors at the local, regional, national and international level. This should help to shed light on the distinctive features of the Finnish business system and welfare state and their contribution to business activities at the present stage of globalisation.

The analysis proceeds with three steps. We start by describing the post-acquisition integration of the three subsidiaries (Phase 1) and then move to examine how they after this integration constructed a new mandate within their new parent corporations (Phase 2). We end the analysis with an attention on the impact of the local environment on the maintenance and promotion of the subsidiary's mandate and role, on the one hand, and on the extended micro-political exchanges in the games between the managerial teams and the wider institutional environment, on the other.

Post-Acquisition Integration in the Three Subsidiaries: Phase 1

As far as the three subsidiaries are concerned, the post-acquisition integration in the end left them with positive results. This is the case although the starting points were not similar. While the *StoraEnso* subsidiary, for example, had been one of the largest production sites of former Enso Gutzeit, it also belonged to the parent company core businesses after the acquisition. One of its main customers, the printing facilities of the largest newspaper publisher also remained right beside it. The starting point for the post-acquisition integration of the *Foster Wheeler* subsidiary was also relatively unproblematic. The unit had strong position among customers in power plants due to its path-breaking boiler technology. The new parent company was able to exploit this position as a bridgehead to the European markets

in its other energy-related businesses. Even the subsidiaries in Poland and Spain were soon led from Finland. In addition, while the business in the Finnish subsidiary was running well, Foster Wheeler Corporation in general suffered from low profitability. This contributed to the fact that the operational modes and the business mandate of the Varkaus subsidiary were not systematically defined in this phase. The impact of the new parent was here visible first in financial reporting that had to be modified to meet the demands of a company listed in the NYSE.

For the *Honeywell* subsidiary, the starting point was much more difficult. The parent company had acquired the subsidiary not because of its products but especially because of its customer accounts and competent process control software designers. In Finland, there was a substantial market for process automation systems used in modern pulp and paper mills and even in other process industries. Within this market the Varkaus unit was an established player. Because Honeywell headquarters was not interested in further developing the products of its new subsidiary, but instead of replacing them with its own, it gave notice to a large number of local R&D personnel within a few months after the acquisition was announced. At the same time, several parts of production were outsourced.

These problematic circumstances did not, however, prevent a positive outcome even in the case of Honeywell subsidiary although it took a few years to materialise. As the first step towards this, Honeywell headquarters soon noticed that the turnover of the Varkaus unit was in decline because its previous clients rejected the new Honeywell products and instead purchased a competitive product of another Finnish-based supplier (i.e. Valmet). Thus, Honeywell rapidly lost the market that it had targeted with the acquisition. In order to solve the immediate problems, Honeywell headquarters gave the Varkaus subsidiary temporary permission to resume sales of their old product called Alcont, to supplement sales of Honeywell branded products. Simultaneously, it launched a new automation system in the U.S., with the aim of later replacing both Honeywell's own previous systems and the systems developed by the Varkaus unit. Even the temporary permission to resume sales of the previous Alcont system was, however, sufficient to indicate to the management and personnel of the Honeywell Varkaus subsidiary that they might continue to develop their own products. This was so although they had to compete for the same customers with other Honeywell subsidiaries in different parts of the world with no dedicated R&D resources to further develop the Alcont system. In this situation, the subsidiary management aimed to develop

Alcont in the form of 'bootleg projects' together with some key customers. At the same time, Honeywell headquarters continued to keep a close eye on the Varkaus subsidiary in general and by appointing an American to head the subsidiary between 1996 and 1997 in particular. At this point, however, both because Honeywell acquired Measurex that supplied automation systems to process industries and adopted an organisation structure based on customer segments (e.g. pulp and paper industry producers), the Varkaus subsidiary re-established its position as a relatively independent unit.

Thus, in conclusion, the three subsidiaries in question managed to survive the post-acquisition integration processes in the 1990s. We may take up two particular reasons for this. First, we need to mention that Finnish economy grew strongly over the period in question. The second and more important reason is related to the managerial culture of Ahlstrom, which seems to have had a positive influence even several years after the subsidiaries had been taken over. The internationally oriented managerial cadre and a cultivated style of management with many social ties in across business and societal spheres continued to prevail. Moreover, different types of small businesses started to emerge at Varkaus during the 1990s on the basis of the previous sub-contracting networks of the Ahlstrom Corporation. The town and the regional authorities (especially the regional employment and economic development centre) set up various types of programmes to implement a localised version of the Finnish innovation system in co-operation with the unit of the university of applied sciences.

We recognise that the positive experiences among these three subsidiaries, all operating in Varkaus, may also have given a false confidence to the local actors that they can adjust to the globalisation process. In any case, there is a need to admit that during this first phase, the local managerial teams of the subsidiaries were successful in meeting many challenges that were posed to them. When we move in the description of the post-acquisition development thereafter, it becomes evident that the overall picture of the subsidiaries and their development becomes significantly different. Since the turn of the century, the subsidiaries and their management have needed to solve many new problems and to renew their operations, both within the MNC and in the market. Next we will take a case by case look at these Phase 2 mandate building and maintaining processes.

Building of New Subsidiary Mandates in the Three Subsidiaries: Phase 2

Case StoraEnso

As a part of its parent company, the Varkaus subsidiary had a strong position more than a decade. This position, however, significantly weakened as StoraEnso was formed in 1999 and this new parent then acquired US-based Consolidated Papers in 2000. StoraEnso was then the largest paper and pulp producer in the world. At this point, StoraEnso Varkaus subsidiary with its more than 1000 employees was still a substantial unit in Finland, but it was only one of ten largely similar units, in the same product area. When main headquarter functions of StoraEnso were transferred to London, the hierarchic status and informal contacting interfaces of managers of Finnish based units deteriorated further.

The fact that the Varkaus subsidiary had become a part of a huge multi-national corporation was materialised, in the period 2001-2006, in two main ways. First, the subsidiary lost one of its production lines, paper machine 1 (PM1). In general, this was not a complete surprise as PM1 had been under scrutiny since the 1970s, due to its relatively small production capacity. The machine had already been upgraded to more demanding paper grades but its capacity, 96 000 tonnes/pa., was still at the lower end in comparison with its Finnish benchmarks. Neither could reductions in manning levels and other arrangements to improve the productivity meet the continuing decrease in product prices. At the corporate level, the return on capital of StoraEnso was constantly stuck below expectations of financial markets. In 2006, StoraEnso followed the example of its main Finnish-based competitor UPM and announced that it would take part in industry-level capacity decreases by shutting down Varkaus PM1.

As the Varkaus mill integrate has reduced only incrementally its manning levels the closure of PM1 had to be handled very carefully from the point of view of the employees, the local labour union and even the national union. The mill management entered to the negotiation with an unexpected proposal. It suggested that although PM1 employed 155 workers, the number of jobs and workers to be reviewed was 800, being employed in the pulp mill, in PM3, in wood handling section and in the maintenance occupations. Occupational skills and especially the degree of multiple skills were set as the basic criteria for selection. These principles and the combination of representatives who should participate in the negotiations

were defined beforehand. All responsible managers of the production units were personally involved in the selection processes. Altogether 16 negotiations were held. As a result, a large part of PM1 workers obtained a new job in PM 3 or in other local units. This was so because they were relatively young and well-educated. At the same time, many PM3 workers were moved to other units and workers previously in these units were then employed elsewhere. At the maximum, an individual change of jobs had an impact on four employees. After having gone through the negotiations, 38 permanent blue collar and seven permanent white collar employees were fired.

The senior shop steward who was in charge of the negotiations from the blue collar workers side opposed the principles and received strong support from the national union for his stance. He was arguing that old workers who are not any more employable in external labour markets should be kept employed. Thus he preferred the principle that resembles the seniority based bumping rule, used in the US paper industry. But in the Finnish paper industry, the collective bargaining contract does not contain such a rule. The employer only complied with the demand that all temporary workers were fired even though their educational level and skills surpassed those of old employees.

Finally, when the result of the negotiations was announced, the final decision of the employer did not lead to employee walkouts or support strikes. It seems that the process through which the closing down had been handled was sufficient to provide legitimacy for the endeavour. Another reason for such an outcome could be that parallel measures by StoraEnso's competitor UPM had been even more drastic. This is not to say that personal relations between the employers' and employees' representatives would not have been under severe strain. The shutdown and the other arrangements, however, seemed to act as a platform for something new to emerge. Special measures were taken both at the mill integrate level and at the level of the headquarters.

As to StoraEnso Varkaus subsidiary, the change process in job assignments could be used as a trigger to a new type of team work because it transforms the way in which skill enhancement in teams is implemented. As a first step to support such transformation, the mill management initiated an extensive coaching programme for all personnel with managerial or supervisory responsibilities. The "Focus on the future" programme signalled the need to go beyond the stress created by the PM1 closure decision and to trigger the renewal also in the local

leadership and work culture. Soon thereafter, the local employment figures revealed that most of the employees that had been laid off had found a new job. In fact, whereas originally 155 jobs had been threatened, only 12 previous StoraEnso employees were unemployed six months after the shutdown. In general terms, this indicates that the absorptive capacity of the internal and external labour market has been considerable.

As to the headquarters, it made shift decisions to support the mill integrate. Firstly, an investment decision was made to upgrade PM3 in Varkaus. Its capacity was now to be increased by the amount equalling the cut at PM1. Secondly, the benchmarking exercise on market opportunities and cost structures conducted in Varkaus and in other StoraEnso's units made apparent new opportunities for making productivity increases. Thus decisions to switch product mandates between several units were made. Thirdly, to support all three remaining paper machines in Varkaus, a decision was soon also made to upgrade the pulp production facility. Finally in 2006, a joint venture of StoraEnso and Neste Oil was announced with the intention to build a bio-fuel pilot plant in Varkaus. All these decisions could be understood as signals from the headquarters to support the future of the mill integrate and community.

Case Foster Wheeler

When we consider the post-acquisition development of Foster Wheeler Varkaus subsidiary, we must keep in mind that its current parent has always been essentially a construction company with only little involvement with highly R&D intensive businesses. It is therefore understandable that problems in profitability of the corporation at the turn of the century had an impact on its Varkaus unit, too. These influences were of two kinds. Firstly, in 2002 the subsidiary was put for sale to sooth the immediate solidity and liquidity problems of the parent company. By early 2004, no satisfactory offers for the Foster Wheeler Varkaus subsidiary had emerged. Instead, the creditors of the Foster Wheeler Corporation now required that the subsidiary should remain a part of the parent company (Jääskeläinen and Lovio 2004: 141-142).

Secondly, the corporate management encouraged the subsidiary to offer turnkey projects on power plants instead of only selling technology (i.e. boilers). This enforced the subsidiary to negotiate with other suppliers for different types of equipments and their instalment. In addition it took responsibility of the construction of infrastructure (e.g. roads, railways) needed for the operations of a power plant. Surprisingly, the Foster Wheeler Varkaus

subsidiary soon received several turnkey projects in Europe: one in Poland, one in Germany and one in Ireland. As only the first one of these was successful, the Foster Wheeler headquarters reacted by deciding to integrate the Varkaus subsidiary with the re-established global corporate structure and to end many of its previous operational and product mandates.

These re-arrangements did not pass without severe consequences. As the most concrete implication, major turmoil in the subsidiary managerial cadre resulted. This started with an American controller being sent to Finland. Soon after that, the managing director of the Finnish based operation was fired. He had been the figurehead for the former mandate expansion and one of the core developers the core boiling technology of the subsidiary. The controller was then appointed as the new subsidiary head. His accounting figures –based way of running the business was disliked by most managers of Finnish origin who, however, were not able to question his position because of their own failures in managing the major turnkey projects. In spring 2005, a new Polish managing director was appointed, only after a year under strict U.S. style control. His recipe to tackle the losses made was to focus on cost reductions. For that transfer of manufacturing operations from Varkaus to low wage countries would provide leverage. In addition, his mode of leadership was not acceptable to Finnish managers because they were accustomed to wide autonomy in the making of minor investment decisions while the Polish director wanted to have centralised control of the use of all resources. Finally, another US-based managing director replaced him.

At the level of organisational arrangements, it is most important to note that after 2002, the Varkaus subsidiary no longer enjoyed privileges over other subsidiaries within the Foster Wheeler energy business area. Moreover, operations in this business area were now placed in two divisions, both containing a new matrix based organisation. The corporate headquarters decided that the Varkaus subsidiary should act as a technology-centred boiler supplier for power plants of energy companies. However, even though the mandate was narrower than the old turnkey delivery positioning, it catalysed a positive working mode within the subsidiary. As to its economic result for the year 2006, it was back in black. Since then the Foster Wheeler Varkaus subsidiary has benefited from the upward swing of the international economy especially in the field of energy technology. The subsidiary has remained profitable thereafter and the alterations in the strategy based on R&D competence have on their part started to influence the local professional labour market dynamics.

By 2007, it was clear that Foster Wheeler corporate management had again become convinced that its Varkaus subsidiary may have a prospective future as an elementary part of the corporation. In addition to the shown ability of the subsidiary to remain profitable, this seems to be related at least to two issues. First, the subsidiary has proven that its true nature lies in intensive R&D at least to a significant degree. On the one hand, it has a long history of developing new boiler technologies (e.g. Pyroflow burning technique) and of operating in extensive nationally co-funded R&D projects with universities. On the other hand, it has proved to be able to initiate new projects of similar kind which include projects on one through unit (OTU) boiler technology and on the use of pure oxygen in burning processes. A demonstration site for the latter is built in Spain and the target deadline for a pilot plant is 2015.

Second, Foster Wheeler Varkaus subsidiary has shown that it is among the most developed players in its line of business. Most essentially, this is based on the personnel numbering 520 in 2007, out of which more than 90 per cent have a university education. The new drive in the demand has also put focus on human resource competence management which was downplayed during the previous turmoil of the subsidiary mandate and mobility in the managerial cadre. In the engineering function, a junior management education programme originating from the time of the Ahlstrom Corporation continues. Besides investing on management education, the most urgent issue is now the circulation of specialists from different teams to another. Because the number of boiler delivery projects has multiplied, there is a need to speed up the internal diffusion of best practices between projects, most of which also involve sub-contractors. In the orchestration of its projects, Foster Wheeler Varkaus subsidiary uses a 3D-software based working and communicating space among multiple suppliers and service providers. The software updates on a daily basis the contributions made to the planning objects of work by the teams across company boundaries. Finally, we may mention that biddings and deliveries of turnkey projects have increased the network linkages of the subsidiary considerably across the whole spectrum of power plant technology. The current business model also includes selling licences giving the right to use the boiler technologies developed.

Case Honeywell

Above we already indicated the many difficulties that characterised the post-acquisition integration development of Honeywell Varkaus subsidiary. By the turn of the millennium, the

subsidiary had passed these difficulties and re-established its position in a way that also acted as a platform for further positive development. One particular event to support this was Allied Signal Corporation becoming the new dominant owner of Honeywell in 1999. Another option for at that time barely profitable Honeywell would have been to merge with General Electric Corporation. After the ownership arrangements had been settled, Honeywell headquarters made several decisions intended to improve the short-term profitability throughout the company. For Varkaus subsidiary, this implied an appointment of an American director. Since 2002, however, Finns have headed the subsidiary and with the resources granted by the parent further enhanced its position by developing its own products and customer relationships.

The re-establishment of the mandate of the Varkaus subsidiary was indicated and furthered by particular corporate initiatives. First, some core characteristics in the products developed by Varkaus subsidiary were taken as the standard for all Honeywell products for the forest industry customer segment. Its geographical market responsibility was also expanded at the expense of other Honeywell subsidiaries in this customer segment. What is even more, the subsidiary was also given a global product mandate within the corporation on paper and pulp process automation products. Second, in 2003 the Honeywell headquarters decided to supplement the Varkaus subsidiary with a new R&D development centre. The centre especially intended to combine leading edge sensor technology and software in controlling the output quality of paper and pulp production processes. This technology increases productivity by helping to avoid breakdowns, downtime and scrap. In addition, experiments were to be made with new wireless and camera technologies in process control systems. Two years after the founding decision, the new centre already employed more than 50 researchers.

The resources and leeway given by the corporate parent soon also resulted in alterations in subsidiary customer relations and the prevailing business model in general. As a concrete example, Honeywell Varkaus subsidiary started to develop a new generation process control system with interfaces in the expanding ICT platforms used by its customers. More important, a new service business model aiming at a profit-sharing partnership with the customer was launched. The model contained rules how technology supplier benefits from the improved productivity of the customer that result from the iterated co-design processes (cf. Sabel 2005:

114-117). For Honeywell, the model implied an extension of the hardware and software support service that it had already provided.

The first contract representing the new service business model was signed in 2006 between Honeywell and a Finnish speciality pulp mill called Savon Sellu. The customer was also a subsidiary of a foreign based MNC, Powerflute, currently quoted in the London Stock Exchange. The key individual behind Powerflute was an Irish entrepreneur, Dermot F. Smurfit, a former chairman of board producer Jefferson Smurfit. Together with other investors he had bought Savon Sellu two years earlier. His previous industry expertise allowed him to streamline the work organisation of the mill completely. The number of employees at the time of the acquisition (2004) was 252. In 2007, with a simultaneous increase of production output from 245 000 to 275 000 tons/pa, the number was 180. This outcome was possible both because of the acceptance of the personnel for outsourcing and the contribution of Honeywell partnership. The process knowledge and a life cycle management support for all process control made it possible to optimise the production process by using statistical data and experimentation. Significant cost savings resulted making the mill profitable again and turning it into one of the most efficient board mills.

The first positive experience resulted in later activities of the same kind. On the customer side, Powerflute Corporation is also looking for new acquisition targets. On the technology supplier side, the experiences from the first partnership allowed Honeywell Varkaus subsidiary to pilot and develop the new service business model in practice. After the contract described above, the unit made a similar type of agreement with Finnish Valio Corporation for a facility producing milk products. Honeywell's service team is responsible for implementing the new system which permits potential upgrading of the partnership based service business model.

The Impact of the Local Environment on the Maintenance and Promotion of the Subsidiary's Mandate and Role

This subsection intends to supplement the material already presented by concentrating on how subsidiary management teams have used local, regional and national institutional resources in maintaining and enhancing the subsidiary's position during the post-acquisition period. We

claim that the subsidiaries seem to have found several ways of benefiting from such resources. Firstly, personal acquaintances established under the previous corporate parent continued after take-overs by the foreign MNCs but now in the form of partnerships and customer relationships. Secondly, the municipality (Varkaus) has initiated wide scale of activities that support the subsidiaries. Thirdly, the local trade unions and the labour movement in general, have had to adjust to a new situation in which there is no longer a single local dominant employer. However, the initiatives to support MNC subsidiaries have not been able to scale up the capabilities needed to take over new mandates and implement new business models. As a consequence, the number of inhabitants and jobs in Varkaus has been in constant decline. Most recently, Honeywell has made the dramatic move when it decided to transfer its operations to Kuopio, the regional centre. These aspects will be discussed in more detail below.

The heritage of the former corporate parent

After the individual subsidiaries in Varkaus no longer belonged to the Ahlstrom Corporation, it was still possible to continue many of the previous collaborative relationships between the subsidiaries. On the one hand, it was natural as the subsidiaries remained technologically related and there were still many ongoing joint R&D projects. Over the post-acquisition period, however, the amount of cross-subsidiary R&D has significantly diminished as the business activities of the individual subsidiaries have become more focused. In some cases, this is also because the subsidiaries have become direct competitors, at least with some of their products. For example, the Andritz and CAE-AFT subsidiaries (see Table 1) ended their previous co-operation after the former extended its business area to that of the latter. CAE-AFT has experienced another loss of previous Ahlstrom-based customer as StoraEnso's main technology supplier Metso also started to supply similar products. As examples of cross-subsidiary co-operation that still continues we may mention Honeywell's twenty experts that provide process control services for StoraEnso. Honeywell also still uses the facilities of StoraEnso to test some of its new measuring devices. Moreover, Andritz and Foster Wheeler subsidiaries have agreed on flexible use of the same manufacturing facilities in Varkaus. Finally, we may mention that the Honeywell and Foster Wheeler subsidiaries together built a worldwide innovative waste burning and recovery facility for StoraEnso.

Hence, despite the fact that there was no longer a shared corporate parent that would have encouraged the individual subsidiaries for collaboration the previous intra-company

relations continued to at least some extent. But the contrast to the time when the headquarters of Ahlstrom Corporation was committed to risk sharing in long-term cross-divisional R&D projects has been significant. The headquarters of the new parent MNCs have no specific motivation to encourage such long-term co-operation across company boundaries. Under these circumstances, neither the municipality nor local political leaders have capacity to influence the strategic decisions of the subsidiaries.

The contribution of the municipality

Between 1990 and 2007 the number of inhabitants in Varkaus has decreased from 24 600 to 23 400. Already prior to the early 1990s, Varkaus had lost more than two thousand jobs from the highs of the 1980s. Since then the downward spiral has continued. Since 2003 the decreasing taxation base has compelled the municipality to take more debt to cover the annual income deficit. In 2007, the town was given a crisis municipality status by the Finnish state. To fight against the high level of unemployment, the town has implemented a variety of programmes to keep the locality attractive to companies and inhabitants.

After the former Ahlstrom subsidiaries had been taken over by the new MNC parents, representatives of the town recognised that parent MNCs were not particularly dependent on the subsidiaries. Whereas roughly a third of Ahlstrom's turnover came from operations in Varkaus, for most new parent MNCs it was only a tenth. Hence, the continuation of these subsidiary operations in Varkaus – with the exception of StoraEnso - was much less certain than before. But even StoraEnso did reduce about 400 jobs from its Varkaus subsidiary between 2000 and 2007. For the town administration it took a long time to understand what the new and constantly changing context, created by globalisation meant for the businesses in Varkaus. Due to constant changes it is very difficult to tailor indirect support for the MNC subsidiaries. This does not mean that the town has abstained from meaningful support to local businesses and labour markets. We may mention four areas of such support: (1) forming of network organisations for sub-contracting firms, (2) founding of business service companies especially for small businesses, (3) setting up a technology centre for knowledge intensive SMEs and R&D projects and (4) making investments in the infrastructure.

Already in the early 1990s, when most of the subsidiaries in Varkaus still belonged to the Ahlstrom Corporation, the town established *network organisations* to support the development of local sub-contracting firms. These firms proved important when the new

parent MNCs outsourced parts of the previous subsidiary activities. After the acquisitions, the MNC subsidiaries in Varkaus have become increasingly dependent on these sub-contracting and service firms. For instance, the largest sub-contractor, Sahala Companies Ltd., provides versatile services to various industries, from stand-alone device deliveries to comprehensive plant-wide installations on a turnkey basis. It employs about 250 engineering professionals and craft workers.

From the early 1990s onwards, the municipality has set up business service companies for various types of purposes. For that complementary funding has been available from regional and national sources. The Finnish Government had set up programmes to fund development projects in distinct competence areas in line with the cluster based national innovation strategy. To complement the first Centres of Expertise programme in 1994, another more pragmatic Regional Centre programme with more pragmatic objectives was launched. Together, the programmes significantly decentralised the Finnish national innovation system to specific areas and regions. The newly formed universities of applied sciences initiated development projects in collaboration with universities, research institutes and local businesses. Since 1995, when Finland joined the European Union (EU), the amount of funds available for the peripheral region in which Varkaus is located substantially increased. In 2000, the amount of EU fund allocations for this region further increased by twenty per cent. These EU funds that complemented the national funds were also allocated through the Centres of Expertise and Regional Centre programmes.

In 2004, to supplement the business service companies that already employed more than thirty persons full-time, the town of Varkaus established another service company, called Aduser Ltd. Its mission was to “offer cost-efficient research and technology services to companies in the Varkaus region to enable them to respond to structural change and effects of globalisation”. This service company aimed to enhance co-operation between local MNC subsidiaries and Finnish universities and research institutes by applying funding for joint research projects. Linking Varkaus with university activities is especially critical the nearest of them is located in Kuopio, eighty kilometres away. As a concrete measure, two research directors were appointed to operate in Varkaus although they were employed by universities. To further encourage the inflow of small firms the municipality also used EU regional funds to build a technology centre offering office space for small and medium sized companies and

the R&D units of larger companies. Aduser Ltd. was also located in the centre that provided daily contacts between companies and units.

The municipality activities in building infrastructure include the still ongoing effort to launch a bio energy science park. That should host different kinds R&D activities (pilot plants, laboratories, educational and business services) and especially feed the energy related production activities emerging in Varkaus. Examples of more direct support for individual subsidiaries by the municipality include funding the building of a new factory building for Foster Wheeler and its sub-contractors to lease. This immediately increased the subsidiary return on capital. The municipality also provided financial support for airline service from Varkaus to Helsinki to encourage the local habitation of the management and personnel of the MNC subsidiaries.

Local trade unions and the labour movement

The governance traditions of one-company towns have been very peculiar in Finland. From the administrative point of view, they were originally parts of municipalities governing the neighbouring countryside. Due to the interests of the dominant company they were later turned into independent municipalities. Thereafter the dominant company continued to build the infrastructure on its areas and provided many of the inhabitant services until the 1960s. When the welfare services provided by the state diversified and its financial support for the municipalities increased, the dominant companies started to withdraw from their duties in the community. In contrast to the neighbouring countryside, the labour movement has had a strong representation in the elected bodies of the municipalities. Typically, left wing parties have had a majority in the elected bodies and many of the high visibility persons have also been representatives of local unions. Insider understanding of the needs of the dominant company has helped to focus the developmental activities of the municipality in ways that fitted the need of the company. During the time of the Ahlstrom Corporation, contacts between the town administration and the local top management were frequent.

After the MNC takeovers of the subsidiaries, the relations between the town, labour movement and the subsidiary management became much more complicated. Especially the local trade unions found it difficult to have a voice. There was not anymore a local dominant employer with which the terms of employment and problems in the labour markets could have been negotiated. Simultaneously, the overall level of education among the employees had

increased and become more differentiated. A single shop steward was therefore only able to represent a small number of employees. These changes encouraged the emergence of a more co-operative orientation among the employees towards the management of the MNC subsidiaries. This orientation has been apparent during the post-acquisition period from the early 1990s onwards when advances in company-level collective bargaining have been made. For example, in most MNC subsidiaries in Varkaus, the employees are accustomed to flexible working hours, depending on the season and business cycle. Many of the subsidiary employees also work in two or three shifts. These arrangements have significantly decreased investments needs in production facilities. However, in many comparisons done in the parent MNCs on labour costs, the costs in Varkaus are not the lowest. Being all the time subject to such comparisons may partly explain the decrease in the frequency of strikes during the post-acquisition period. This also indicates the already mentioned change in the basic orientation of employees. It can be argued that instead of confrontation, the relations between teams of subsidiary management and shop stewards have become more co-operative. In addition to extended use of company level collective bargaining, the tradition of employee participation in development projects and mill level managerial teams was already introduced during the time of the Ahlstrom Corporation. In many other subsidiaries of the parent MNCs in question the degree of participation of employee representatives is not as wide as it is in the subsidiaries in Varkaus.

Gaps in the availability of competences and resources in Varkaus

Above we have described a wide array of initiatives to mould the local business environment to fit the needs of the MNC subsidiaries. Even these, however, have not been sufficient for the most knowledge intensive activities already conducted or aspired by the subsidiaries. This especially applies to the R&D activities of Honeywell whereas Andritz, Foster Wheeler or StoraEnso did not have substantial R&D activities in Varkaus even at the end of the Phase 1 post-acquisition period. Similar problems have been indicated by the fact that the sales activities of many subsidiaries in Varkaus have been transferred to metropolitan area of Helsinki. In part, this is because of difficulties in recruiting new people to work in sales, act as key-account managers for international customers and live in Varkaus. But from the point of view of the town and its attractiveness to business, it was a major shock that instead of Varkaus Honeywell first extended its R&D activities in the regional centre Kuopio and finally, in early 2006, decided to move its office and almost all of its operations to Kuopio. By

taking a closer look at this process, it is possible to make visible some of the critical gaps in the institutional resources available in Varkaus.

For the transfer of Honeywell's operations to Kuopio, the parent company gave a strong impetus. It is the policy in the process automation division of Honeywell that each of its units remains capable of integrating new technological improvements to its products. For example, the process control systems must be periodically upgraded to increase the scope, mobility and transparency of information that is collected to the management information system. As a locality, Varkaus offered only limited opportunities for the maintenance and expansion of such knowledge intensive R&D operations. When the choice of a new location for was put on scrutiny, Honeywell considered in addition to Varkaus and Kuopio, also Jyväskylä. It is another regional centre like Kuopio with a university and operations of subsidiaries of global companies. However, Kuopio outperformed Jyväskylä in part because it was possible to persuade the Technological Research Centre of Finland (VTT) to establish a process automation unit to Kuopio. An important factor was also that Honeywell's competitor in the same automation systems customer segment, Metso, operates in Jyväskylä with close connections with the university there and with other institutions. Proximity with the competitor could yield knowledge spill over.

The local university in Kuopio had already collaborated with Honeywell in R&D projects and was now interested in extending this collaboration. The city of Kuopio had invested a lot to the university campus through a real estate company of its own. Now the Honeywell unit was offered an opportunity to rent office space. On the same campus, the regional university of applied sciences has laboratory facilities that offer relevant services for Honeywell. Hence, when also Varkaus was able to provide attractive office space to Honeywell, Kuopio offered a much more diversified scope of relevant activities. For the key-account managers who must visit often customers in order to know the needs and preferences, the flights connections are much better than from Varkaus. In Kuopio, it was much easier to find new sub-contractors and collaborators for R&D projects. Also professional labour markets offer there better opportunities for new recruitments, better services for present and future Honeywell employees to combine work and educational activities in their professional development and better employment opportunities for the spouses of Honeywell employees.

On the basis of the above it is thus quite understandable that moving from a more peripheral locality to a regional centre allowed Honeywell Varkaus subsidiary to maintain its previous product mandates and to provide a stronger platform to extend them in the long run. These decisions reflect a strong belief both at the MNC headquarters and the subsidiary management level on the importance of the local environment for the maintenance of subsidiary competitiveness. The first figures from spring 2007 do not show significant fallout of personnel from Honeywell because of the decision to leave Varkaus. In part, this may indicate a more general trend of intensified global competition between localities for attracting knowledge intensive business operations. The needed speed to upgrade a wide variety of facilities, employment opportunities, educational programmes and complementary R&D activities, welfare services and travel connections go beyond the capacity of many previously successful industrial towns, such as Varkaus.

Extended Micro-Political Exchanges in the Games Played by the Managerial Teams

Taken together, the analysis above demonstrates that the post-acquisition development of MNC subsidiaries is an eventful and in many ways surprising process. It makes visible the subsidiary-level actors that have been able to maintain and promote the mandate of their units in the MNC and adjust their role in the cross-company value constellations. But to succeed in such games, they have had to extend their micro-political exchanges from the local to the global level in order to secure a space in the MNC and in the wider value chain, based on competitive benchmarking exercises. But for understanding the ongoing process of globalisation and the ways in which national business systems are linked with it at multiple levels, it is not enough to take the perspective of a managerial team of a MNC subsidiary. As demonstrated above, the locality, the wider regional institutional context, and their mutual relations can be equally or even more important to innovation processes that occur in a global context and the services and ways of living that localities provide for their citizens. People are free agents to make their own choices. For policy making at the national level, responsiveness to the distinctive features and needs of companies, localities and people becomes essential. Unified, top down blueprint sector policies do not materialise the potential at the grass roots and in the ongoing decentralised experimentations for new businesses, business models and roles in value constellations (Lester 2007). In this subsection we once more explicate the extended micro-political exchanges made visible in the subsidiary specific narratives (cf. Morgan and Kristensen 2006: 1475-1485).

StoraEnso Varkaus subsidiary

As part of StoraEnso, the management of the Varkaus subsidiary has to adjust its strategy to the ambitions of a globally leading forest industry company. StoraEnso has several strengths with the help of which it is a likely survivor in the next phase of restructuration that is expected to happen in the forest industry. It has a strong corporate brand in Europe, with a wide portfolio of products, high technological efficiency, multiple sourcing opportunities and roots via former Stora Corporation to the 13th century. Two camps dominate its ownerships structure, the Finnish state and the Swedish Wallenberg sphere each of which has sufficient control of the company without holding a majority. It is unlikely that this company will be taken over by investors and cut into pieces during the next phase of industry restructuration. However, it is not out of question that the Wallenberg sphere wants to swap its ownership stake to more attractive financial investment targets. Holding the ownership stake of StoraEnso is also not critical for the Finnish state.

StoraEnso top management thus has to attend to the changes in the market capitalisation of the company and keep the obtained as an important target figure as it is also in the minds of investors and venture capitalists. High return on capital is important also because internally generated funding is necessary to master current challenge for corporate renewal. StoraEnso is lacking a portfolio of new products that have a high growth prospect. To be able to keep its position among the globally leading flagship companies, new growth opportunities on science-based inventions are needed. The decision made by the headquarters to diversify the wood raw material based business portfolio to a new related industry, i.e. the bio fuel production is clearly a step towards a search for new business opportunities.

The bio fuel pilot production plant, owned and management together with Neste Oil, was one part of the micro-political exchanges that StoraEnso linked to the closure of the Varkaus PM 1 discussed above. The plant conforms to the increasing demands on the use of renewable energy sources. It extends the use of certified wood based raw material to unused parts of it in a chain of logistics that is already in place. It provides new jobs in an industrial environment where productivity increases reduce the need of labour. Finally, it is perfectly linked to the energy sector that has been taken as a core competence area for the town of Varkaus and a basis for building local concentration of companies. As out of all MNC subsidiaries in Varkaus, the StoraEnso subsidiary has the least opportunities for the transfer of operations, the diversification move is well grounded in the ongoing decentralised experimentations.

Within the global MNC, the new pilot plant probably increases the overall attractiveness of the Varkaus subsidiary. In comparative benchmarks between mill integrates it may in the next step lead to full scale production. Thus, despite the closure of one production line (PM 1), the dominant logic indicated here is not at all related to the transfer of production operations to cheaper production regimes. Nevertheless, the Varkaus subsidiary is a typical case in the Finnish forest industry which boasts with many units that have been stuck to their mandate and have not developed a dualistic model of renewal through simultaneous innovations and cost reductions. Building of such a model is important for the local environment as well. In any place, young people between 20 and 34 are the ones that most probably leave the town where they have been born, first to get the education they prefer and then to move after the employment they get. In Varkaus, the educational programmes of the local university of applied sciences have not been enough to keep in and to attract people from elsewhere to Varkaus. In engineering, the programmes have focused on automation technique, machine- and production technique and industrial engineering.

Foster Wheeler Varkaus subsidiary

The case of the Foster Wheeler subsidiary tells a story of constant attempts to upgrade one core technology used in power plants and also to take an integrator role in power plant turnkey projects. Within the MNC, the subsidiary management team has faced an initial appreciation of the distinct technological competence of the unit, wide autonomy and generous operational mandate. Failures in implementing the integrator role in turnkey projects led to a complete change of the management team, close surveillance from the headquarters side and a phase of uncertainty about the viable strategy for business renewal. The intra-corporate game on a new mandate was solved by putting R&D driven technological renewal to the core of the business unit and building the unit's role in the corporate value chain and cross-company value constellations on that. This meant a return to the initial success path of the subsidiary, although this time within a new MNC and under favourable business cycle. These changes quickly turned the business unit profitable again.

Paradoxically, the fact that Foster Wheeler remains in Varkaus is partly facilitated by the leaving of Honeywell. As the former needed new experts, it was eager to hire about ten that previously worked for Honeywell but no longer wanted to commute between Varkaus and

Kuopio. Availability of housing facilities close to the largest lake area in Finland with affordable prices is thus one reason why Foster Wheeler has been able to recruit new employees. Neither do poor flight connections hamper the choice of the locality as the 3D-software based virtual working and communicating spaces reduce the need for travelling and meetings.

Honeywell Finland

The successful globalisation of a large number of Finnish based companies active in the forest sector was the major impetus for Honeywell to give the global mandate for serving this sector for its Varkaus subsidiary. Intimate understanding of the needs of the customer has been built into the operations of the subsidiary and could be delivered elsewhere due to benchmarks with best practices. Demands from the headquarters to integrate new technologies to the existing product platform via R&D and the pressure to supplement the previous business model with service business elements forced the subsidiary management to focus on new sources of competence. We have above described the process that ended in the transfer of subsidiary operations from Varkaus to Kuopio.

The story of Honeywell Finland especially makes visible many gaps in the institutional resources available in small and medium-sized industrial localities. To meet the regional, national and global level competition, such localities have severe difficulties including a small population base and a growing amount of aging population. At the same time local companies and inhabitants expect that the municipality can upgrade the service level and widen the service scope. In Finland, the number of industrially specialised localities similar to Varkaus is considerable. This is due to the raw material based industrialisation of the country and original choice of the location for industrial production due to the availability of hydropower. Thus, the competence and resource gaps identified here also reveal weaknesses of the Finnish business system as a whole, partly related to the large geographic size of the country. On the other hand, new virtual ways of working in R&D and in project based engineering assignments, as demonstrated by the Foster Wheeler case, may imply that the digital revolution can reposition localities as to their status and attractiveness. Thus correct focus in the value chain, the substance of work in the business model, the way of life offered by the nature and basic societal services may provide a virtuous circle for some localities to prosper although the general circumstances for other than regional and national centres were weak.

4. The dynamic logic of the Finnish national business system

The purpose of this section is to link the historical narratives sketched in the two previous sections into multi-level contextual settings. This should visualise the dynamic logic of the Finnish national business system. The linking is done first by pointing to *the changes of the focal actor* that have been the period specific drivers for business renewal in Finland. The main point of the first subsection is that *for each of the three temporal contexts covered there is also a new focal actor*. Secondly, due to the shifts as to the focal actor, the relevance of different institutional resources changes dramatically and unexpectedly. This is highlighted by the abolishment of previously critical risk sharing mechanisms, shifting priorities of the subsystems and the launching of new risk sharing mechanisms suited to the new focal actor. Thirdly, because there is always scarcity of institutional resources the modes of governance are highly relevant in directing resources to the needs of the new focal actor. In what ways has the neo-corporatist tradition of stakeholder participation and inclusion of civil society been aligned with the shifts of the focal actor? Fourthly, in new path creations there are always gaps in the availability of relevant resources that can be drawn from different subsystems of the society for business renewal. What kinds of complementary resources are typically missing when local actors are engaged in processes of business renewal? Finally, we will explore, based on the analysis done above in this chapter, what kinds of dynamic complementarities may have emerged in the Finnish business system?

Changes of the Focal Actor during the last 25 Years

When taking a look back over the temporal cycle of 25 years, we assume that our two narratives have demonstrated the fact that in the Finnish business system the period specific focal actor has changed. There is not doubt that before the end of the 1980s the bank groups and the state were the focal actor. By various risk sharing mechanisms they could shelter bold investments done by companies that belonged to their ownership spheres. Such risk sharing allowed these companies to diversify their operations into new industries or become engaged in other types of high risk business opportunities. During the 1990s, however, the internationalising national champions turned out to be the new focal actor in the Finnish business system. That space was opened by the collapse of the bank groups, the step-wise privatisation of state-owned companies and the withdrawal of the state from being a dominant actor in the economy.

Then after the turn of the century, several internationalised national champions had received a flagship company role in global value constellations. This helped a large amount of suppliers to internationalise with them. Because many Finnish based MNCs had internationalised through mergers and acquisitions, their governance got more federal features. In addition, they started to allocate distinct mandates to their units in other parts of the globe, like did foreign owned MNCs in Finland. Such shifts in governance modes have given much autonomy to product and value chain based operations and the more so when the emphasis is on innovations. In this new context of global value constellations incremental business renewal occurs constantly in customer-vendor relations. For radical innovations the scope of mobilisations covers a variety of companies, research institutes and universities. In such a context the accumulated competence from earlier phases of development is essential. Especially for this reason front-liners have become the new focal actor also in the Finnish business system.

When taking a closer look at the type of occupations and professions involved in such front-liner assignments in peripheral industrial towns we note that their core is occupied by engineers, natural scientists and ICT-specialists. They have tertiary education as a background and have accumulated their work related competences in circulating from one development project to the next and/or being also responsible for teams and sections at different functional departments. As far as the Finnish based flagship companies are concerned, the educational background and types of expertise of their corporate management indicates much more variation. This is due to the wide scope of network relations that the front-liners are taking care of in mobilising competences. Also the variety of organisational models used for business renewal is wide, covering traditional R&D functions, venture organisations and funds, as well as exploratory community building with stakeholders in line with the open innovation paradigm.

Abolishment of Previous Risk Sharing Mechanisms, Constructing New Ones and Making Use of Existing Ones

The emergence of new period specific focal actors has co-evolved with changes in the availability of distinct risk sharing mechanisms. During the centralised mode of operation in

the 1980s, the focal actor had internalised the risk sharing mechanisms in to its structure. This concerned both the bank groups and the state. Even on the second tier of the fixed power structure, like in multi-divisional companies, the headquarters had to a certain degree also internalised risk-sharing. Being involved in various industries was motivated by the fact that economic downturns hit various industry-based divisions at different phase of the economic cycle. This provided cash flow to the corporate level at each phase.

In the 1990s, when multi-divisional corporations started to focus their business portfolio they lost the risk sharing mechanism related to diversification. At the same time they were facing the need to launch radical product innovations at a shorter time span than earlier and face global competition when becoming more international. In such a context the priorities of various societal subsystems started to change. The commitment of the state to increase public funding for the R&D was a highly important signal. However, leading companies, that were at the driver's seat in R&D projects, had to involve also suppliers and business service companies to projects, in addition to research and educational institutes. This facilitated the spill over of knowledge that emerged from partly publicly funded projects.

After the turn of the century, leading Finnish flagship companies in the ICT- and forest based sectors had established at the global level their positions and set up both production units and R&D centres in several continents. Similarly, foreign MNCs had experimented with the competence bases of the subsidiaries they had bought from Finland. Thus the headquarters started to shift their focus from setting up locality based competitive advantages to giving leeway for local actors. The latter could start making suggestions how to encourage bottom up processes to improve their role in customer relationships and in wider cross-company value constellations. But to succeed in issue selling for product innovation projects and new mandates within the company or new roles in value chains, the local actors had to accomplish benchmarks that were satisfactory when compared to other alternatives in a global context. Because globally leading companies have access to new knowledge where ever it is produced and they are increasingly committed to open innovation processes such competitive comparative search processes speeded up innovation processes. Fortunately, the investments in research and education in Finland had created relevant intellectual environments in regional centres and even in peripheral industrial localities.

However, our material also suggests that success in bottom up business related endeavours is not only dependent on technology and business related competences but also requires personal support mechanisms for front-liners and their families. Continuous upgrading of occupational competences and leadership skills were in the case of Varkaus subsidiaries put in the agenda after difficult phases of corporate restructuring. What was probably even more important was that the whole fabric of public sector services turned out to be an important facilitator for employees involved in global value constellations.

The Role of Experimental Governance in Exceedingly Decentralised Settings

In decentralised settings local organisations of political parties, trade unions and chambers of commerce have been the channels of civil society to influence the service provision of municipalities and wider regional contexts. During the 1990s, reforms of the educational sector and implementation of new funding tools for cooperation between companies and educational institutions provided new openings. The publicly funded programmes for centres of expertise and local competences have created collective network-based actor identities across sectors and types of actors at the local and regional levels. Such programmes have also provided incentives to localities to collaborate with each other. In this way institutional resources from regional centres have diffused to the smaller localities. Regional funds allocated from the EU have complemented these types of expertise enhancement programmes in a beneficial way.

For globally operating companies projects that are funded from such programmes are not significant because they have considerable resources of their own for developmental work. Their main source of knowledge input comes from the access to the core R&D centres nationally and internationally. But for front-liners that have been working in project based assignments such sources of funding were highly relevant. They provided employment opportunities in cases when proposed tasks of the current employer did not meet the ambitions of the front-liner or in cases when the employment was terminated. They provided also funding for assignments that could be included in degree programmes of educational institutes.

Missing Types of Local Actors and Gaps in the Availability of Institutional Resources for Locally-Initiated Business Renewal

Missing types of local actors and gaps in the availability of institutional resources in locally-initiated business renewal processes are probably useful indicators for exploring gaps in complementarities between the local and the national and between various subsystems. We start the analysis by noting the missing types of local actors and explicating potential reasons for that in the legacy of the business system.

Firstly, it is relevant to point out that the shake up of Ahlstrom Corporation did not lead to growth oriented start ups in the Varkaus context. Nor is entrepreneurship a widely shared dream in Finland. As a matter of fact Finns, in comparison with citizens in other countries, consider entrepreneurship less attractive than wage labour (Pajarinen and Rouvinen 2005). The main reason for this is the fact that during recessions centralised risk sharing operations, like regulations of interest rates and devaluations, have targeted national champions while owners of SMEs have suffered. The most recent example from that is the recession of the early 1990s. It led to thousands of bankruptcies of SMEs and caused long lasting traumas to entrepreneurial families. Thus only younger generations under the age of 34 have a more positive attitude towards the entrepreneurial option as a way of life and this orientation matches measurement results with other Nordic countries (GEM 2007 Global Report). Another reason for low enthusiasm towards entrepreneurship has been the lack of equity capital in the financial markets. The availability of venture capital has been even scarcer. While equity investment funding in Denmark is 0,4 % of GDP, in Sweden it is 0,3 %, but in Finland only 0,1 % (OECD Science, Technology and Industry Scoreboard 2007). International equity investors and venture funds have not targeted start ups even though international equity capital started to flow to Finland since 1993, after the liberalisation of ownership of companies. Some exceptions have been in the Finnish ICT-cluster that has been a seedbed for so called “Born Globals” (see e.g. Luostarinen and Gabrielsson 2006; Gabrielsson, Gabrielsson, Darling and Luostarinen 2006; Laanti, Gabrielsson and Gabrielsson 2007).

Secondly, we already indicated that the most valued employers have been the organisational units of national champions. Life long employment was entrenched in such core companies until the 1990s. Among white collar workers advancement in the organisational hierarchy was the dream model for the career. Thus in other industries than construction, engineering,

consulting and business services, the adoption of project based organisational models and temporary employment agreements have been a managerial challenge during the last decades. Neither has employee-driven innovations related to work organisations been a major policy issue, even though the Ministry of Labour has for two decades allocated funds for research based organisational development work. In the cases reported above, the issue-selling initiatives within the MNC and in the search initiatives for new roles in value constellations were not related to distinct innovations in work organisations.

Thirdly, Finland has been a laggard in attracting experts from foreign countries and even employment-related migration to Finland from other countries is a new phenomenon. Thus the lack of multi-cultural labour force is a disadvantage of Finnish based work organisations when considering global project assignments.

5. Dynamic complementarities: Towards new negotiated constitutional orders?

Dynamism in sub-systemic complementarities or between the institutional settings of local and national levels may emerge from proactive risk sharing operations that are in line with the emerging needs of the period specific focal actor. Complementarities can also emerge unexpectedly from earlier institutional investments. Due to the change of the focal actor such investments may turn out to be surprisingly fit with the needs of the emerging focal actor.

In the Finnish case, we can point out to examples that could be labelled as dynamic complementarities in two temporal settings. The first one is related to the institutional layers that facilitated the breakthrough of a Nokia to get upper hand in the ICT sector globally together with a few other flagship companies in the forest sector (cf. Tainio and Lilja 2003). The second one is related to the wide scope of services of the public sector and their relatively high quality in the whole country. Such services can make even peripheral localities attractive places to live for front-liners and their families while the care-takers work in assignments that are parts of global value constellations.

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Chapter 3

Tailoring Danish Flexicurity for Changing Roles in Global Games

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Foreword/Abstract

In all the developed countries, firms, in order to find a new place in constantly changing global value chains, have been experimenting with re-engineering, downsizing and outsourcing – searching through a variety of new organizational concepts to create the ability to continuous change. This article is an exploration of processes of organizational and institutional experimentation in Denmark. We argue that not only companies are experimenting with new organizational principles (lean production, socio technical systems and learning organization), but also citizens are experimenting with new forms of family life, working-careers and professional identities creating new paths and new possibilities of development. The efforts to increase flexibility are strongly linked to the possibilities for continually redefining organizational roles within and outside the boundaries of firms. Role-redefinition is an ongoing mutual process – like complex dancing patterns – where participants align their actions together, at both national and international levels. Such mutual role definitions depart from the institutional setting concerning the original identity of the potential partners and the rules followed in the patterned interaction by which a new pattern of interaction is created. Only if this process allows for simultaneous mutual redefinition of roles, patterns of interaction and the use the dancing partners make of institutions can they fully exploit the options that the global dancing floor offers. These possibilities are linked to a diversity of institutional experiments located at the boundaries between citizens, firms, and institutions.

Our paper progresses in three steps. First chapter is devoted to a more generalized characterization of the systematic pattern of the Danish Business System, and, secondly, how

citizens, firms, and institutions have at an aggregate level been aligning themselves to the global setting, and its possibilities and challenges. Second chapter, is devoted to micro-investigations of how the mutual role-shifts are occurring in case-firms and towards their institutional setting in their attempts to define for themselves a place or make use of the global dancing floor and engage in transnational exchange with potential partners. In presenting our cases, we discuss the new forms of industrial organization and how they are linked to participation and partnership, how they mutually govern their experimental steps, as well as the possibilities and challenges associated with them. We will discuss the processes of collaboration between actors, teams and communities of teams, debunking how teams are formed and broken in a processes of reflexivity, based on collaboration and competition, with groups inside and outside the boundaries of firms and nations. The article examines how groups challenge each other, their own models and imported recipes, but also how they negotiate new patterns of interaction, during the process of experimenting with new organizational principles. We discuss the problems that firms and actors face, the preliminary solutions they have been able to develop, how these solutions influence the different positions and movements that ambiguously divide and unify employees, managers and representatives. Third chapter, is first an attempt to synthesize the Danish pattern of continuous adaptation, and the, secondly, takes a comparative perspective and assess how Danish dancers compare to dancers from other institutional settings, in particular the other Nordic countries, which currently seems to make the fullest use of the Dancing floor (according to the latest ranking of dancing from the World Economic Forum).

Rather than a finished text, this document provides elements to a work in progress. It is a preparation of the Danish contribution to the Translearn project. Theories of innovation, the novel role of the welfare state and a characterization of the change going on internationally will be written in a general introductory chapter that frames the content of what follows.

1. Introduction to the Danish case

1.1. Denmark – An experimental laboratory for an alternative route to the New, Knowledge Economy?

Danish firms - small, often family owned with low R&D - and regions have not entered the new global economy as expectations predict (as in e.g. the US, Finland, etc., innovating in high-tech innovative sectors) and leading to a uniform version of the knowledge economy. In

1995-1999 the contribution to growth in total employment of the rise in knowledge-intensive employment was 4.9 for Finland, while it was only 1.0 for Denmark (Arnal et al. 2001, p 17). Yet the 1990s “employment miracle” rated Denmark among the top of EU countries concerning the ability to move to low unemployment rates (Madsen, 1999, 2003). Not a coherent transformation, but a patchwork of factors and labor market reforms combine to explain this development (Madsen and Pedersen, 2003). Some regions moved towards more knowledge intensive, though not necessarily high-tech occupations (e.g. Herning-Ikast; North-Jutland), but it was striking that the employment of formally unskilled workers and their average wage-increases were higher than in most countries, making Denmark more egalitarian, while others changed towards a more dualistic labor market (Andersen, 2003).

Danish flexicurity has been seen as one phenomenon explaining Denmark’s indigenous transformation towards the new global economy. It has been said that the ease by which employers can hire and fire workers makes the economy much more adaptable and able to shift resources to progressing firms and reducing employment in shrinking ones. On the other hand generous social security, unemployment benefits, active labour market policies and personalized public services ease periods of unemployment for the involved families and make it possible to continue living a fairly normal life, while searching for new employment or learning to master a new job (references on Danish Flexicurity).

Now the attraction with this view is that it combines the flexibility of markets with the “European Social Model”, and it is easy to see why flexicurity may be beneficial for firms living in the new economy. Since the mid1990s the rule of thumb has been that in Denmark 250.000 jobs gets lost, while 260-270.000 new are created and approximately 20% of the labour force shift jobs, yearly. In an economy of the Danish size, this is witnessing of a dramatic pace of change. Very few, if any, have seriously studied what is going on, how the processes look and why it happens. Moreover, very few are able to tell why this would mean progress towards the knowledge economy in a distinct way. But it seems to do, as Denmark has progressed to a higher ranking in the Lisbon Scorecards than even the US (World Economic Forum, 2004).

But it makes indeed sense if we see it as reflection of larger global tendencies. For Herrigel (2007), one of the central phenomena of the new economy is that firms constantly must redefine their role towards other firms in order to reduce costs in order to finance increasing

innovativeness. This involves finding new markets, out sourcing, creation of new partnerships, presence in different localities with different skills and knowledge, etc. and the more relations that are created, globally the more possibilities for offensive redefinitions of the role of the company are possible. Now, Denmark may be scoring low in investments in R&D, involvement in high-tech-sectors, etc (Benner, 2003), but it might score high on the ability to role redefinition. External role-redefinitions of firms involves changes in the internal skill- and role matrix of the company, leading either to lay-offs, hiring of new workers with different skills or radically shifts, re-skilling and re-combinations of workers within the company. Obviously, Danish flexicurity could be a very attractive asset under such conditions (Hage and Powers, 1992).

Furthermore, as employees by shifting jobs frequently learn to master an increasing number of roles and skills, their role-set and competencies increases, making them increasingly equipped with the ability to change role- and reflect on deliberative role-taking and the construction of new role-matrices in both teams and the larger organizations in which they work. Compared with the *Bureaucratic character*, which cultivated a more and more specialized and corporation specific competence, this new situation creates an *Interactive social character* that is better able at shifting between than of perfecting routines (Macoby, 2006), and better prepared for search (Sabel, 2006).

As Sabel has pointed out (Ibid), we are badly prepared for understanding this novel form of firm, and if Herrigel is right in his description of the continuous redefinition of roles among firms, we are also in trouble concerning the understanding of institutions, as our theoretical frames for understanding roles and rules has been modeled for stable states. And as Herrigel (Ibid) rightly has pointed out role- and rules must change interdependently, and so must the use made of institutions. Obviously, this raises a whole set of new questions of governance: How are firms governed that make constant role-redefinitions and alters constantly departmental division of labor? How is labour markets governed if employees transcend the boundaries of professional groupings and trade unions? How may institutions change with shifting needs in firms and employee groupings, without leading to abuse of public means?

We will probably not be able to answer these questions, but we think Denmark is an ideal laboratory to explore these issues empirically to create substance that may lead to answers.

However, whereas the discussion on flexicurity is basically going on among macroeconomists and the debate on global restructuring is held in universal tones, what we need for our purposes is to understand the processes of micro-dynamics both within and among firms, worker-careers, and the role played by institutions. Thus we start this paper, by reviewing how earlier research on the Danish business system has modeled firm- and labour-market dynamics and their institutional settings and on top of this we attempt for broad characterizations on how this system has evolved. Then in section 2, we study in dept a number of firms and their way of coping with globalization in particular by developing new forms of learning organizations and how they have made use of institutions in a number of very different ways. In section three, we first synthesize how firms and institutions co-construct an evolutionary dynamic incorporating the complementarities between national institutions and local firms and finally we characterize the Danish dynamic viz a viz other Nordic countries.

1.2. The traditional internal dynamics of the Danish business System

If aspiring for an understanding of the Danish Business System, one major flaw in the discussions on Danish flexicurity is that it attributes the active role to employers, while it assigns to employees a passive, in which they accept to get easily fired in exchange of generous unemployment benefits, and by accepting to take on new job-roles. In what follows we shall see that traditionally and recently mechanisms of role-redefinitions spring as much from employee groupings' aspirations, fight for social space and reputation, mediated by the institutions they make use of and exercised through holding jobs in firms, which they co-construct with employers. In other words we want to understand the comprehensive dynamic on the labour market and among business firms, so that the past pattern of mutual role-taking among firms and employee-groupings become clear and is able to replace the general market-reasoning behind flexicurity arguments with a socio-economic and institutional understanding of patterns of interaction.

Such an investigation calls for an understanding of the distinct historical construction of Danish industrialization, but here we shall limit ourselves to what in particular is important for the above mentioned dynamic of role-taking. For various reasons, the crafts and craftsmen won a particular strong position in Danish industrialization compared with most other countries, which helped to give SMEs and craft workers a much stronger role in Denmark compared to other countries. The way they defended this position was not by creating a

political coalition as in the case of Germany, where *der Mittelstand* owed its position to Bismarck (Streeck, 1992). In Denmark it played a cardinal role that the crafts by the late 19th century succeeded in creating numerous local (multi-craft) technical schools associated to national craft-specialized schools, so that an extreme decentralized labour-market could be linked to general and certified curricula that made national mobility of the workforce possible. From the beginning of the 20th century this school system was crowned by a Technological Institute experimenting with new technologies so they could be applied for small businesses and constantly developing new curricula for existing crafts and developing new craft-specialization (e.g. electricians, car mechanics, etc) in tune with new technologies and needs. Firstly, this meant that craft-workers came to dominate industrialization as their numbers expanded explosively and that they lastingly came to dominate the entrepreneurial class. Second, other groupings had to waver for a training strategy if they wanted to compete for social space within industry against the craft workers.

For instance, during the crisis of the 1930s unskilled workers initiated Work-technical-schools organizing evening classes that attempted to educate unskilled workers in new technology-areas so that they could better compete with skilled workers over jobs that had not already been fully colonized by the skilled. Gradually, the unskilled succeeded in gaining increasing state support and from the 1960s onwards they were able to create a countrywide system of Special-worker-schools that could organize curricula and compete more fully with the craft-workers' Technical School – and unskilled workers changed their unions to the Union of Specialized Workers. During the same period, the craft workers were absolutely not passive. On the contrary they tried to contest the Civil-engineers by flocking to Technicum-engineering-schools, that had been initiated by visionary entrepreneurs originating from their rank and file. Through these schools and new vocational training for technicians at Technical Schools, the skilled workers totally came to dominate the new positions and organizational roles that opened up with Denmark's modernization after Fordist ideals after WW2. Thus by the 1960's different groupings in Denmark were organized in different unions, associated to different schools, all engaged into a rivalry of qualifying their constituencies to whatever openings would show up on the labour market with new technologies, new organizational forms, etc. This rivalry even involved different Ministries, as e.g. Specialized-Workers-Schools were the responsibility of the Ministry of Labour, while Technical Schools belonged to the Ministry of Education. One could say that the universal weapon for fighting for social space in a civilized way in Denmark became schools, and unions could only expand if they

secured that their members and associated schools managed to capture expansive new areas that would open up with changing technologies, forms of organization, etc. (Kristensen and Sabel, 1997).

This dynamic have had an immense importance for the distinct Danish economic and social dynamic.

In Kristensen (1996) we have at greater length described how this system pressurized firms to compete over reputation by trying to recruit highly recognized teams of workers and offer them job-challenges so that they would not need to pursue their craft worker career (Sabel 1982) of continuous growth in skills by shifting employer⁷. One might say that workers have tried to and in many cases managed to succeed in institutionalizing poaching, without creating the consequences that employers would under-invest in vocational training and education, as the welfare state increasingly carried the financial burden associated with an increasingly sophisticated system. Rivalry over recruitment of highly skilled and reputed workers was very difficult for firm that would cater for mass-production of a few products and therefore a fairly unusual firm type, the *skill-container*, specializing in mastering a number of technological processes for a multiplicity of purposes, became constitutive for the Danish Business System. Given a dense network of skill-container-firms it became increasingly easy to operate another form of firm, which have called the *project-coordinator*, because it could easily organize a project of developing, producing and marketing a new single product on an international scale by asking skill-containers to do most of the development and production and then eventually focus on assembly and marketing at home. In this way it became very easy and cheap in terms of investments to bring new products to the market, or to cultivate services, where most of the value-chain were outsourced to other firms.

One of the reasons that a business system of skill-containers and project-coordinators do not simply develop into a hierarchical system of OEMs and suppliers, as for instance in Japan, is that skill-containers will loose their gain in recruiting power by specializing into a narrow supplier of repetitive blanks. In Denmark it is a widely recognized rule of thumb, an informal

⁷ It is interesting to observe that in the Danish case workers have been reluctant to have mutually binding laws on employment protection as craft-workers always tried to protect their crafts by being highly mobile. Thus during early industrialization journeymen would discriminate against colleagues that had married and in this way given up their mobility. For the same reason workers – though not their unions – were against co-ownership reforms in the late 1970s from fear that it would tie them too closely to a single employer. Many small stories on the labour market is about conflicts and strikes if groupings of employers tried to make agreements against poaching, as that was seen as a return to feudalism by workers.

governance principle, that a supplier should never put more than one third of its turnover into one basket. This means that successful project-coordinators will quickly outgrow Danish suppliers and therefore have – fairly regularly since the 1960s –outsourced production of standardized, mature pieces to foreign suppliers, while on the other hand used Danish suppliers for experimental development of new pieces and products. Skill-containers, on the other hand, has been tied up into many different value chains, some regional, others national but increasingly also since the early 1990s international. The implication is that new challenges have automatically entered their workshops helping them to offer highly skilled teams of workers with an abundance of new opportunities for experimental learning.

However, these firm types are or were seldom found in clean forms. Most are mixtures of both principles. For instance, a skill-container often develop some sort of product and a market because it wants to do something which can stabilize employment, at least so it can employ the core group of its working teams during slumps. But it may also develop a product to be able to network with potential customers for its wider skill-container services⁸. In a similar manner project-coordinators may want to control assembly and some core parts to secure control of quality. In this way the two types of firms may gradually start to embody both logics within their realm, creating very complicated and self-contradictory evolutionary paths but also highly interesting forms of industrial firms that may be highly networked with many outside firms.

Danish factories – as their Nordic sisters - looked very different from factories in most other countries. Already by the end of the 1970s. As shown by Dobbin et al (1999: 277) factories in the Nordic countries, and in Denmark in particular, were characterized by high discretion in work compared to Anglo-Saxon countries. A Danish blue collar worker experienced as much autonomy as did a foreman in the US; a Danish production-manager was more autonomous than an American CEO (while a Danish CEO experienced less autonomy than a Danish foreman). Different explanations may be given for this situation. E.g. Morgan (1997) shows how the universalistic welfare state gives rights and privileges to workers that are not associated to the employment contract as they tend to be in both Anglo-Saxon and in continental, conservative welfare states. In this way, workers are more free to search for a

⁸ One of the difficulties of being a skill-container is that the ”products you have produced for customers are exactly the kind of products you cannot produce for new customers”, whichh make it difficult to participate in industrial fairs, etc.

new job, if dissatisfied with the current employer, in universalistic welfare states because they risk not also jeopardize pensions, health insurance, etc. In Denmark, where the autonomy according to Dobbin et al is the highest, the training system helps make frequent job changes easy, as the training system could be said to share the risk of job-change with the employee, and eventually turns such periods into investments in and increase of human capital.

According to Eriksson et al (2006: 104) most employees leaves a job in exchange for a new. Even during period of high unemployment, say 1980, this number amounted to 200.000 whereas only 80.000 were fired and went into unemployment. In periods of low unemployment, say 2000, approximately 260.000 left a job because they had found a new, while only 40.000 were fired to unemployment. Thus, Danish *flexicurity* is to a great extent characterized by employees looking for new challenges in other places⁹. Consequently, employees rather than employers are the active agent, and they in turn pressurizes employers to offer new opportunities for increasing skills and developing new role configurations that look challenging in the eyes of employees.

The self-imposed horizontal mobility on the labour market, in Denmark, also created a hierarchical, class transcending mobility. Haldor Byrkjeflot (2001) has brought together a number of comparative studies of the social origin of CEOs in different countries by the end of the 1960s – when Fordism was thought to rule manufacturing industry¹⁰ - and differences in class-origin of managers among countries are indeed astonishing:

Table 1.1 : The Social Background of CEOs around 1970

Country	From lower classes	From Middle-class	From Upper-class
Denmark*	16	36	48
Finland	10	23	67
Norway	4	19	77
Sweden	15	15	70
France**	3	15	82

⁹ Jeg har set opgørelser, der viser, at i højkonjunkturen skulle 2/3 der forlader et arbejdssted gøre det for at søge nye eller større udfordringer. Desværre har jeg ikke fundet kilden. Der skulle være et studie på vej fra Århus med Nicolai Kristensen og Niels Westergård-Nielsen . Husk at checke dette.

¹⁰ Byrkjeflot (2001, note 15) writesr: The European part of the survey was based on responses from the Chief Executive Officers (CEOs) of the largest 500 international companies in Great Britain, France, Germany, Italy and Sweden, the 400 largest in Denmark, Finland and Norway and the 250 largest in Belgium and the Netherlands.

Great Britain	7	27	66
Germany (West)	10	20	70
Italy	3	20	80
Belgium	2	20	78
Netherlands	4	19	77
USA***	23	66	11

Kilde: Byrkjeflot, 2001, s 41.

* Scandinavian data from 1970; ** Other European data from 1968; *** from 1964

As we would expect the typical pattern in most countries is that CEOs come from wealthy families and have academic educations. The US and Denmark differs most concerning class origin, but only Denmark differs with respect to the role of academic education (Ibid: 45) combining a higher proportion from lower and middle-classes and with non-academic educations. From our field studies we know that many a manager started with an apprenticeship, worked for a number of years as a journeyman, then engaged in e.g. a technicum-engineering education and finalized with a diplom-education in Management (Kristensen, 1986). Having during this career been involved in jobs at nearly all possible levels and within different firms creates people with a larger role-set and ability to understand others in different stations, than it does for managers that have been recruited to a high level of bureaucracy after an academic education. Beyond doubt, such managers will have a much better feel for how responsibilities can be distributed, they may be better at “taking on the role of others” (Mead, 1967) and they will be better at exercising authority in a non-conflictual way (Barnard, 1938). In workers they may even see future managerial colleagues and thus give them as worker a leeway for pursuing such aspirations.

A significant difference between the US and Denmark, despite their similarity in opening up for persons from humble positions to become top-managers, is the mobility across firms. In the US employees primarily pursue an internal bureaucratic career, whereas in Denmark the route goes through a number of firms. 42% of Danish managers had worked in three or more companies before achieving their current position against only 19% in the US (Byrkjeflot, 2001: 66). Barley and Kunda (2004) in their study of itinerant experts show how normal employees develop a narrow network of relations within bureaucracies, while short-term

contract workers operate in such a way that they achieve a large “network of practice”. We think it is quite obvious that the itinerant practices of Danish employees create a dense network among persons, but as this network is simultaneously combined with “permanent employment” in firms it leads to a dense and multileveled, though very volatile, network among firms. In this network it is easy to exchange goods and services, but it also plays an extraordinary strong governance role, as reputation can be quickly improved and destroyed – both at the level of employees, teams and entire firms – as somebody always knows someone in a distinct firm. Informal “Rules of conduct” plays a major role for making business (Kristensen 1996; Nygaard, 1999) and this may be why Denmark scores high on internal indexes on trust¹¹? The costs associated to spoiling ones reputation can be immense and long term.

The picture that emerges of Denmark around the first oil crisis and before cumulative forces of change and globalization set in was a society where equality was not only related to normal Welfare State institutions. Equality was also related to education and vocational training, class-transcending careers at work and dense networks between firms and employees. Many of the behavioral codexes on this “system” owed their origin to small railroad towns of the countryside in which employees shifted jobs and employers, from agriculture to craft to industry throughout the year and where life-courses moved persons from an apprentice and a farmhand to mastercraftsman, farmer or entrepreneur (Kristensen, 1992). In these rail-road-towns flexicurity meant that a small number of people could construct a modern, very far-reaching and heterogeneous society, which would have been impossible if they had modernized by establishing large scale bureaucratic organizations. In this respect Danish industrial localities were in general very different from the corporate-towns (Brüksamhälle) that were so typical for the other Nordic countries.

1.3. The Danish Route to the New Economy

In many ways, the Danish business system was ideally constructed for meeting the challenges that was posed globally by the first oil-crisis and onwards. With increasingly volatile markets

¹¹ ”86 lande over hele verden har i flere omgange deltaget i den såkaldte World Values Survey-undersøgelse, og i ingen andre lande svarer så mange ja til, at de mener, at man kan stole på de fleste andre mennesker som i Danmark.

Ved den seneste WVS-undersøgelse i 2000 sagde 64,5 procent af danskerne ja til spørgsmålet, om man kan stole på de fleste andre mennesker.

Men blandt franskmændene var det kun 22,2 procent, i øvrigt markant under Spanien med 36,2 og Italien med 30,7 procent og mindre end det samlede gennemsnit for de 86 lande på 28 procent.” (Frede Vestergaard: Tillidssamfundet Danmark, Weekendavisen, 5. januar 2007)

and fast shifts in customer demands, Denmark possessed the capability to recombine firms and workplaces in new ways and create changing products (Piore and Sabel, 1982). This happened through an overall rapid increase in number and employment in SMEs in Jutland and a decline in East-Danish large industrial cities (Kristensen, 1992:129-130). In agricultural areas the population transformed from farmers to craft-workers and entrepreneurs by making use of vocational training institutions, while in cities the population aspired for employment in services, education, professional occupations and R&D. From the mid-1980s this process is intensified as employees and unemployed flocked to courses in further training to achieve IT-literacy among all professional groups, including the formally unskilled (Andersen, 2003: 108 ff).

Yet, transformation did not come easy. At firm level, managers had to shift from Taylorist managerial templates to new and much less obvious ways of organizing. Simultaneously new and large cohorts of workers and women in increasing proportions flocked to a labour market that was already depressed internationally. Unemployment increased dramatically, partly because the governments of the 1980s believed that you would have to observe a certain level of structural employment to keep wages and inflation from coming out of hand. From a macro-level perspective things looked very sad in Denmark, whereas at the micro-level, firms and employees were making radical experiments in the organization of work and in skills among employees (Kristensen, 1986). When a Social-democratically led coalition government came into power in the beginning of the 1990s, the ambition to gradually reduce the level of structural employment became a focal bench-mark. And this created the active labour market policy that gave an entirely new twist to Danish flexicurity and its “Golden triangle” (Madsen, 2006).

With the active labour market policy, Denmark became the most continuous training intensive of all EU and OECD-countries. In 2003 it used 0.85% of GNP on further training, most of which serves unemployed (0.67%), but also for employed Denmark is number one (Økonomi- og Erhvervs-ministeriet, 2006: 170). On a yearly basis, typically 60% of highly educated, 40% of the craft-workers and 30% of the formally unskilled participate in further training. In the US the level is the same for the two first mentioned groups, while the level is only 13% for the unskilled (Ibid: 169). OECD has calculated how many hours of non-formal further training an average employee can expect from working life in different countries (OECD, 2006: 334). Of all the countries Denmark comes in number one with about 930 hours, then

follows Switzerland and France with approx 720 hours, Finland and Sweden with 675 and 625 hours respectively. The US comes number 7 with 475 hours; while Germany surprisingly is number 10 with 400 hours and the Netherlands number 13 with approx 280 hours. Interestingly, continuous training seems not to be an important mechanism for the Irish miracle as the number of hours here is only 200.

There is very few penetrating studies of what happened in work-organization during the 1990s. Kristensen and Petersen (1994) however have shown that the tendency to integrate planning and execution was widespread in both industry and financial services. Jørgen Goul Andersen (2003: 105) has in two surveys – 1985 and 2000 – asked Danish employees whether they "use their own ideas in their jobs"? The answers are shown in the Table below:

Table 1.2 : The Autonomy of employees. 1985 and 2000 in Pct.

Question: Is it "often" or "now and then" demanded that you use your own ideas and plan important work-tasks?		
	1985	2000
Often		34
Now and then	20	21
Not demanded		40
	11	
Don't know/No answer	5	-
<hr/>		
N(=100 pct)	978	894

Source: Andersen, 2003: 106

Though Denmark by the beginning of the 1980s was the most high-discretion country, since then a minor revolution has taken place as the proportion of those that often use their own ideas on the job has doubled and nearly 90% has become engaged in a much more active way in their jobs. 76% also say that they have very good or good possibilities for exercising influence on their workplace (Ibid, p 107), which indicate that they pursue these jobs by also being engaged in transforming the larger organization, and this indicate a whole new way of "organizing", which our case-studies will explore more in dept in Chapter 2. Among male

workers, 71% often introduce own ideas at work, while 77% have good or very good possibilities to influence the larger workplace. For women the percentages are 66 and 75% respectively. Though it is slightly lower for women, it is our guess that it is primarily among women that the increase in job-autonomy and participation have increased most dramatically. Thus one is inclined to expect that Danish firms has mass-mobilized the workforce to be engaged in continuous change.

In a survey on the flexibility of Danish firms from the mid-1990s, it was found (Gjerding, 1999) that

25% was both internal and externally flexible (dynamic), 26% was internal flexible and 8% external flexible. The remaining was characterized as static (Ibid: 7). Interestingly it was in industry that flexibility predominated:

Although all firm sizes and sectors were represented in each group, some general patterns appeared, apart from the group of mainly internal flexible firms that was quite evenly scattered across sectors and firm sizes. The group of static firms was dominated by small firms in the trade, construction and transportation sectors, while the small group of mainly externally flexible firms was dominated by small- and medium-sized firms and biased towards the manufacturing industry. Finally, the group of dynamic firms was dominated by the manufacturing and business service sector, biased towards firms with at least 100 employees. (Ibid: 6).

Gjerding emphasizes that where other Nordic countries make use of a number of modern managerial techniques to achieve similar outcomes in terms of functional flexibility, this is primarily achieved in Denmark by an extensive delegation of autonomy to employees (Ibid: 10). This means that it is primarily through the skills, role-sets and interaction among employees that firms have gained flexibility,

A similar picture is drawn in a study by Lorenz og Valeyre (2003) based on the third "European Survey of Working Conditions" made in EU-15 in 2000. Here only 6.8% of the Danish employees say that they are working under Taylorist forms of work organization, 11% in traditional (e.g building and construction) and 21.9% under "Lean" forms of organization. The great majority of Danes, or 60% say that they are working in "learning organizations",

characterized by high autonomy, absence of highly formalized forms of control, etc. (Ibid: 13).

When 60% says they work in Learning Organizations it has dramatic effects on how we interpret a number of phenomena, because they alter their scope compared to work arrangements of a more Taylorist kind. For instance, formal further training under Taylorism was often to transfer a worker from one rather simple to a new simple job. But in a learning organization, training courses plays a different role – but which? And if work also means a constant processes of role-redefinition, what does this mean for the traditional divisions among workers, supervisors, managers and white collar staff? What is the difference between normal work, being continuously improved, and development and R&D? Etc; etc?

On the whole, the dynamic of Danish innovation and its innovation system is somewhat of an enigma. Neither Denmark's state nor its enterprises invest large sums in R&D, especially when compared with the US, Finland and Sweden. While these countries lies at the top in GERD as percentage of GNP, Denmark lies in a crowded middle field, spending around 2% of GNP. However, it is primarily the state that lacks behind. Private investments shows impressive growth from 0.5% of GNP in 1981, over 1 % in the mid-1990s to about 1.5% in the beginning of the new millennium (Økonomi- og Erhvervsstyrelsen, 2006: 109). Denmark in particular shows high-expenditures among SMEs in comparative perspective, and this is probably one of several reasons why the output of new products for the market is relative high compared to the overall spending level (Mariussen, 2006). However, as the turnover of new products is around 10% of total turnover, Denmark seems only to renew its product at half the rate as Finland (with 20%). However, Åge Mariussen (Ibid: 227-231) has shown that Denmark is the most efficient producer of innovations. In 2000 the value of the turnover of new products was twenty times higher than incurred costs the three previous years. In Finland the comparable figure was 10 and for most countries it was 5 or less.

Denmark thus is number 5 in the aggregated comparison of EU 25 (+ Japan and the US) of the *European Innovation Scoreboard* (2006: 8), which makes use of a complex set of factors to measure in- and output of the innovative activities. At the same time Danish innovative performance is assessed to be progressing compared to the countries lying ahead of Denmark (Sweden, Finland, Switzerland and Japan) (Ibid: 4). Denmark owes it high position in particular to the proportion of the population with a higher education, diffusion of IT-

networks, life-long-learning, collaboration among innovative SME, risk-capital for business start-ups, use of organizational innovations in SMEs, employment in high-tech-services and to sale of new products (new to the firm but not to the market) (Ibid: 13). When Denmark in this study only measure mediocre in terms of performance compared to inputs of (Ibid: Figure 6, s 15), the reason is that Denmark seems to be bad at accumulating intellectual capital, in particular through patenting. In contrast it is very keen to claim "community design" rights concerning the design of a product and to "trademarks".

Denmark's unique position thus seems to be dependent on a strong and ongoing development in both design and the production of a product, where employees simultaneously search for improvements in collaboration with customers, while searching for improved ways to produce the product. LO has financed a study of the extent to which different employee groups are involved in this development process (Rambøll Management, 2006 A og B). In a study of a number of case-firms (Ibid: B) within both the private and public sector, this involvement seems to be very far-reaching. For that reason, the survey data below was considered rather disappointing to the investigators, especially concerning the formally unskilled (Ibid, A: 22ff):

Table 1.3: The participation of different groups of employees in development work (Share of firms in percentage, according to managers (2005)).

-Development of products, solutions and services

	Medium and long Higher education	Craft- or short Higher Education	Unskilled
Industry	90	75	29
Private services	86	74	41
Public Sector	95	90	51
Totalt	90	78	44

-Development of processes and practises

	Medium and Long Higher Education	Craft- or short Higher Education	Unskilled
Industry	93	81	36
Private Services	85	81	54
Public Sector	98	91	61

Total	91	84	54
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Kilde: Rambøll Management 2006: 22-29

In a crosscutting analysis the study found that in 51% of the firms, both unskilled and skilled workers are involved in R&D in some or to a high degree (Ibid, A: 30), while simultaneously in 31% of the firms, unskilled are not involved at all, while skilled workers are. Interesting enough it is those firms that seems to involve employee the most that create the most satisfactory results of innovation-processes (Ibid, A: 48-50). Involvement of users and customers generally is at a high level, but is highest in firms with employee involvement (Ibid, A: 52).

On the whole we get a picture of Danish firms in which most employees are involved not only in daily production, continuous improvements, etc but also in innovative activities. This seems to happen in strong interaction with persons, external to the firm. Thus a study found that 57% of respondent employees worked together with external partners on a daily basis, 20% on a weekly and 6% on a monthly basis, while 80% had been involved in improving external relations (Undervisningsministeriet, 2005: 79). This gives an indication of intense interactions internally and externally where frequent role-definitions may take place very quickly.

Whereas Denmark seem to have been able to enable employees to take part in these processes through public institutions in further training, the public sector has done less and less to underpin innovative investments by a larger, partly public financed innovation-system. In a comparative analysis of the Innovation Systems in the Nordic countries Håkan Gergils (2006) characterize the Danish government since 2001 by a lot of promises on increases in resources and a de facto decrease. He describes a number of new “institutions” that has been launched, but which has rather been words than mechanisms that could assist Danish enterprises in their drive towards innovativeness. However, growth in private R&D has been steady and not very far from the level of investments in R&D in Finland and Sweden. However, it is obvious that Denmark has not established nor thrived on the sort of “innovation pump” that have played such an impressive role in the US (Silicon Valley, Route 84) and in Finland (around Nokia) both in terms of innovating new products, but also in creating the networks globally that make it possible to take advantage of different regional clusters, specializing in some sort of useful skills and knowledge (Saxean, 2006). The Danish innovation pattern is much more diffuse,

takes place in firms from many different branches and is not focused towards a specialized market segment. Beautiful furniture, advanced films, highly reliable pumps, tricky equipment for developing countries, pharmaceuticals, well-designed hi-fi, economically efficient windmills, sophisticated enzymes, smart hearing aids and high-quality food comes out of firms in a very heterogeneous business structure in a fairly steady stream, always making use of the great world streams of innovation such as IT, bio- and nano-technology.

In the 1980s it was clear that the Danish business structure was great in organizing exports, whereas it had troubles in organizing and expanding through outbound Foreign Direct Investments (FDI). It is fairly obvious that SMEs with either skill-container or project-coordinator attributes had neither the size (as had Swedish firms) nor the type of focus (as had the Finish forestry industry) that made international expansion possible. By also earning some of its competitiveness to the fact that it could reduce overheads for managerial tasks to a minimum by delegating responsibilities to normal, “operative” employees, Denmark seemed to lack also the type of personnel that engage more active in globalization. As shown in Table 1.4 below, by 1990 Denmark was at a very low level concerning outbound FDI whereas there seemed a higher temptation to invest in Denmark from foreign firms – as inbound FDI to Denmark was remarkably higher than for both Sweden and Finland¹². However, Table 1.4. also shows that a radically change in globalization took place from 1990 to 2002 – in the period where the radical transformations of work organization also took place. As can be seen, the level or importance of inbound FDI six-doubled, whereas the level of outbound FD eight-doubled:

Table 1.4 : Foreign Direct Investments (stock) in percentage of GNP 1990 og 2002

Country	To/from	1990	2002
Denmark	To	6.9	41.7
	From	5.5	43.4
Sweden	To	5.3	46.0
	From	21.3	60.5
Finland	To	3.8	27.0
	From	8.2	52.8

¹² One of the foundationable hypotheses behind the DanReglo project and Translearn was that Denmark globalized by accepting to be taken over by foreign MNCs and using this way to create novel international ties.

USA	To	6.9	12.9
	From	7.5	14.4
England	To	20.6	40.8
	From	23.2	66.1
Germany	To	7.1	22.7
	From	8.8	29.0
France	To	7.1	28.2
	From	9.1	45.8
Ireland	To	72.3	129.1
	From	24.5	29.9
China	To	7.0	36.2
	From	0.7	2.9

Kilde: Eriksson et al 2006: 9.

Measured in FDI Denmark has simply undergone a globalization-revolution within a decade – just as Sweden and Finland and probably Norway. Denmark and the Nordic countries have surpassed the continental European countries, which used to be markedly more globalized than the Nordic. And they have moved close to England, which has benefited immensely from a stronghold in financial services, which the Nordic and in particular Denmark, not have been able to use as a mechanism of globalization. In this light it becomes somewhat of an enigma how Danish globalization has happened.

It would be naturally to expect that a few large firms had been especially active in doing the globalization as with Nokia in Finland, but Eriksson et al (2006:62) note that it in Denmark also involves SMEs¹³:

In 2002 775 Danish business firms had at least one subsidiary in a foreign country, compared with 682 in 1997. 90% of the MNCs were SMEs with less than 650 employees. 34% of employees had jobs in SME multinationals, while 21% were employed by 78 MNCs with more than 650 employees.

¹³ Eriksson et al anfører at de følgende tal er en del af de 5603 virksomheder med mere end 20 ansatte i Danmark i 2002. Tilsyneladende stiger antallet dramatisk hvis de helt små virksomheder medtages. I en FN rapport fra 2005 oplyses det således, at Danmark havde 9.356 virksomheder, der var hovedkvarterer for udenlandske datterselskaber, mens der var 2.305 filialer af udenlandsk ejede virksomheder i Danmark. Til sammenligning var 4.260 Svenske og kun 900 Finske selskaber hovedkvarterer for multinationale selskaber (United Nations, 2005: 264)

This pattern could indicate that a limited number of fairly large Danish firms have been active and have drawn a larger swarm of smaller enterprises with them, so that at this point 51% of Danish employees are employed in firms that have made outbound FDIs, but Eriksson et al (Ibid: 63 ff) also notes that the trade in intermediary products indicates that Danish firms has moved closer to their customers.

In any case it seems as if the primary reason has not been to organize an international value chain, where the Danish firms could harvest the benefits of cheap labor in other countries. Also the Danish branches of Danish multinationals show characteristics that prove their legacy of skill-containers. On average, in Danish facilities 59% of their employees were craft-workers, 25% were formally unskilled and 15 had higher education. But this pattern is repeated in foreign affiliates. It is indeed thought-provoking that the figures in foreign subsidiaries are very similar: 58% of craft-workers, 27% of unskilled and 15% with higher education (Ibid:66). While the proportion of foreign employees in these companies have expanded rapidly, the absolute number of Danish employees has not decreased. And yet, very odd and paradoxical changes in proportions of the employees seem to be going on. In 1997 8% of the employees in Danish affiliates of these companies were engaged in research and development, while the figure was only 4% in foreign affiliates. In 2002 the picture had turned around. Now 4% of the employees in Danish affiliates did R&D, while the proportion in foreign subsidiaries had doubled to 8%. So also in this respect the Danish pattern of globalization is a break with the long established traditional pattern.

2. Case-studies: Introducing many small worlds

In what follows we will simultaneously explore the experiments with novel ways of organizing work, redefinitions of jobs and roles, changing relations to other firms/customers and the way Danish firms globalize. Initially we were searching for Danish firms that had become involved in globalization by being taken over by foreign MNCs as we expected inward FDI to be the major source of Danish globalization and therefore we would investigate whether and how they within such a frame could participate actively in changing their mandate and position. However, as our investigation proceeded it became difficult to make a distinction between internal and external FDI. As will be clear, especially from the Radimeter-case in the following casestudies, a Danish firm may be included in a global MNC

exactly because it has in a previous phase pursued an endogenous form of globalization. Thus FDI is just one of many different mechanisms by which firms on a global scale are mutually engaged in role-redefinitions, but as we shall see ownership does make a difference, especially concerning the governance of firms.

Thus in what follows we try capture the logic of experimental development in four firms focusing on the dimensions just mentioned in order to catch a glimpse of the path each of these firms follow. The first firm, Unimerco is a Danish SME, which has developed a very distinct way of organizing an expanding relationship to customers, and who is using this to explore the world outside Denmark. Then follows two subsidiaries of foreign firms, the Spirit Factory and Sauer-Danfoss, and finally Radiometer is used to explore a Danish MNC that is turned into a subsidiary. These firms have been selected for more careful field studies out of a larger sample, which we visited in a former phase of our studies. The data-collection in the four cases took place by first a full day visit by the three authors and then one of us came back and studied the firm for a week through participant observation, interviews and by collecting written material. For the purpose of this chapter we have tried to condense the description as far as possible with the risk of losing the unique development dynamic of each, which is exactly our aspiration.

The cases will bear witness to see firms as a “Collaborative Community” (Heckscher and Adler, 2006). Globalization and innovative change is a great challenge to this community as it threatens established rules of the games and governance principles. In particular we shall demonstrate how far Danish firms has come in organizing collaboration and preserving trust by self-governance and has coped with the risk of losing reputation at local labour markets. When their usual pattern of behavior is confronted by American Lean-managerial practices and governance forms, work-life becomes indeed complicated. And yet as we shall see in some of the studied cases such challenges are used to deepen the art and mechanisms by which the collaborative community develops.

Speaking for themselves, the cases gives a clue to the transformations that has been going on in Danish firms over the last decade, how they have been able to integrate themselves into the larger global world and how active all levels of the firms are in searching for novel ways to survive and grow. We will present each and every as their logic became visible to us, without really making clear how they inform us about larger issues.

2.1. Unimerco: A small Danish Multinational from a small village

Unimerco is an extraordinary company in many ways. It produces cutting tools, nails and nail-guns, but sees its main business as offering customers production optimizing consultancy services, tool management and -maintenance as well as education and training. It is a Danish multinational with headquarters located in the village of Sunds north of Herning, Jutland. It is fully owned by management and employees, and ownership comprises 85% of the employees. The employees are team working in very unconventional physical facilities. As “roofed villages” all Unimerco companies are designed along ideals of a village community, with production and sales/administration situated in the same location with no walls separating departments. The headquarters is one big 20,000 m² building in which production, stores and administration literally are placed on the same floor in one open room. On top of the building are seminar rooms, a huge auditorium, visitor rooms, etc., offering facilities for organizing courses for both customers and employees.

Unimerco was founded in 1964 and activities have developed considerably since. It has moved from standard to very specialized tools and service solutions, and has build up its international capacity since 1995 to become a small multinational – with subsidiaries in Denmark, Sweden, Norway, Germany, the UK, the USA, China end the Czech Republic. Today it employs 560 people of which approx. 500 are working in Sunds.

The company is a genuine success story, which is reflected in both financial results and in an excellent work environment. It has never operated at a loss in its 42 years of existence. In the financial year 2005/2006, Group equity amounted to 73 million Euro and revenue equaled 86 million Euro. Year after year it figures among the ten best workplaces in Denmark. It improves constantly on the work environment from the benchmarks of short-term sickness absence, which it has managed to bring down to 0.9%; by lowering the level of staff turnover, etc. Close to 10,000 visitors a year demonstrate that Unimerco is a very successful and different company (Information sources: Unimerco’s website (20-02-07) and written company materials, brochures, etc).

Historical evolution of ties to customers and suppliers

From its beginning in 1964 the product program consisted of Tjep nailers and ancillary brads. Later an exclusive distribution agreement for Paslode (now ITW) founded a long business relationship, and IWT is still Unimerco's key supplier of fastening products. Then Unimerco started to distribute cutting tools for the woodworking industry in collaboration with Leuco, a Dutch supplier. To do so, Unimerco needed to regrind cutting tools. It purchased a multi-purpose grinding machine, and began more generally to regrind tools for the region. Gradually Unimerco invested in more machinery and expanded the product program to service not only the woodworking industry, but also metalworking, food and graphic industries in a region that was expanding rapidly. By the late 1970s Unimerco expanded further by establishing business relations with numerous suppliers of tools for woodworking and furniture industries. From the beginning of the 1990s measurement and calibration equipment were added, and calibration services and measuring tools were offered to customers. In 1999 a tribology department, working with surface treatment (e.g. PVD coating and ion-implantation) and a training center were set up. Thus sale of safety courses and other forms of education and training became a new field of activity. Recently Unimerco has used its knowledge to become certified as a quality toolmaker for suppliers to the automotive and aerospace industries. Technologically it has just moved into making use of nano-technologies to create new surfaces of its speciality tools. In short, by continuously expanding its activities Unimerco has transformed itself from a small local supplier of Tjep nails to a service-oriented total supplier, operating on the global scene in a tight interplay with customers in need of high quality tools. The tight interaction is illustrated by the fact that approx. 7,000 tools pass through the regrinding department every day.

Being not just a tool supplier, Unimerco position itself as a problem solver and supplier of total solutions, including customized tools and very know-how intensive services. It supplies "traditional" products such as cutting tools, lamina inserts, tool-fixtures, fastening systems, and measuring equipment, but always in combination with for example services such as tool maintenance, calibration and production optimization and to many industries (aerospace, automotive, building and construction, food, general machining, Oil and gas, telecommunication, wind turbines, woodworking and furniture).

Through its close interaction with customers, the company has developed a wide range of competencies, and what it learn from one customer, can be used to service others. These

competencies are collected under the “UM concept(tm)”. The total concept comprises competencies in production optimization, standard tools (complete tooling programs), customized/specialized tools, tool maintenance, tool management systems, and training and education. With the customer Unimerco works on continuous cost reduction and production optimization, by analyzing and optimizing key processes, gives advice and guidance on machine and tool investments and offers guidance when customers introduce new products, according to specific needs and variety of contexts. Production optimization, according to Unimerco’s working methods, is thus a continuous joint process, built on collaborative partnership.

As Unimerco climbed towards technological excellence, it also became a highly interesting customer for its own suppliers of machines for tool-making, measurement instruments, etc.. They are eager to work with Unimerco on test-versions of their equipment and engage it in collaborative co-design of future generations of technologies, well before they become marketed for ordinary customers. We accidentally observed an Unimerco employee busy co-authoring the official manual for a supplier’s product.

Cooperation across boundaries (professional, geographical, cultural etc.) through close co-designing partnerships with customers and suppliers has been one of Unimerco’s central trademarks since the company was founded. This also explains why it became a multinational. As many of Unimerco’s local/national partners have moved units or whole production plants to foreign countries, it has been Unimerco’s strategy to follow in their partners’ “global steps” by proactively becoming a global actor itself. Since 1995 it has invested DKK 645 million in foreign facilities (Unimerco’s website 02-01-07, written company materials, brochures, interview KI 1&2 etc.). However, it seems as if globalization has led to the discovery that its growth potential is almost limitless. The new strategy aims through organic growth to increase revenues to DKK 1150 millions by 2009/10 compared to the current DKK 643,5 millions, double earnings and to expand from 565 to 820 employees. In addition it has financial capacity to expand by mergers and acquisitions and intends to do so (<http://www.unimerco.com/index.php?mid=34&pid=451>).

A collaborative community

Unimerco attributes its success to some interesting core ingredients:

“One of the most important ingredients is a community feeling in which we are all team players and in which management and employees share a common interest in the growth and earnings of the company. Structure, management and organization are based on cooperation, confidence in each other and common interests. UNIMERCO’s interior arrangement, organization, ownership structure, pay system, etc., are based on this view as we are all responsible for our work, colleagues, quality, customer service, etc.” (www.unimerco.com/index.php?mid=31&pid=233)

In field interviews we have spent hours questioning this rosy picture or alternatively finding explanations for its construction. As far as we can assess it is not easy to see how it is constructed, but it is evident that Unimerco has removed all the organizational devices that make opportunistic, self-seeking strategies by departments, managers, work-groups, employees an obvious route to take. First, all employees are paid fixed salaries (within three salary-levels: blue and white-color and managers) and these salary-levels are surprisingly low. Second, all employees and managers are subject to identical “profit-sharing”, that is a similar nominal bonus based on past months surplus compared to budgets. The extended “we” of the entire firm, not the individual unit, rank and/or department, is in focus. No discrimination between owners and non-owners, only absence due to sickness implies a reduction in bonus share. Third, approximately 475 employees are co-owners and own a significant amount of stocks (worth approximately Euro 100.000 each). The price of stocks, dividends, etc. is dependent on Unimerco’s revenue, earnings, and equity, and the argument for becoming a co-owner is that by contributing to the overall performance of the firm, the individual works for his/her own benefit. The firm has made arrangements with a number of banks concerning terms of loans, interest rates, etc., and therefore it is easy to see what level of results will create a break-even, when comparing incomes from stocks against expenses on loans. Ancient models for co-owning a fish-boat and dividing earnings have inspired the whole scheme. Fourth, the “roofed village” makes it easy to contact people across organizational divides, and to see, who is available. No doubt, there are also good opportunities for people to mutually exert pressure so that everybody wants to look busy. Fifth, a direct consequence of the ownership model is a very horizontal and participative form of authority and a high degree or level of transparency. For example, employees are daily informed about turnover, and each month they receive a detailed report of accounts, strategies, assessment of outcomes, etc. All

relevant information is communicated on a daily basis through notice boards located near the canteen and by intranet. Every second month all employees participate in so-called café-meetings, where the CEO informs about results, strategy, future challenges, etc.

Management describes the company's information and communication philosophy in the following way:

“Good communication is a basic element in our cultureThe perfect manager really wants to inform, so all gets involved and committed. We recognize that question and constructive criticism is foundational for development and better decisions. We shall dare make information, decisions and acts visible” (Brochure: Information og kommunikation UM)

According to Weick (1993) these are very important steps to engage a group in virtuous circles of mutual commitment, from which procedural justice and learning by monitoring (Kristensen and Zeitlin, 2005: ch 10) may emerge and constitute an effective governance system. Unimerco is very explicit that this is also the purpose of their owner culture:

“The reason for offering employees shares in UNIMERCO is a wish to make competent and loyal employees in all Group companies joint owners of the company and in this way motivate to commitmentTrough the employee share scheme UNIMERCO is... ensuring that we make the most of all the employees' resources”

www.unimerco.com/index.php?mid=31&pid=234

Thus, the on one hand the co-ownership model enables increased democracy, delegation of responsibility, transparency, motivation, care and empowerment, but on the other it is also clearly being used as a management tool to make the most of human resources. That the model both seems to work as a very effective incentives-system and as an empowering organizing practice is a paradox that Unimerco does not neglect. Quiet the contrary they are very explicit about it and discuss the two effects of the co-ownership model in a direct and open way.

The “roofed village” was introduced in 1990 because a traditional hierarchical organization impeded collaboration across units. Physical boundaries were demolished to create visibility, greater presence, and shorter communication channels among units. The ideals of a typical village, where everybody knows each other and the roles of each is now the organizing template. As in the village community, physical surroundings allow for and support unlimited communication, swift decisions, facilitate the experience of proximity and connectivity among colleagues and knowledge sharing across functions and occupations. The physical surroundings and corresponding work organization still seems years ahead – compared both to existing literature on post-industrial work organization and to the current scope of comparative forms of innovative work arrangements based on employee participation. In Denmark, experimentation with new collaborative work practices transcending traditional bureaucratic or rigid team-based settings can be detected within most organizations, but very few have transformed its physical layout and structure as radically as here¹⁴.

The physical design creates a significant work space that underpins the company’s collaborative work style. Any form of space affects social processes and enables distinct social practices by governing what are possible and not-so-possible actions and interactions. Thus Unimerco’s physical design embodies an organizing technique or management tool that regulates rules of conduct. The interior promotes very clearly relations of transparency, open communication, and cooperation across traditional bureaucratic boundaries, and thus frames the employees’ interaction patterns in a very distinct way. In particular, the physical layout makes the ease of collaboration and possibilities for continuous co-creation very visible¹⁵.

Within this frame, people work in teams. The current team organization was introduced together with the roofed village. However Unimerco emphasizes that teams are not a new phenomenon. The work has always been collaborative creating a pattern of employee and customer driven innovations. In principle all areas of the company may become involved in

¹⁴ Oticon is another Danish firm, which is much more often cited in the literature because of its “Spaghetti-organization”, which tries to increase communication by having people move around physically to connect in new collaborative teams more frequently ().

¹⁵ On the other hand Unimerco’s unique design of space also is restrictive. For instance, it prohibits privacy, individualistic (egocentric) behavior, obvious laziness (e.g. arriving late, having too long coffee breaks, using ones private cell phone during working hours etc.), and unwillingness to follow the tact and tone of the group collective. Everybody (is able to) watch everybody. The panoptic tones are very precisely reflected in the following quote. “*Due to our physical surroundings we don’t need a system to official register the hours worked – because by looking around we can easily see who is here and for how long..... It’s a very sufficient indicator*” (Interview MM/+ KH).

shifting combinations, dependent on particular customer needs. The entire formation of teams operates in very informal ways and e.g. lean systems of governance have not been adopted. As one of the team leaders puts it:

“we don’t call it lean – but we have always been practicing lean...it’s just about using ones common sense...more than 15 years ago we started to work systematically with how we could become at learning from our errors and continuously reduce production costs in the teams.....slim production, kaizen events, elimination of waste are just fancy words for something we have always done..... ”. (Interview Team leader OM/ + production manager).

Noticeably, the result is a dynamic team based work practice creating strong internal and external collaborative relations – where reflexivity and a continuous strive for co-improvements seems to be the most distinctive features. In terms of the ability to create collaboration across boundaries and building situational co-designing and reflexive teams - internally among employees or externally with partners or new subsidiaries - Unimerco seems close to utopia.

We (Lotz and Kristensen, 2005) have observed that the more team members are engaged in inter team activities and collaborative practices across formal (team) structures or professional boundaries, the more they reflect upon how to improve existing routines, share responsibility and work towards common goals, and the more they are ready to take part in co-design, continuous improvements and innovative change. Thus the vaster the team community’s external interactions and its relations towards other teams are, the wider the community of teams, and the better is it able to overcome many a challenge that would often lead teams into routinism and self-satisfied behavior. Unimerco seems to have created such a collaborative work environment - where cross-fertilization flourishes and gives rise to reflexive co-designing dynamics, but also surround teams with strong ideological convictions:

“At UNIMERCO it is considered to be a team sport to run a business and that is why we place the team above the individual. Star players are always welcome, if they fit into the team and are willing to follow the group tactics – it is of no use being the best tennis player in the world if the rest of the

team plays soccer. In practice this means that we have the courage NOT to offer a job to a really excellent individualist, if the person is unable to use his/her skills in cooperation with others. We have no need for egoists but we welcome team orientated individualists at UNIMERCO” (www.unimerco.com 02.01.07).

At Unimerco each unit (e. g. regrinding of metal tools, the calibration center, the sales or construction department etc.) represents a form of **basic team** divided into smaller sub teams dependent on the units’ actual work functions, operations and work tasks. Strong professional bonds and feelings of pride towards the units’ specific work activities, competencies and performance results characterize life within different basic teams. Collaboration, a high degree of mutual interdependence, dialogue and ongoing professional exchange of know how, ideas and jokes are how employee describes their work practice inside basic teams. Many depict the basic team as a home or a nuclear family.

However, simultaneously more provisional, **ad hoc teams** are continuously constructed across functions and operating units dependent on required competencies and resources related to a given task or project. Hence collaborative team communities of employees from different units and with different skills and competencies are assembled on an ongoing basis. This way of forming crisscrossing collaborative temporary teams not only unfolds locally (for example in Sunds), but is today connecting all the sites of Unimerco on a global scale and at numerous levels. In this way the organizing practice of the roofed village circumscribes the global organization (*cf. interview med Peter Kristoffersen and Carsten Risum*).

These more temporary and fluctuant collective practices that criss-cross the organization’s basic team settings involve significant collaborative dynamics, whereby individual employees learn to take on new roles, enlarge competencies and may create novel life courses and working careers. According to the employees it is especially this “clash” of different competencies and interplay between divergent roles within the ad hoc teams that enables a common focus and ensures a joint commitment towards the wider organization beyond ones basic unit. By participating in different collaborative combinations across units/departments employees interact and exchange knowledge and information that enable the gain of greater

knowledge about colleagues' work functions, competencies, challenges, dreams, etc. It creates a system of mutual recognition (Honneth, 2003). This again makes it possible to create ad hoc teams that none would have imagined, so that many of the employees articulate how the integration of divergent competencies and roles enable continuous learning triggered by both collaboration and rivalry. It is their experience that such co-creating processes result in better innovative solutions and performance results – and therefore they have a common interest to engage in, develop with, and learn from these forms of collective interdisciplinary activities. According to the employees, working together with other professions (production workers, engineers, technicians, sales representative, etc.), strengthen the ability to learn, re-learn and take on new roles¹⁶.

Often it is the R&D or the construction department that initiate moves to form new ad hoc teams. The R&D basic-team normally consists of only six-eight members, but temporary ad hoc teams of fifteen-thirty employees of diverse professional skills are typically formed to work on the same development project. The organizing form is very loose and organic in its structure. It relies to a high extent on self-management and decentralized coordination among the basic units. Thus the basic team units decide for themselves who to “lend” and for how long (most often managers and employees make such decisions jointly). Either employees volunteer to join an ad hoc team or they are picked due to special skills or competencies.

This practice with hardly any centralized hierarchical coordination seems to be monitored by collective processes of involvement and co-creation. Asking the employees how this formation of teams were monitored made them look bewildered, replying “*that’s just something we do....we seldom think about it*” (Interview Tony + Steen). Clearly they take their fluctuant organizing form for granted. Without really noticing, they seem to monitor these crisscrossing collaborative team practices in a highly flexible way on the basis of mutual involvement and reciprocal adjustments. We think that the wider “we” of Unimerco provides

¹⁶ This way of working also itself creates a commitment towards the larger we:

“CTU and production are collaborating closely... it clearly pays. We do it quite deliberately (that is, involve production already in the idea and development process), as the flow becomes much better when we involve production people from the beginning. It increases the understanding of the job and enhances mutual understanding across units. Sometime we even do it [involve production] even though it is not necessary. It clearly pays to spend a couple of hours on an introductory meeting briefing all involved parties. It creates common insight and focus... And engagement and mutual commitment” (interview Carsten/feldnotes).

a monitoring function, where ad hoc teams is also governed by a strong work culture among the employees that enthrones mutual support, knowledge sharing, and a work practice characterized by an outstanding willingness to join hands.

According to the employees, you cannot be a part of the team community if you are not willing to continuously learn and teach others. One of them puts it in the following way: *“Here we are all equal, whether you are a newcomer or one of the old ones we get the same salary – you can’t gain anything by keeping knowledge to yourself.... Success is all about knowledge sharing and collaboration”* (Group interview). Consequently the joint ownership structure and a significant mutual identification towards the wider community, a participative style of management, and a strong learning-based work culture all seem to monitor and underpin the ongoing formation of enabling ad hoc team communities within Unimerco (nationally as well as internationally), and the more new customers are engaged, the more they will call for setting-up such ad-hoc teams, offer opportunity for search and trigger internal learning processes.

This probably explains why the firm has been able to expand into a small multinational with such ease and at low costs over the past decade. Forming an ad hoc team in the Sunds of multiple competencies makes it possible to enter a new market with force, though only gradually employees are recruited in the new country. As a result, more than 80% of the employees in Sunds have already gained foreign experience being engaged in setting up a foreign subsidiary and the big business at Unimerco’s training center today is language courses. Unimerco is turning Sunds into a thoroughly global village.

2.2. Sauer Danfoss: Conquering the US while being occupied by Americans

Sauer-Danfoss (SD) produces hydraulic, electro-hydraulic, and electric solutions for the slowly motioning vehicle industry. Its expertise is related to controls and steering, work and propel functions, delivering high-performance components and integrated systems to a wide range of applications. SD with approximately 9,000 employees worldwide and a revenue of more than \$1.7 billion has sales, manufacturing, and engineering capabilities in Europe, the Americas, and the Asia-Pacific region. The Company's executive offices are located near Chicago in Lincolnshire, USA and in Neumünster, Germany.

The history of its making as a multinational is paradoxical. During the 1980s a German company, Sauer, produced in Germany a product licensed from an American company (AC). The product was quite successful in the European market. In the 1990s Sauer began an expansion strategy through mergers and acquisitions, and one of its targets was AC. First Sauer bought 50% of the hydrodynamic division of AC and three years later the remaining 50%. Sauer took over the company under which it had formerly produced under license, and the hydrodynamic division of AC changed from being part of an American company, quoted in the New York Stock Exchange, to be part of the family owned German company.

The Danfoss part in SD is a very different story. Mads Clausen established Danfoss in 1933 as Danish Refrigeration Controls and Apparatus Manufacturer, and as the name indicates, it had originally not much to do with hydrodynamic. Its name changed to Danfoss in 1946. In 1964 the first Danfoss hydraulic product was developed in the headquarters in Nordborg, Southern Jutland, where huge facilities for both Danfoss and Sauer-Danfoss today surround the HQ skyscraper. Between 1990 and 1996 acquisitions in the USA and one in Poland helped bring together global competencies in hydraulics, and in 1998 the fully owned company, Danfoss Fluid Power A/S (DFP), was separated from Danfoss' core business (heat regulation). At the same time the DFP was proving its innovativeness by making radical innovations in valve-technology and introducing team-organization on the factory floor.

In 2000 the German Sauer-Sundstrand and DFP merged into SD to reach sufficient scale and scope to become an important international player. Currently SD is listed on the New York Stock Exchange and on the Frankfurt Stock Exchange, but only limited amounts of shares are traded freely. Two shareholders, the German Murmann family and the Danish Clausen-family, hold each 38.5% of the shares through the company Danfoss Murmann Holding A/S.

When merging, the two companies did not have significant overlapping of products, but made possible mutually beneficial marketing advantages, boosting sales in Europe and the US. Especially sales of Nordborg's products on the American market increased continually. No doubt, two factors were important for this. First, Nordborg's products had a competitive technological advantage. Second, American OEMs saw SD as an American company, run from Chicago. The triumph was that SD was elected a John Deere supplier, and later, in 2001, was recognized as Supplier of the Year by John Deere Dubuque Works in Deere's Achieving Excellence Process. This position opened the market towards other American OEMs, for

instance Caterpillar, also producing slowly motioning vehicles. Nordborg's SD employment grew from 700 in 2000 to its current 1,400 employees, basically absorbing the number of workers and factory facilities that were left as Danfoss itself simultaneously engaged in global investment and outsourcing.

Conquering the American Market by changing work organization in Nordborg

To enter the American market was a major new challenge to the production processes of the Danish company. Before the merger Nordborg had a myriad of customers, requiring distinct and customized products, varying from very small to large batches. The same customer could ask for batches of different sizes and types of products, varying from half a dozen to hundreds of pieces. Production was organized to deliver to these customers and to adapt to demand curves in a quite flexible way. In the late 1990s DFP had engaged in deliberate attempts to increase quality and lower costs by experimentally forming teams and engaging employees in extensive further training. Around the time of the merger this approach had been systematically cultivated in an advanced organizational template aiming at gaining from continuous improvements on the team level. Furthermore, a very elaborate system for trans-team work groups was established on issues such as internal work environment, quality improvements, external- and internal logistics, etc. A system, no doubt, that was very important for creating the level of quality and low costs that made it possible to conquer the first inches of American territory. In this first period SD in Nordborg became very profitable indeed.

However, the American customers were few but large and important, though based on just-in-time they were also producing in much larger batches. They demanded fewer product variants in larger amounts. Thus, the Danish factories should both handle hundreds of European customers and different products, and deliver to large American customers a few products in large batches. The explosive demand and fast increasing share of the American market created a permanent pressure on production. The Danish factories became victims of their own success. It was difficult for the Danish sites to deliver to the American market in a just-in-time system and many products were transported by air, destroying cost-effectiveness. The factories were growing very fast by hiring several hundreds of new production employees, most of which lacked necessary qualifications for engaging in high-performance, autonomous teams. Defects and turnover rate among employees increased. In spite of that the factory was able maintain the high quality level. But only at the expense of increasing costs that could not

be absorbed by increasing prices, as SD was contractually determined to reduce prices by 2% annually, which is norm for American OEMs.

To approach these problems with lean methodologies seemed obvious for SD: mass production allied with quality, standardization and flexibility. Elements were already integrated in the approach taken. But where organizational changes had always been a negotiated co-designing process in the Danish company, the occupational forces of the Americans tried now to make a difference.

Occupational forces and the resistance movement

The Nordborg plant being no longer part of the HQs of a large Danish multinational, but – to the Americans – just another subsidiary among many in a MNC, which by its listings in NY and Frankfurt was obligated by new forms of accountability. HR-management was transferred to Chicago, and two American vice-presidents were chosen to manage Nordborg. Local HR-policies based on Danish industrial relations were substituted by a common international policy designed in the US. According to Danish managers this was far from ideal since HR-policies of different European countries were created to fit local institutional and cultural environments. Local training systems, employment rights and levels of regulation ask for distinctive responses, which can hardly be achieved in a common international policy¹⁷.

Performance measures also changed. By securing just-in-time information, management could better control daily operations: the production flow, the number of quality problems, levels of buffers, etc. A huge amount of data started flowing daily from production to top managers, where it had previously more been oriented towards horizontal flows. This triggered a change, not only in the organization as such, but also in the negotiating mode of organizing.

In the new management system a small but increasing part of managerial salaries depends on the performance of their respective departments. Once goals are set, the managers try to show up with the best results also to obtain new investments. It boosts individual competition among managers, and makes difficult to improve on collective results of the entire firm, and

¹⁷ Danish managers accused American managers of having a very weak international experience. As a Danish manager stated: “When we had meetings in Europe several of the Americans should ask for a passport first, can you imagine? They are international managers who never before traveled to other countries”.

several managers found this to impede the development of synergies. This made it difficult in a coordinated way to move forward towards a more systematically adapted form of the lean system.

Instead, managers, shop stewards and workers have engaged in an informal and differentiated process of experimentation, adaptation and change. The process is not entirely disordered, as it is being worded in the world of 'lean' and having benchmarks of common reference. If middle managers are playing more individualistic games mutually, they are in need of co-operation from their shop floors in order to achieve own benchmarks, becoming dependent of alliances and coalitions with lower level managers, shop stewards and workers within departments.

Union clubs, shop stewards, the convenor and the works council often work against such tendencies in Danish companies, which we shall also see later in the cases that follow, and create a negotiating order and compensatory horizontal organization that fosters the larger "we" against the formation of small kingdoms. However, American managers in Denmark seemed victimized by the general US hostility towards unions and employee representation in MNCs (Ferner et al 2005). Despite a former strong partnership between the convenor and the CEO and a tradition for integrated bargaining, the new American managers were convinced that trade union representatives in Denmark, as in any other country, would be preoccupied with employment, wages, and working conditions. They also assumed a Danish company to be managed and changed as in the US. The big difference was, according one of the American vice-presidents, to change from 'being the headquarters' to 'being just another subsidiary'. The newly elected convenor, was not able to convince the American managers of the differences between the two industrial relations systems and the possible advantages of employee participation in building co-operative relations between managers and employees and across departments. Instead they mutually developed distrust and adopted traditional positions of opposing interests. The Americans became convinced that they had been right from the beginning and the union representatives started to see in them "American Imperialists". However, the partnership between shop stewards and Danish managers was resistant to these changes, as a previous convenor had succeeded in decentralizing partnerships to lower levels, where it survived, while the partnership between the new convenor and the top management ended. As the American managers did not share relevant information, his option was to insist on reinforcement of and compliance with the general

agreement. The American managers only shared information that they considered appropriate, but not to the normal extent enabling the two groups to collaborate and develop general strategies and ease implementation. Lower level managers and shop stewards agreed that there was no information flow from the top in the new system, and in return they provided information only on request.

In spite of all, the decentralization has resulted in the initiation of attempts for improvement. The sub-factories are now organized by and making use of lean in different ways and in distinct stages of implementation. However, it is difficult to see any convergence among them.

There are many additional reasons for this situation. The introduction of lean principles continues simultaneously with the introduction of new technologies on a massive scale to produce faster and expand capacity as huge investments have followed in the wake of the merger. At the same time, the American managers have proclaimed outsourcing on a massive scale, and initiated an unsettled discussion about the division of labor among subsidiaries. Benchmarks are seen as devices for enabling decisions. But when everything is changed, the foundations for benchmarking are not easily detectable.

An important element in lean manufacturing at Sauer-Danfoss is “value-stream” focus. The principle is to understand nearly every step in a product's development, its "value stream". This knowledge is thought to facilitate the avoidance of production bottlenecks and to identify processes that, because they do not directly increase value to the final product, can be outsourced. In order to reduce bottlenecks, new tools and techniques must be incorporated into the process as part of continuous efforts to cut costs and improve quality. This overall idea has been enacted in different ways in the departments and factories of SD, as the understanding of the lean concepts and their consequences have been left to a process, where different groups have tried to make sense of these concepts individually in their sections¹⁸.

¹⁸ “*In the beginning, when they (the managers) started to talk about LEAN, it was quite confusing. I started to ask people, to look for help outside, because nobody here could explain it to me. I asked at the AMU() center also, and I got some clarification from my external network, people who attend a course with me, when I was a shop steward.*” (Human Resources Consultant).

The result was uncertainty as to how to proceed in order to implement lean production. The Danish managers have lacked thorough discussions about the possible effects of and alternatives for changes, but they have generally been convinced of the advantages of re-organizing the factories after lean principles. Therefore the introduction of lean principles has been complicated by the organizational differences among sectors in the factories and the different ways in which the sections have tried to solve the problems.

Many small worlds

Consequently a visitor will find many very different small worlds within the confines of the factories.

Some sections function as small workshops, produce in very small batches and assemble a rich variety of motors. Workers perform many tasks and are able to work at most workstations. They receive specifications and amounts of pieces for production, plan themselves how to best distribute among each other the production of different motors. Nobody is supervising their work, which seems based on incredible amounts of tacit knowledge. The process is decomposed into small tasks, which are generally simple, but because there are many variations in the types of products, workers must be flexible in managing daily production, controlling the quality and the flow of products and pieces. Production is not organized in U-cells, work stations are separated by buffers of thousands of different pieces. Most workers are women with high seniority, knowing each other, products and variants well. An engineer explained that some motors have been almost the same for years, even a decade. Some of the materials used change but the recipe is almost the same and there is little innovation. Nothing indicates the use of lean concepts. Yet the leader of the section sees it as one of the best, with low levels of failure, just-in-time delivery and highly flexible workers. This type of team demonstrates a high level of 'social maturity' (Kuipers and Witte, 2005).

Another section assembles larger motors, also in a vast number of variants, but within a different organization and with different technology. When an order enters, a worker types its code and number to be assembled in the computer system. The electronic display shows, as in a power point presentation, the correct order of assembling pieces. At the end of the line a machine controls the quality. The worker, who operates it, adjusts the motor, enters the code related to the motor and the machine controls the quality and sends the results to a database.

Workers do not need much expertise to work in this line. They are all young men, who have been in the company from few months to less than two years, with no intention of staying with the company. However, assembly stations and the line has been developed in a tight interplay of co-design among experienced workers, technicians and external machine-suppliers to allow for unskilled but very flexible production and thus provide a template for how to master fast growth and to outsource flexible work tasks. A young technician, involved in the team, managed by the R&D department, that developed the line and the quality control machine, is now doing improvements, and also representing a very different working career¹⁹ than the normal workers, which no longer engage in continuous improvements.

A few meters from the high tech line, workers take care of CNC and CAD-CAM machines, differing in age, type and level of technology. Few workers can operate many different machines and they therefore work in areas with similar machines. The section has tried to gain more flexibility by having workers operate different types of machines. Some machines are highly automated, workers just feed them every few minutes, and the job is very repetitive. As a worker explains:

“This is a terrible job, it is just the same all the time. But I’m fine with it because I just need 25 months to retire, just 25 months, so I can deal with it. But look, these young guys here, they think that it is fine because the salary is good, but the salary will be the same forever, until they retire. There is no change: the same job, the same salary. I feel like I’m in a cage. They (young special workers) buy a house, they buy a car, and then become dependent on their jobs to pay all the bills and then they can not study anymore”²⁰

Actually, he was trying advise the younger workers to avoid the traps that exists in any system by pointing out all the options that is in the firm to move to more challenging jobs. Thus in the same section, a specialized worker is busy operating three complex CNC

¹⁹ “I was educated as a skilled worker, an automation mechanic, and during my apprenticeship I was working at Danfoss. When I finished my education, I did not work as a skilled worker. I decided that I would like to learn more, so I took an education as a technician, and then came back to Danfoss, and started to work at the R&D department. In a few years from now I intend do take an education as a engineer, right now I’m gaining professional experience.” ()

²⁰ From RRs field notes

machines simultaneously. He has attended 15 courses in machine-operation, quality control and programming after he started in the factory 15 years ago. His latest wish is a course on forklift truck driving, as he cares about his future employability:

“I like and I need to be moving, to get new challenges. I can operate most machines in this and even in other sections. I have learnt how to program the machines, and there is a lot to learn about this kind of machine. I like to work with it. But I need to prepare myself to a different situation, because who knows what the future will bring?”²¹

The team leader confirms the large variation of the section and some workers are quite flexible, which the company rewards with wage increases (up to 20 per cent). Others are not flexible or interested in developing their skills, being placed at more simple workstations. Though the Americans have in general abandoned further training, skill development in this section is a joint concern of the shop steward and the team leader, who are continually searching for existing and new courses. For special workers further training is just an option, for skilled an obligation and seen as necessary for keeping the job with changing technologies and fading boundaries to technicians. Fading boundaries also open the space for specialized workers that engage in training. Many special workers have in this way accumulated sufficient knowledge and know-how to challenge even more offensive skilled workers, and sometimes a skilled is degraded to a specialized worker, which is seen to be acceptable as salary differences are minimal.

In “the smart controls” factory the implementation of lean production is more advanced and the concepts of just-in-time and continuous flow easily detectable. The workers have been trained at different workstations in lean techniques, quality control, and CNC operation through a great variety of courses. Lines are organized in small flexible teams with no team leaders but a general supervisor. Seniority varies from a few months to a couple of years. Standardization and continuous improvement are the current targets for many teams. The supervisor/shop steward partnership plays a central role in this line, too, providing resources and access to courses and negotiating the continuous improvement process. Together they have negotiated goals with upper managers and spent months co-designing the framework for

²¹ From RRs field notes

lean concepts. Main focus has been to implement continuous improvement by upgrading the skills of special workers with little experience. The supervisor is a former schoolteacher, who reproduces his approach as a teacher towards the special workers, who are treated as going through a learning process with the main aim of reaching ‘technical proficiency’.

The above examples suffice in illustrating the variation of the factory and the difficulties in introducing a coherent template. It makes it difficult to exchange standardized information and compare performance. Little information flows across horizontal boundaries but rather from units to the top. This information is about magnitude and time, while the ‘soft’ information about processes, through which these results have been achieved, is not flowing. To many, the flow of information is not necessarily linked with communication and mutual understanding, as strategies from higher levels are communicated but not negotiated. Strategies at shop floor and middle levels are negotiated but not communicated to the top. Thus many boundaries and filters in the organization have recently been constructed. The old scheme of systematic communication among teams has weakened. Now a small group can form a team and become almost insulated from the surroundings. Teams are to a great extent independent of other groups in the factory. Overall the systematic procedure for team formation seems to be temporarily suspended. Meeting short-term demands and deadlines has become the preoccupation. With the American occupation few are trying to imagine a clear picture of what the future of SD in Nordborg will look like.

2.3. The Danish Spirit factory (DSF)

The Danish Spirit Factory (DSF) is located in Svendborg, a town in Fünen, and is specialized in bottling, storing and distributing different types of spirit and wines. During the last decades the factory has been sold three times, and belongs now to a Swedish State owned multinational (System-bolaget). This position and tough market competition forces it to maintain high quality and continuous cost reductions. Wine conditioning, transportation and bottling must be handled so that taste, alcoholic degree, color and transparency do not deteriorate, and low prices are important for consumers. Thus the situation pressurizes profit margins, reducing possibilities for expensive operational solutions, though the variety of products handled is extensive. Danish wage levels mean a need for continuous improvement in the use of machinery, reduction in operational costs and permanent monitoring of product quality. Recently competition tightened further, as an over capacity in the Nordic countries intensified competition among subsidiaries of the Swedish multinational. A process of rivalry

and negotiations over setting and meeting benchmarks among the different plants in Finland, Sweden and Denmark was used to contest and evaluate the comparative advantages of each factory. Some relocation of production was necessary, but how to organize production and which sites to close were unclear. Setting benchmarks was a complex task, having to take into consideration e.g. variations in regional marketing position, production capacity, location in relation to consumer markets and flexibility. Many of these variables were not controlled by local sites, which mainly could improve on productivity, quality and cost-reduction. For two years uncertainty prevailed about which of the factories should be closed. Another Danish site was closed recently and had partly been relocated to Svendborg. Below, we narrate its efforts to improve its position in the multinational.

Organizing under collective uncertainty

Winning a benchmark rivalry under great uncertainty poses a real challenge. The subsidiary called for the employees to do their utmost, though they are facing possible unemployment. Svendborg had experienced many plant closures and many of the DSFs employees had experienced several lay-offs so they had a high propensity to search for new jobs in other enterprises. Thus, during our first visit, the workers were clearly divided into two camps. The 'lukewarms' that did not really engage in the fight for the plant's future and the 'entrepreneurial' that had committed themselves to fighting on the doorsteps for its survival. Old class-divisions such as those between managers and workers seemed to mean less than this divide. Yet the two opposite strategies for workers could be united in a joint strategy of radical skill improvements, as this strategy would increase both the chances of getting a job outside the plant and the capabilities to improve and innovate processes, quality and products from within. Finally, an extensive skill improvement strategy might even tie more ambitious lukewarm workers to the plant, despite favorable offers from external firms. The strategy of skill improvement had developed gradually over many years, actually since the plant had been traded for the second time, five years ago. Thus it was already integrated with and re-enforced by a team-organization that had evolved since then. It just had to be re-evoked.

Obviously very few managers might in isolation feel tempted to solve episodes of great uncertainty by investing heavily in a workforce that would soon be laid off. As we saw in SD, American managers resisted such a strategy. However, as in other Danish cases (Kristensen and Zeitlin, 2005) this policy was created by the formation of very extensive partnerships focused around the works council among shop stewards and managers with repercussions to

the larger municipality, training institutions and consultancies²². The turn around process through these partners could be organized in itself through a course for managers and workers that in this way started working more closely together:

“The course was a four days long seminar. It started with the site manager talking openly about our situation...we had some group work, but in the end, the intention was that everyone should go home and start to think about how to improve our daily work, about the things that could improve the production...We produced a catalogue with 5 to 6 hundred suggestions for improvement...we could almost have build a new factory.. But the most important thing was that it became clear that working together we could better meet the new challenges of the future.” (HR Managerin DSF)

A very active convenor used the situation to create a route of connectivity between teams, increasing individual autonomy, responsibility, and skills improvement that would serve their holders on both the internal- and external labor market. For instance 21 unskilled workers initiated and accomplished a 2½ years education as industrial operators²³. Both shop stewards and managers went through courses and workshops in teambuilding making it easier to change from distributive to integrated bargaining in mutual relations. By creating this strategy the convenor simultaneously carved out a space between the operative teams and the managerial hierarchy, where employee representatives could recruit and maintain excellent collaborative relations with lower managers and create a partnership that enabled them to fight jointly and vigorously for the survival of the plant. Shop stewards also took a new position to their members, e.g. by supporting equal pay and bonus for all employees, being convinced that inequality in salary and bonus could generate so many problems among and within teams that it would compromise the whole idea of team organization:

“...of course there are always the liberals asking for salary differentiation among employees, but my work is to avoid that these differences emerge among employees... for example, some workers who receive the industrial

²² *“At this point, the work council realized that the sale of the factory was sure, but whether the site should also be closed down was not decided yet...but we did not intent to sit down and wait. The work council went to the management and started to discuss what we as a community could do. It was a really unique situation. It meant that we started to talk to the local education center (AMU) about how we could improve our situation. At the same time, we made contact to a private consultancy firm, which had no experience with educating production workers but we challenged them to help us...it took time and as quite difficult, but we were able to create a course together” (HR Manager)*

²³ An education, which we shall return to below.

operators diploma think that they should earn more money. I am totally against this idea. They receive organizational and state support to take an education and they receive several months of salary during their education, why should they receive more money when returning to work?”(Interview with Convenor).

The factory could easily be organized after Tayloristic principles, as the filling of bottles is very repetitive and it is possible to assign workers to such jobs under high unemployment. Workers with 10 years of seniority tell stories about old times, when many more people worked in this way with quite similar technology. Work was divided into minor tasks among more people and divisions among different work groups were strong. The shop floor had three different categories: unskilled and skilled, the latter divided in machine setting and maintenance. A supervisor planned and controlled production. Now new organizational forms linked to information technology serve decentralized autonomous work teams. Divisions between categories of workers are disappearing and skills are changing rapidly. Skilled workers are not doing machine setting anymore. The number of workers per line has been reduced by more than 70 % in some areas; while productivity per employee has increased up to 80% in one decade. Productivity gains differ, but all lines have improved. To keep operational costs decreasing, the number of operational hours has been brought up from 42% to 62% and in some lines from 42% to 70% of the gross possible within three years. Some teams aspire for 80%, which is impressive given that lines are often reset for shifting batches. The organization of teams provides the explanation for these performance improvements.

The structuration of the community of teams and their ties is not a once and for all settlement. Teams, convenor and managers are constantly negotiating new ordering and principles. Today, there are different types of teams and the aim is that all workers participate in at least two types. The *social team* is the group working around the same production line. In the *technical team*, workers across lines train each other to run each other's machines. *Cross-functional teams* are created on an ad hoc basis, e.g. when line workers and technicians are planning and developing a new production line. Ad hoc teams are generally short term oriented, trying to solve major technical problems. This organic form of working is further reinforced by the constant creation of committees and councils, that try coordinate new policies across teams. At the time we asked the convenor about these, he was gradually able to list 18 different committees, many of which were working with works council sub-themes,

but with involvement of team members on a broad scale together with managers and shop stewards. It is a proper indication of how a negotiating order has been established to constantly renegotiate organizational changes and re-defining roles within a plant that one would expect to be very routine and stable.

The *production line/social team* is the workers main belonging, where they perform most tasks in collaboration. Mutual understanding and cooperation is highly elaborated and they often cooperate, plan and divide tasks in silence. The social team was created to facilitate learning among workers, in order to improve performance, reduce conflicts and avoid harassments. The team is responsible for hiring new members, and to get the best workers they compete mutually to gain reputation and be attractive.

One way for workers to measure how radically work organization has changed is when newly recruits or entirely new teams are brought to function in this environment. Whereas earlier it was quite easy to learn the jobs, this is now much more difficult. In the first phase, individuals face enough difficulties learning how to use and improve skills, create roles in the team and establish relations among teams. During such periods the older teams demonstrate their comparative capacity to solve non-routine problems, focus on continuous improvements, collaboration across team boundaries and their ability to make use of a variety of resources - institutional and organizational.

Crucial for success is to have lines running continuously, do maintenance and repair on the spot by operatives to the largest extent and reduce re-setting time. The workers are responsible for the whole production process. Their tasks comprise production planning for the next weeks, organizing the production of different types of wines and cleaning the system. They are in close contact with sales and production planning to avoid unnecessary cleaning and best prepare operations. They connect wine tankers to production lines, where small mistakes can be very costly in terms of time and resources. They do chemical analyses to evaluate product characteristics and sensibility to be able to keep the quality of the product under processing. Finally, they receive trainees under education as industrial operators. It seems as if the electrical system is the only “no go area” for operatives:

“I have freedom to solve as many problems as I can, the only forbidden thing is the electrical equipment, which is exclusively for electricians. Any

other problem, which shows up: if I can solve it, I am free to do so. Only if I cannot solve it, or I am uncertain about it, I ask for help. The mechanic was here fixing something, because I was not sure about the problem; but if I were, I could have replaced the piece without any problem.” (special worker, from field notes).

Technical teams allow for crossovers and multi-skilling. For example, packing machines are quite complex to operate and it takes several months to master all operations. To increase functional flexibility across lines, workers form shifting two-member teams, where they over 14 days instruct one another in their machines and related work tasks. This rotation scheme does not only allow for technical multi-skilling, but creates cross-line knowledge, mutual understanding and install a practice for experimental role-shifts. To many, this is very cumbersome and frightening and therefore most workers are trained in group-work and team-formation at the local training center. Not all workers are able to work across lines and different teams but the process is progressing, the results are continually evaluated and new suggestions for improvement are collected. Technical teams solve several problems. Workers, with different knowledge, work together and shift roles between teacher and student, thereby reducing power inequalities that could emerge in more static relations. By working in several teams of different types and with different goals, workers are able to build a network of relations across lines, departments and hierarchical levels. In this way, they empower their internal networks and at the same time facilitate the flow of cross-departmental and functional information, whereby teams avoid encapsulating themselves from being able to learn from improvements in others. Workers develop higher levels of reliable flexibility²⁴ and increase their employability. By crossing team boundaries, the workers have access to a clear picture of what is really going on both inside and outside their social teams.

Two of eight workers in a distinct social team are also involved in the development of a new, similar production line. They participate in a *project team*, working together with engineers and technicians to design it. They participate in visits to sub contractors who are building the new line, test the machines, make suggestions for improvements and try figure out possible failures. By moving across different departments these workers become inter-connected and

²⁴ By reliable flexibility we mean the possibility to operate several machines with a deep tacit and technical knowledge of the operations. This would be a contrast to a “flexibility by heart” when the worker can operate a machine without a deep understanding of what he is doing.

connect people across functional areas, exchange information, gain new knowledge, take responsibility, participate in decision making and adapt to the experimental mode of the plant, which may mean taking wrong decisions and producing mistakes without being condemned.

In this organization, the role of supervisors is unclear, but they are still present though in smaller numbers. The process leader has become a human resource coordinator for the teams rather than being responsible for technical questions. He evaluates which skills different workers possess, how to improve team formation and help the workers in skill development. Close supervision is not prevalent in the factory anymore:

“ I just ask for help from my process leader, when there is a problem that I or other workers in the team cannot solve. Before, there were other people, who solved problems. Now we have each other in the team. For example, we used not to know the tasks before coming to work. We would have to wait for the supervisor to list the tasks to be performed during the day, but now we know these weeks in advance. Thus, we know which machines to prepare. The supervisor just comes around and says “good morning, any problems?” We do not see each other very often, I really do not know what the process leader is doing”. (special worker, WIP)

Instead of controlling the operations and workers, the new process leaders are addressing issues related to team members' roles, skill development, and replacement of team members and cross-lines training.

“I am more inclined to use the more modern role of a process leader... coaching the worker's involvement. Sometimes I must examine them, more like the old supervisor. My work as a process leader is a mixture of the old and the new type of supervisor, sometime we negotiate and sometime we decide, ... some workers are not able to make a decision...”(process leader).

As special workers have continually gained space in the plant by continually upgrading skills, they have also assumed more of the skilled workers' tasks in the factory. Changes in the division and organization of work in the factory have created a complex picture, where the boundaries between skilled, non-skilled, white- and blue-collar jobs become unclear.

Unskilled jobs are few in the factory. It is difficult specifying what the skills are, and which skills are necessary for jobs, but it is telling that we did not speak with a single worker that found his job uninteresting.

A quite common trajectory for workers in DSF is that they first had a career in a specific craft outside the company, then they decided to change towards a less demanding job in terms of working hours and stress in DSF. Some took the job for more involuntary reasons, for example, when being laid off from other companies. But even when demand for their original craft became better, most of them decided to remain in the factory, since their jobs were more interesting than they had expected and differences in salary small. DSF satisfies more aspirations than expected from a “factory”:

“ I got a job here after working as a mechanic in a small shop. I got tired of seeing the same people every day and after some time in the factory I was earning more money as a special worker than as a mechanic. People ask me how I can accept a factory job after using many years of training as a mechanic, but a factory job where you do the same movements every day is not what we have here. I’m solving problems all the time. I’m helping people. Sometimes, maintenance workers make jokes about my job and they try to push me aside. But when people in the line cannot solve a problem, they first look to me for help, not to the maintenance workers.” ()

This means that a lot of the “formally” unskilled, specialized workers’ jobs are in fact held by skilled and that makes a difference:

“ A skilled worker working in the line as a special worker is not the same as a special worker. They (the skilled workers) are more prone to experimenting, they are not afraid of trying something”. (process leader)

There is space for experimentation and there is support for those who are not confident in experimenting, but it is difficult to find space for people, who are not committed, hard working and contributing to the collective success. The factory has become an attractive social space for employees that would formerly hate a normal factory job. For instance, high-school dropouts, failed engineers, former cabinet-makers, etc., are to be found on its floor.

The factory becomes a space for very different people. Let us illustrate this with two working careers.

John is 48 years old: *“I was educated in the agricultural sector. I worked in farms for several years, but wanted to try something new. Then there was an opportunity in a municipal school, which had some animals. I should take care of them and show them to children, who visited the school. It was a nice and interesting job, but with changes in the municipality, the little farm in the school was closed and I lost the job, and found another in DSF. I learned to operate several machines, and now I’m considering the possibility to become an industrial operator. I like the job I have here.”* (from RR field notes).

Another crossed the white/blue divide: *“I was educated in a commercial school, but after some years with a lot of office work, I got bored. I searched for a more interesting job, but it was hard to find at that time, and then the firm, where I was employed, closed down. I could not find another white-collar job, not to say a more interesting one, and I accepted the idea of working in a factory; but this is different from what I expected... I really like it. It is possible to learn all the time, and now I can operate several different machines. Right now I’m in the office writing the operation manuals²⁵ to the machines I operate. The intention is to have manuals for the machines and my process leader asked whether I would like to write them. I accepted, so during part of the week, I sit here and write the manuals instead of working on the shop floor.”*()

It may be argued that the factory has become post-Fordist: blurred boundaries between work groups, where specialized workers participate in planning, take care of a variety of tasks which requires a variety of skills (preparation, servicing, quality and process control) and are not under strict supervision. However, others could also see it as bureaucratization: flow of

²⁵ A interesting characteristic of these new machines is that the manuals are written by the workers who operate them. Because of the co-design, workers participate in the construction of these machines and the system, which continually gain new features. Thus a manual which could describe their operations is not found and some workers periodically re-write new manuals where the different paths to prepare a machine are presented. In these manuals fine operation details are not only related to the preparation of machines but also to the quality control measures necessary to an effective process. This is the type of task that one would have expected to be performed by an industrial technician, not a special worker.

information is continuous, the measures of performance are stringent. Control of supervisors is not necessary anymore because governance is embedded in technology. By the end of the day it is easy to evaluate how hard workers have been working, and how fast they were resetting machines. Bad performances must be justified. The continuous improvements in how to measure performance, the identification and precision in performance of tasks and the just-in-time information could easily be characterized as intensified bureaucratization. There is a greater precision of results expected, more extensive accountable management reporting and all information seems to be driven in the direction of a more rigorous account of results and costs.

However, the flow of information is seen as a positive change and is generally linked to the idea of commitment: *“not leaving the brain at the factory gate anymore”* (special worker, RR field notes). By continually analyzing their performance and achievements, the teams may reconsider new skills that members need. The participation of the work force explains why these changes are not understood as a tighter control over workers. Workers are not only able to control their own performance, but are given a deeper understanding of the economic performance of the whole organization. In this way, they have become more aware of international competition, the importance of the firm’s performance for survival and how this performance is linked to their performance. The continuous flow of information supports the processes of mutual justification and the understanding of reasons for actions and strategies. But if targets are met, workers also expect to be remunerated. The annual bonus, which is equally divided among all employees, serves a purpose. Paradoxically, workers despite much electronic supervision, feel much more freedom than before, where tight direct personal control, a more straight division of tasks and roles joined with a more individual mode of performance measurement.

2.4. Radiometer: The Jewel in the Crown going “Subsidiary”!²⁶

Radiometer (RM) has become the world’s leading provider of blood gas analyzers, which measure blood gases and other parameters used to diagnose patients in critical situations, and accessories, IT systems and support services for blood gas testing. RM employs nearly 1,700 people worldwide, and their products are sold in more than 100 countries. Its headquarters are in Copenhagen and its global organization comprises Radiometer A/S, consisting of three

²⁶ WWW.radiometer.com

product companies: Radiometer Medical ApS, Denmark, SenDx Medical, Inc., US; Radiometer Basel AG, Switzerland, and a number of international sales companies responsible for the worldwide sales and distribution of RM's products and services. Thus the RM-story is about a Danish family-owned company going multinational by developing excellent products and services that make it possible to cultivate close ties to surgery departments in hospitals all over the world.

The new truth of the story, however, is that RM has become a subsidiary. In 2003 Danaher Corporation, a U.S. Fortune 500 company committed to continuous improvement, innovation and growth took over RM. This shift has primarily implied a radical re-organization along Danaher's Lean model.

Radiometer Medical ApS, RM's main product company with more than 800 employees (approx. 450 of them are so-called un-skilled), is located vis-à-vis RM's corporate headquarters, close to Copenhagen city. It is surrounded by an old residential district, a shopping area and close to a beautiful lake. Inside the company the feel of locality, proximity and unity blends with employees continuously acting towards and being in touch with the world.

People at RM express pride and commitment, when talking about their company and work, and do not take their success for granted, but are conscious that the long tradition of successfully improving financial results, finding new and better ways to solve problems and expanding throughout the world was a co-authored process. Thus, the Danaher takeover created new challenges, conditions and re-organizations that stirred up habits and routines, caused new uncertainties and more intensive and constant pressure for innovative changes. Before we take a closer look at RM's present situation as a subsidiary, let us first get a feel for her multinational past.

Radiometer's historic roots and strategy

In 1935 Carl Schröder and Børge Aagaard founded RM to manufacture electronic measuring instruments for the radio industry. By collaboration with Dr Poul Astrup, in 1954 RM could market the world's first commercially available acid-base status instrument (the Astrup Apparatus), which initiated an era of intensive research and development within blood gas testing. Since hospitals in 1959 started to perform blood gas analyses - the same year as RM

introduced the “Astrup Trolley” for PH, P02 and PCO2 measurements - several new generations of blood gas analyzers, alternative instruments and accessories have been developed and released²⁷. In this way RM gained and defended a reputation of being vanguard in blood gas testing and a major provider of high-quality and -precision measurement instruments. RM cultivated close collaborative partnerships and ongoing exchanges of know-how with Danish research institutions, such as the Danish National Hospital (Rigshospitalet) and the Carlsberg Laboratories – and explains its ability to be a “first mover” by reference to its reputation and such collaborative partnerships. During the years, when the Danish health system was leading in quality and funding, RM had an ideal home market for innovative performance.

In 1973 a son of one the founders, Johan Schrøder, became CEO. Being a Harvard MBA, he caused a shift in focus from engineering to business, making growth in sales rather than innovative performance the target. Through the lenses of the then fashionable Boston-Consulting matrix, Johan saw the blood gas analyzers as the company’s “cash-cow” and when high growth and moderate competition turned into stagnating profits, declining growth and fierce US competition in the 1980s, RM saw a need for new “stars”. He started to acquire companies within new business areas and began to expand and innovate in more proactive and experimenting ways. Much of this strategy failed and proved the viability of blood gas equipment, but the period transformed RM into a much more global and experimental company, focusing on developing, in tight partnerships with leading hospitals and research centers in many parts of the world, new products and services to diagnose critically ill patients.

This way of operating has continued after the take-over. Though blood gas analyzers and production of instruments is the core métier, it also offers a wide range of, for example, liquids, samplers and services such as process analysis, IT systems, quality as well as technical support and training. The market share on analyzers globally amounts to 40%, while it is 97% in Denmark. In 2002, 96% of RM’s turnover derived from export. 21% of the company’s turnover derived from analyzers, 63% stem from accessories, 9% from services, and 7%, from non-RM products. It sells 41% of its turnover on the European, 25% on the US and 19% on the Japanese market²⁸.

²⁷ For further clarification please see www.radiometer.com/Radiometer milestones

²⁸ Source of information: www.knowledgelab.dk/now/shrm/Per%20Krogager.pdf

Co-developing partnerships with colleagues, costumers and suppliers is characteristic of RM. For instance, RM initiates a new customer relation with an analysis of the hospital's blood gas testing workflow based on dialogue, cooperation and exchange of experiences. The approach is called *The Red System* and is divided into three stages: First, process analysis of costumer needs, testing environment, etc., to identify opportunities for process improvement. Second, design of solution to optimize costumer testing environment, combining analyzers, IT systems and samplers. Third, provision of support in the form of training, QA, supplies of materials and technical support to ensure such degree of customer satisfaction that RM becomes an ongoing partner, helping customers save time and increase productivity (www.radiometer.com 28-02-07).

These external ties are, as we shall see later, supported by a highly experimentalist work environment inside RM, where everyone is encouraged to explore new ways of continuously improving.

The Coming of a Subsidiary?

The formula of the Red System has not changed after the take-over by Danaher, and neither an economic nor a technical crisis lead to change of ownership. Johan had simply reached retirement, decided to sell, and Danaher offered to buy him out as they saw RM's reputation as a way of carving out an even bigger place for the company in health care in the future.

When Johan left in 2004, Peter Kürstein, another Dane, was appointed CEO and listening to his reflections on strategy in early 2007 is as if you were listening to an autonomous CEO in search of new entrepreneurial challenges:

“It is our ambition to double our growth in the coming years (from 6.5% to 12.5%). In part by continuing to stake on blood gas, and in part by developing new measurement parameters (e.g. PISA in particular is a field to stake on in the future that involves measurement instruments within other areas than blood gas). We also aim to strongly stake on sales of accessories for our instruments ... The instruments are the driver of selling accessories... But we are in the process of leaving the blood gas bubble ... towards something with which we are less familiar which implies greater

uncertainty, but also more possibilities... ... Point of Care (POC) is the market that we are really interested in staking on in the future as opposed to laboratory measurement equipment ... therefore the future is about getting as close as possible to the patient... We have to introduce new parameters... many are in the pipeline for the coming years within the realm of ACUTE CARE. We are not going to construct the fundamental technology ourselves – we will buy it and further develop it into a product. That is the strategy... ... Much higher price pressure characterizes 2006 (e.g. due to German health reforms). So far Radiometer has been spared due to the uniqueness of the products, specialization, and significance, but we expect a growing external price pressure to constitute a fundamental condition in the future. The general transformation figure is a movement from exclusively staking on blood gas to increasingly focusing on also ACUTE CARE²⁹

Like other Danish companies, RM navigates globally with ambiguity, and e.g. the question of outsourcing plays a central role in employee conversations. At the annual strategy meeting several questions pertained to RM's "partnership" with a Polish supplier. But the production manager narrated it rather into a usual experimental adventure:

"Our collaboration with the Polish factory is an experiment from which we expect to be able to assess whether we should, in the long run, move to low price countries and if so which... We move simple productions to Poland (simultaneously with keeping the same productions in Denmark)... ... that is, parallel productions, which is not outsourcing... ... outsourcing is when you transfer everything... so we are not outsourcing" (Fritz Nyggaard/ strategy meeting 04-01-07).

New owners, outsourcing and coming new products constitute an interesting mixture of high insecurity and novel challenges, from which the employees may potentially gain if they manage to continue improving and innovating. Actually, in a moment of great self-confidence, the convenor welcomed the fusion of Danish collaborative traditions with US ways of organizing internal competition as a way of rejuvenating Radiometer:

²⁹ Peter Kürstein, strategy meeting for employees at Radiometer 08-01-07

... if we are able to combine the American competitive mentality with our own model of cooperation, I believe that it could be fun. Then in the future, I think, we need an external gallery around the buildings, because people from other Danaher companies will come and watch how we do it.³⁰

This self-confidence is rooted in (1) a tradition for collaborative co-management between management and trade union representatives, (2) an experimental, team-based work organization made possible by (3) making use of surrounding institutional resources. These three practices have been vital for RM's success and seem to be its assets for future growth. We will, thus, elaborate on the potentials and challenges of these three assets – past, present and future.

Collaborative practices between management and trade union representatives

A long lasting partnership between convenor/shop stewards and top-/production managers has cultivated RM's work organization. This partnership has created the basis for a highly trained and engaged workforce, flexible and with capabilities to respond to internal and external changes in innovative ways. Union representatives have simply been integrated into the management structure – and have changed from distributive - in favor of integrative bargaining in exchange for an offensive up-skilling strategy. Thus, the roles of convener and shop stewards have become directed towards the role as facilitators, problem solvers, mediators, change masters or motivators in the organization³¹. Having had a voice even in creating the strategy of top management, they negotiate this in place with middle managers and employees at all levels, where they can combine strategic goals with personal aspirations much more effectively than any manager. This partnership permeates the organization and manifests itself in a wide range of committees and ad hoc groups across units, departments, management levels, etc. – i.e. arenas where the partners share information, discuss strategies, negotiate, evaluate options and draw on each others knowledge and expertise in an ongoing process³².

³⁰ Annual Report 2004 from the Works Council.

³¹ Evt. noget mere om hvordan TR-gruppen skaber legitimitet omkring forandringsprocesserne... NB husk denne

³² E.g. the Dialogue Group (shop steward and management meet regularly to discuss/inform about the internal staffing situation – who wants to be moved, who needs help, etc.), Coach group meetings (shop steward, department managers and section managers meet once a month. The shop steward often renders visible the need

Although this unique alliance does not encompass all management levels (especially not the middle managers) it has been pivotal, also after becoming part of the Danaher multinational. RM's lean based re-organization process e.g. could not have been successfully implemented without this partnership, which secured employee commitment and co-operation about all changes. The partnership seems to facilitate transformations in very productive ways - which not only engage employees, but also strengthen their abilities to constantly search for and respond to innovative changes. One very central achievement is that the company's co-managing team structure has not eroded. To the contrary, it has become the central prerequisite for successfully implementing Lean principles, though the two often looked contradictory during the process of implementation. So the empowerment of socio-technical teams has been combined with the transparency of Lean – a mix, which has resulted in higher performance without losing employee support (CU 04-01-07).

Collaboration across, ongoing flows of information within and between units (and teams), transparency and delegation are all values that are guarded by both top-managers and union representatives, and their partnership is now highly focused on monitoring the teams' ability to organize dependent on how they benchmark. This art of managing corresponds in a distinctive way to new organizational forms, such as heterarchies, with their ability to innovate and make ongoing exploration and experimentation a general feature throughout the organization (Stark and Girard 2001; Hedlund, 1999).

Top-managers and convener think that one of the crucial future challenges is to nurture a stronger common we-feeling in order to avoid organizational parochialism. The convener expresses the challenge like this:

"We have too much of 'who is most important' and of silo mentality... that is everyone attends to his own business without thinking of the whole... but collaboration across units and sections are imperative and therefore the silos must die!" (CU 04-01-07).

to thinking and working across boundaries, and though it seems contradictory, s/he is often the one coaching the managers in that respect. Liaison committee, JOB2 committees, etc. (Field notes 08-01-07).

Especially among middle managers there is a widespread tendency only to focus on the needs and short-term goals of ones own section and Danaher's bonus and benchmark system has reinforced this tendency. The system only favors individualistic and section-based performance results instead of joint achievements across sections and units – quite similar to how Sauer Danfoss' award system seems to work, but in RM an offensive partnership is in place to counteract such tendencies and aspiration for wider collaborative practices.

Merging experimental team work-practices with Lean-governance

Salman Rushdie catches quite well how RM's adaptation to Danaher's Lean-rule was far from a simple stringent use of these principles: "A bit of this and a bit of that; that is how newness enters the world". What came out of the process was hybridization (Zeitlin and Herrigel, xxx) and a new experimental order. However, a clash between two forms of work organization is a dramatic affair - a source of both frustration and dynamic experimentation. But the confluence of former and current work practices has caused re-interpretations of previous work practices and reflection on how to perfect and improve. A team worker expresses it this way:

"We take from Lean what we can use... that is, we make it work within the specific unit We are good at finding creative solutions when necessary" (Ib, team worker, 13-02-07).

This attitude reflects that by working in teams, the workers are used to take action, not orders, and search for novel solutions. Since the team organization was introduced several decades ago, it has continually changed with the overall purpose of giving employees increasing influence over the development of work practices (Company materials, CU slides page 5, 23-10-06). Each unit consists of several co- managing teams organized around the unit's specific product lines. The size of the teams varies from 8-15 employees dependent on the complexity and amount of work. After Lean, most product lines have been re-organized into U-cells, and employees have been trained at all workstations – so that they are able to rotate between and support each other in the different cells. Proximity, interdependence, professional and social bonds characterize life within teams/U-cells. Teams take collective pride in mastering their specific work activities, products, competencies and performance results, but in an easygoing way.

Shortly after the acquisition, Danaher introduced Lean principles and expected them implemented within 3 months. All were taught Danaher's Lean principles, while production stopped and stores were reduced. Training included the planning and participation in Kaizen Events to improve managers and employees ability to re-organize towards enhanced efficiency and performance. The top managers in RM took this speedy approach to avoid that Danaher would send an army of 80 "change masters" to enforce its Lean rule on RM (TR JN 13-02-07). The union representatives decided to support the Danish managers, and once again they became partners and took the role of change masters to make the best of the new situation. The production manager met with all the teams in order to clarify and discuss the underlying logic and future strategies of the lean-based re-organization. Union representatives worked out a manual for the co-managing teams that addressed the future roles and rules for teams and collaborative practices. These rules explicated the division of responsibilities, expectations and rights of employees, union representatives and management in a work environment under constant change, and stated clearly that changes cannot be imposed, but must be negotiated.

Framed by these rules, it is of course still dependent on the creative powers of a multitude to actually make a dynamic team-based work arrangement. In RM, two different "tools" have been used to foster this. The first is the institutionalization of a role-division within teams. The second is a permanent second job (JOB2) arrangement, which invites employees to shift jobs with colleagues across units on a temporary basis in order to learn new skills and competencies that, of course, increase organizational flexibility. As we shall see, this diversity of roles enhances lines of lateral accountability, distribute intelligence and reflexivity within and across team settings.

As a way to develop and monitor work roles that facilitate an experimental and innovative work environment, the company has designed and implemented a role-matrix within each production team that, apart from their operational roles, includes:

- Quality responsible (process employee)
- Coordinator (planner)
- Documentation responsible
- Capacity responsible

- Stock responsible
- Technique responsible
- Education- and training responsible
- Environment responsible
- Information- and IT responsible

Union representatives have developed this set of formal roles in collaboration with managers and employees. To reach the highest degree of flexibility, more than one person within each team must, as a rule, be able to perform each role and employees are encouraged to shift roles. According to the convener and shop stewards the use and institutionalization of these different roles aim at reaching other advantages and objectives as well. This is what is listed in the manual for the co-managing team:

- Clear division of realms of responsibility
- Visibility among the co-managing teams and the environment
- Co-ordination of tasks across groups in own unit, section and in the whole production is facilitated
- Instruction, training, and course activities involving the individual roles can be established
- Information and communication channels become more transparent and thus faster

(Source: manual for co-managing teams 2006)

With explicit roles the division of responsibility becomes more transparent, and across teams and towards the wider surroundings, formal roles facilitate coordination and decentralization of work and authority. Moreover “role masters” with similar responsibilities exchange experiences and ideas across teams – creating a dynamic of learning and innovating across teams. Given that the team members perform the different coordinating roles and often do it by turns, they are all actively engaged in and share responsibility for the tasks and obligations of the nine roles. Through this form of mutual cooperation the individual team member becomes better able to take on the roles of others, reflect on these and thus become able to contribute with new ideas and suggestions for improvements. Such forms of co-operative role taking and role shifting within teams seem to strengthen the intra-relational learning processes within the team communities. It institutionalizes a new form of competition, as shifting role-

masters want to perform as well or better than their predecessors. In order to perform the new roles successfully the team workers must constantly reflect upon former experiences and routines. Furthermore, they must compare and correct the activities pertaining to their role in view of former role masters' or their colleagues' expectations - at the same time as searching for, finding, and evaluating new and better ways to handle the roles. Great learning potentials seem to be anchored in these forms of team practices, since the process of shifting roles and/or taking on new ones inevitably embodies a problematic situation that creates relations of rivalry which trigger the team members' aspirations and abilities to act and think in innovative and improving ways. Striving for recognition and success as a role master seems, in this way, to strengthen the aspirations to learn from previous well performing role masters, and to come up with new ideas and suggestions and actively take part in the team's managerial tasks. In sum, this form of intra and inter-team transactions between roles not only helps to distribute intelligence and know how – but also seems to enable a continuous flow of creating and re-creating new knowledge by institutionalizing lines of communication and coordination among the roles within and across teams.

The institutionalization of shifting jobs reinforces these tendencies. The JOB2 arrangement was implemented 10 years ago, and means that workers are given the opportunity to and are expected to shift jobs across team or units, and many have voluntarily been “expatriated” to a JOB2 more than once. It opens for acquiring new skills and competencies – and increases the functional and numeric flexibility within the organization. Over the years the JOB2 arrangement has been re-adjusted several times. A committee of union representatives, managers and employees are in charge of managing and adjusting the arrangement generally – but the practicalities of job shifts is self-organized by the teams. JOB2 arrangement is used in the following situations:

- Moving and adjusting capacity
- Employees' wishes for new challenges
- To ensure flexibility in relation to bottlenecks and key functions
- To currently expand the ability to change

(Source: Material from the JOB2 committee)

One of the shop stewards describe the genesis and current scope of the JOB2 arrangement in the following way:

”30% of the labor force move around in JOB2 every day. They do it on a voluntary basis and management has no influence. The JOB2 arrangement has existed since 1995. The idea emerged when we were closing down a spray factory. A works council conference focused on how we could create job security and that we in return had to do something about the flexibility... according to our job security agreement we must move... that is, use JOB2 actively” (TR JN 13-02-07)

Both workers and managers think that JOB2 is a success. The “tool” increases exchange (of e.g. people, resources, ideas, knowledge) across teams and units, it helps create a “collective conscience” and a collaborative team community across units and skills. In this way new competencies and roles are assembled and mixed on an ongoing basis. The union representatives list the following advantages of the JOB2 arrangement:

- Employee capacity is moveable within 24 hours
- Employees move on a voluntary basis to different units or different shifts
- Capacity within a production area can be increased by 10% within 24 hours
- Employees develop – personally and professionally
- Employees maintain abilities to learn
- Employees are kept in the labor market in spite of changed job conditions
- Employees feel more secure about change
- Job security creates pleasure, motivation and readiness to change
- Conflicts among employees can be solved without dismissals
- Culture and traditions are constantly affected
- Experience is exchanged across the organization.

(Source: Material from JOB2 committee)

Looking at the many advantages listed above as well as recalling the employees’ stories about their experiences with shifting jobs, it is obvious that the JOB2 arrangement is a very unique tool that is monitored by the employees without direct management involvement. In many ways the JOB2 arrangement provides the same almost organic, fluid and highly flexible work

organization form as Unimerco's ad hoc collaborative team practices. However at RM it is much more institutionalized and initiated and facilitated by the union representatives. But how has the clash between these dynamic co-managing team practices and Danaher's Lean concepts "materialized"?

Lean - a two-edged sword

One of the central mantras of Lean is *to slim the organization* by getting rid of all waste and some of its critics have argued that some "waste" or slack is necessary for triggering innovation. However Lean is also a technique that triggers reflexivity and continuous re-learning, its rationale being a constant search for improvements and strive for smarter ways of doing things. From this perspective, Lean is not a fixed concept – but a set of principles always being translated into a specific context. RM's "confrontation" with Danaher's Lean model is no exception. The pure model has resulted in the introduction and implementation of a set of Lean principles throughout the organization. All teams are using classic Lean concepts, such as Kanban, Kaizen and Six Sigma, but the actual ways in which these principles are being performed varies among different units and teams. This kind of diversity precisely illustrates that RM deals with Lean in a very pragmatic and flexible way – trying to integrate the useful while de-selecting bits and pieces. The following quotations demonstrate how people cope with and mediate between the two faces of lean in their daily practices:

"Lean is a two-edged sword..... it carries a good deal of advantages, but it also has certain dead angles when things are not working according to the plan – and they don't in nine of ten cases! Therefore much of Lean is also highly irrational. For example I don't understand the zeal for speed – for while speeding up the pace you make lots of mistakes – so in a long-term perspective running faster and faster is not quite as efficient as the Lean concepts and its logic of effectiveness pleads" (CU 04-01-07)

"The Lean principle distinguishes between materials, machines, and humans. That is fine, it makes the division of labor clear. In the groups of shop stewards we merely need to take care of the human dimension and make sure that the labor force in production is flexible and qualified. The problem is that when the machines cause problems or there are not sufficient materials, it manifests itself as grit in the human machinery.

Therefore it is not possible to distinguish meaningfully between the three dimensions” (CU 04-01-07).

”The Lean system is good for revealing problems but there are no resources for resolving them” (Ivan, employee 13-02-07)

In the beginning the employees were very frustrated, as it was extremely difficult to find a meaning with the new concept and to realize the benefits of the lean-based re-organization. Gradually, they have discovered some of its advantages (such as reduced waste, better results, transparency, etc.) and today most express mixed views. But it is not the principles of Lean that set their aspirations and triggers their pride:

”It is the black magic that we are doing that makes it fun to work here... that is what makes work exiting... we often have to extinguish many fires to achieve the desired result... Pride has much to do with delivering on time with high quality... When we are allowed to run it, it runs much better – not to be smug, but that is just how it is” (Ivan, employee 13-02-07)

Thus one lesson that seems to crystallize from within the realm of Radiometer is that it is precisely the very mix of a little bit of this and a little bit of that enables the organization and its people to move and grow continuously. In this landscape of confused principles newness easily seems to enter the world since it gives rise to ongoing processes of re-combining resources in new and productive ways. And Lean is no exception.

2.5. Institutional foundations for work-system changes: Innovating the use of institutions

It is a commonplace finding in our field studies of Danish firms that under critical episodes (risks of closure, manpower reduction, etc.), the industrial relation system helps shape partnership between convenors, shop stewards and top- and production managers. This facilitates negotiation of strategies, evaluation of options and information sharing enabling decision about which route to take – as we saw in both DSF and Radiometer – and we have found such negotiating partnerships in numerous other firms (Kristensen and Zeitlin, 2005; Kristensen, 2003). Often when such partnerships are less visible as in the case of Unimerco – and we also found this to be the case of in other, foreign owned, firms – it is because management has internalized the interests of employees in how they have managed and

organized their companies. This is quite a remarkable shift that has happened after the first oil crisis. Up to then the dominant negotiating field was the centralized bargaining institutions, where unions and employers associations met and negotiated in gross terms nearly all issues that would govern each their members attitudes to opponents at the local firm level. Today, central negotiations sets a framework for negotiations at firm level and it is at this level that experiments and explorations of new organizational forms, wage systems, and collaborative governance systems becomes constructed. However, the strong position of shop stewards, conveners and work councils are themselves outcomes of and being regulated by negotiations among the national associations and corporatist levels.

As we have seen in a number of cases, the partnerships at firm levels often involves some form of profit-sharing, most predominantly in the case of Unimerco. But such schemes can be found in numerous variants in different firms, also those owned by foreign multinationals. A good example is the train-factory in Randers owned by Canadian Bombardier. Here the teams, responsible for producing entire orders of trains for given customers, are given the freedom to manage themselves their entire business. They know the budgeted costs in advance, and if they are able to make cost-reductions, the team will keep 50% of the gain for themselves, while the subsidiary as such gets the remaining sum. The team is then able to decide quite autonomously how it will spend the bonus it has gained (hiring more workers, send people to further training or take out the gain in the form of increased wages).

However, it is obvious that in the late 1980s and the 1990s profit-sharing increasingly took the form of increases in further training, distribution of pc's to employees, etc. so that the employees at different levels became increasingly capable of expanding their skill-assets at a time, when the labour market was looking threatening, both in terms of new technology and increasing globalization. As the Danish welfare state co-financed workers salaries under training and grossly paid for many a training-course, this way of doing profit sharing became a very favourable way of joining interests between labour and capital and stimulated, no doubt, the formation of firm-level partnerships and a move towards integrative instead of distributive bargaining.

Such partnerships, as we have seen, in turn enable firms to undertake radical changes of the workplace by heavily committing workers, even in moments when employment prospects look bleak. The great achievement of these partnerships have been to engage even the best

workers in these transformations, though they would - everything else being equal - try to find employment in other firms. The secret weapon has been further training for unskilled workers and upward. The effect has nearly everywhere been to engage employees in enduring and stable training programs codified in local agreements between the partners, and in a first radical and then continuous decentralization of responsibility to those that execute tasks at all levels of the firm. Combining the intangible tacit knowledge from previous work practices with new technological skills or perspectives for how work organization may be shaped in alternative ways, how teams are constructed and work, etc., helps creating a workforce that in itself is pushing for improvements, constantly searching for and responding to changes. In effect personal identities gradually come to comprise larger sets of roles and factories become more like experimental laboratories than cages of stable routines. Such experimental laboratories may, however, both develop into communities of teams with intensive interactions or become isolated islands in a sea.

Within this general pattern we find a huge variety both in how firms make use of institutions and in how these have repercussions on and allow for internal organizational evolution unanticipated from the outset. Below we will investigate a variety of these interactions and co-evolutions between firms and institutions, primarily training institutions. What we will reveal in what follows is a very experimentalist and differentiated way of making use of the same institutions. We will see that these institutions are used in highly surprising ways, unanticipated by the political institutions that in the last instance govern them. But it shows how institutions and work organization can change simultaneously in a fairly integrated way to create a very different system than when it was originally formed.

In the 1990s this experimental use of institutions took place within the framework of an Active Labour Market Policy and many of the innovative schemes that we will report goes far beyond the scope and imagination that central politicians and bureaucrats held at the time. As we shall see, they were formed by corporatist collaboration at firm and regional levels and bear witness of a system in which the plasticity of institutions is great. Interestingly, it is also obvious that by having their members take part in such arrangements, shop stewards and convenors helped create employees that could continually increase their respective bargaining power and delegate this to their representatives, which then became increasingly powerful stakeholder in firm-level partnerships. In this way the system of complementarities became quite forceful in creating and maintaining a virtuous circle of governance by negotiation,

experimentalist search for novel forms of work-arrangements and fast upgrading of skills. In this way one could say that local levels experiments helped transform the Social- to an Enabling Welfare State in differentiated and highly unpredictable ways – as we shall see.

2.5.1. DSF stabilizing human resources by vocational training: the coming of the industrial operator

Training institutions in Denmark are being used in very differentiated ways and can be used by firms to process an entire sequence of changes in different aspects of company life. As briefly mentioned earlier, when waiting for being sold to a new owner for the second time, DSF first made use of the local AMU-center (the former School for Specialized Workers) in Svendborg as if it were a consultancy firm. DSF asked it to run courses for union-representatives and managers on how to co-manage the plant towards new forms of work-organization. This illustrates a very crucial characteristic of these institutions, as they make it possible for the union-representatives to initiate advice from the outside, which is thus not the autonomous decision of managers. These courses in turn helped not only create a partnership capable of collaborating on changing the plant, but also laid the ground for creating a *deliberative polyarchy* among managers, union-representatives and the vocational schools of the locality. In effect a plan was designed for using the school's standard and tailor-made courses to prepare workers for coming changes. The transition of the plant and the workforce thus could be co-designed into an integrated process that led to a successful outcome for the firm, not least because it offered an attractive reason for staying with the plant for the most capable and ambitious workers.

Habitualising training in this way, provided the foundation for engaging in a more long term training program in which 21 operators (about 25% of the total) became involved in a 1½-2 years part-time education for industrial operator³³. Picking this education for promising employees constituted, at the time, the most advanced form of continuous training for formally unskilled workers.

In many ways the education for industrial operator (IO) – and even more so for the 4 years education for process operator (PO) – is a recent social innovation of significant magnitude negotiated and designed in corporatist bodies at the national level. It is announced in this way:

³³ 1½ years for workers with industrial experience and 2 years for new entrants coming directly from primary school.

“Industrial operators are responsible for the practical operation of manufacturing processes and monitors production by PCs and other forms of screens. ... Modern manufacturing is dominated by expensive equipment that cannot be manned by anybody. CNC-control, programmed processes, hydraulic, electromechanical and pneumatic parts ask for a broad fundamental knowledge about how they work and are attended. Machines and equipment are useful for making fast changes and so must be the operator.

An industrial operator often takes part in team-production, which calls for communication and reporting skills ... and the ability to take part in technical documentation”.

By studying the official announcement of the education for industrial operator it becomes obvious that the designers of the education have tried to create an education that prepare trainees to take on responsibilities, which are usually associated with high performance organizations based on functional flexibility. It provides an education that prepares people for the situation of post-Fordist practices and team-work, and from firms where it may be devastating to recruit people with minimal skills as under Fordism. In short it provides the labor market with an entirely new type of “skilled” worker. In our view these educations are exemplary for the way that the social partners continually re-engineer the overall skill level at the national level, when practises in the system have changed over time in an incremental process.

At the turn of the millennium many firms realized how they could benefit from a skill upgrading of their workforce to IO or PO and took joint action to create enough size so that these educations could be organized in their respective regions’ vocational training centres. In one region – North-Western Zealand – we have seen the coming together of HR managers from a number of major Danish firms (Novo, Novozymes, Lundbeck, NKT, etc.), vocational training institutions, adult educational institutions and associations, employee representatives, national union officials and university researchers to make a concerted jump by upgrading the entire local labor market through these educations. Collaborative institutions at the level of firms (works councils; employees representatives in boards, ad hoc committees, etc.); corporatist boards of training institutions (where many representatives were elected from the

mentioned firms – both on the employers’ and employees’ side) were complemented with resources from the European Commission to form an experimental partnership among firms and institutions, rendering it possible gradually to redefine roles and division of labor as aims were reached and troubles discovered. When we came into contact with this network, many workers had progressed through the education as industrial operator (IO) and an emerging problem was that they were starting to look for more challenges elsewhere. Therefore the firms wanted to create, on a local basis, a new curriculum on top of the IO to keep people in the region. Some of the firms, e.g. NKT-Cables, even engaged in new experiments seeking more deliberative ways of engaging employees in innovative processes by having them collaborate directly with university-researchers.

Another example of novel use of the IO education is that it becomes an issue in integrative bargaining on a large scale, when convenors and managers negotiate over future globalization strategies. For instance, recently convenors and shop stewards in negotiations over NovoNordic’s future globalization strategy accepted a no-growth in employment in Denmark in exchange for an agreement that gave all workers the right to an education as industrial- or process operator, while receiving their normal, full salary during its duration. Obviously it makes it much easier for Novo to continually redefine the role of Danish plants and employees in lieu of the gradual expansion globally, but it simultaneously gives their workers a considerably higher bargaining power and mobility on the general labor market. It is interesting to note that by doing so the firms both increases the potential of poaching and deals with it simultaneously, and it forces the firms interested in keeping the best of the workers to an offensive strategy of further training that is competitive in the eyes of their workforce compared with other firms of a region.

Despite their novelty, these educations are rooted in the way that the specialized workers’ union (SID, now 3F) have always tried to create “routes of passage” for their members to skilled jobs and to be able to contest the position of craft workers. Perhaps the IO and PO educations should also be seen as a highly codified route for “adult apprenticeships”, which has for long been a possible route of passage for formally unskilled to enter and get the institutional support of the career options of formally skilled workers. In the late 1990s SID’s education officers saw this form of education as a major breakthrough for their members. Not only because they finally peered themselves with many crafts, but because it created access to longer vocational educations within, for instance, electronics, diverse forms of technicians,

plast-making and process operators (for industrial operators). But it was also a way of coping with the fact that during the 1990s skilled workers had made a very significant and visible jumps in qualifications and job-areas, while the formally unskilled, though also being very active in further training, were missing a tool for rendering their many courses during the 1990s visible and recognized by accumulating them into a comprehensive education. One of the important characteristics of the IO and PO educations is that each student can make a separate route within its frame as concessions can be made concerning all the courses and practices that they have gone through in the past. By complementing these courses by a personal curricula plan, formally skilled thus can achieve a certificate that is competitive with the apprenticeships of craft-workers.

2.5.2. APV turning a plant into a vocational training machine

APV provides an illustrative example on how offensive the skilled workers had upskilled from the late 1980s. This complicated case has been described earlier (Kristensen and Zeitlin, 2005; Kristensen 1994; Kristensen and Petersen, 1994) and here we will exclusively focus on relations of skill evolution, strategy, and institutions. By the early 1980s, the plant, still owned by a Danish holding-company, had its position reduced to specialize on pumps, valves and fittings from being a full equipment supplier for the dairy sector. However, having one of the most skilled labor forces in the region, it opted for a strategy to produce a limited product range in plenty of variants and to customer specification. A production manager and the convenor stroke a very offensive partnership to develop the plant into a continuous flow organization by making extensive use of CNC-machines, which at that time were in the early introduction in Denmark. The professional challenges were very attractive for ambitious skilled workers, who would otherwise have had an easy time finding jobs in other, less technologically sophisticated engineering firms. The vocational training institutions offered hardly any courses in CNC and programming at that time. However, the skilled workers were so keen to secure that programming and other skills associated with the new technology came to rest with them (and neither with the technical staff nor the unskilled) that they followed courses at machine-suppliers and were active in setting up local evening classes on e.g. root programming. During the first visit to the plant in 1985 it was remarkable what workers could do with “their” new machines. The firm had managed to create an impressive product portfolio, fast throughput times and an early form of team organization that proved successful both economically and in terms of customer satisfaction. However, the holding company had failed in the strategy to capture the American market and had lost so much money that by

1986 it was looking for a MNC to take over the entire Danish holding company. In 1987 it was taken over by the British MNC APV.

As in DSF, the serious challenge was that the firm might risk losing the best workers, given that it would have to stop investing in the most advanced machinery and that lay offs would be in the air because of low sales. The solution was to send a large proportion of workers on courses in computer-based technologies, or whatever they wanted, as the state would pay for the courses and reimburse a large proportion of wages. Together they stroke one of the first Danish local training agreements, specifying the rights and obligations of workers to engage in at least two weeks of further training a year, fully paid. Having failed in setting up a promising curriculum at the local technical school, the convenor and the local union office of the metal-workers invested in a computer system that gave an updated overview of all courses for skilled workers in Denmark. This system provided the basic tool for the plant's workers when planning curricula for further training. But with this instrument the metal workers union was able to stimulate further training in the entire area as the percentage of course participants to their members increased from 15% to 30% between 1985 and 1988 (Kristensen and Petersen, 1994, p 81).

At APV this system spurred those already in command of the new technology engaged in rows of advanced courses that combined the use of the new machines with Cad-Cam tools, computer-based construction and design, etc. Later on they would attend series of courses that would qualify them, e.g. as process repairers, -diagnostics and -re-setters. The less trained would embark on courses that would give them the basic skills in CNC, computing and programming, etc. Within the first year the plant upgraded skills at an incredible pace and gained a wide functional flexibility. As Horsens engaged in a very offensive rivalry with the Germans over market shares on the internal market of APV and won, demand soon outstripped its current capacity both in term of machines and people. Despite investment and hiring stoppage they found a solution. The abundance of well trained workers allowed for a turn to three shifts instead of one, and mastering a computerized planning system, they could establish just-in-time relations to local and national suppliers that in part had undergone a similar metamorphosis as the local union office had used APVs training agreement as a template for other firms in the stainless industrial district. Through continuous changes in work organization, the Horsens plant reduced delivery time to one month or a third of their

German superior and competitor³⁴. Simultaneously, blue collar workers had achieved such skill levels that they not only served flexible production but also could take very active part in developing new generations of products, enabling the plant to document very low development costs compared to any other plant owned by the MNC. From the mid-1990s skilled workers were taking over many jobs that had previously been managed by white collar technicians, while they were handing over more routine forms of programming to the formally unskilled, who had improved their skills to the level of the skilled in 1985. New positions as team leaders, group leaders, etc., had evolved and many had embarked on careers beyond what the plant believed possible in the past. In the beginning of the 1990s the Horsens plant also succeeded in winning the position of “best practice plant” and Horsens became headquarters of the fluid handling SBU coordinating the 22 plants around the globe. Despite a very small managerial hierarchy it could cope simply by sending workers as consultants to engineer changes in the work organization of other plants. In this way it transformed organically these plants to high performance organizations. Now, in many ways workers learned more doing their job than following training courses, but they continued to do the latter, too, not least to protect their skill-level at the larger local labour market. As the convenor saw anticipated a high-risk future for the plant within the MNC, his strategy simply was to help workers gain as much education as possible as long as they were hired by the plant.

2.5.3. Sauer-Danfoss: Destabilizing institutions in times of internal volatility

In the light of the previous cases it is even more remarkable that SD seems recently to be destroying complementarities with contextual institutions by restricting its employees’ access to further training.

Being originally a part of Danfoss, SD used to work in the shadow of the larger company. Danfoss could be said to have been an island of Taylorism in a country dominated by craft culture up to the early 1990s. In Danfoss craft workers had colonized machine-setting, repair and maintenance each of which used to have its own department, while the factory floor was occupied by un- and semiskilled specialized male (belonging to SID) or female workers (belonging to KAD). Many workers would be laid off in the fall, as production of heat-regulators was concentrated to spring and summer. Selected semi-skilled workers would be

³⁴ Later they reduced delivery time for customized pumps to only 11 days

sent to training courses in the fall, gradually upgrading skills to become included in the core group of workers. After a new management team had taken over from the founding father in the 1980s, expressed disrespect for unskilled workers in the firms' future strategy led to strikes and conflicts that had never been experienced before. Managers had signaled that in the future skilled workers were needed for new computer-based, more flexible technologies, and a greater variety of more customized products. Mass production would be reallocated to low wage countries. Unions and employer went into negotiations and the solution was the design of a program for and agreements about extensive training of the existing workforce. Danfoss used its dominant influence in the region to create advanced training programs in collaboration with technical schools, AMU centers, etc. In the plants, maintenance workers moved into the factories, unskilled became skilled and setting and programming were taken over in some sections. However, heterogeneity characterized different sections of the huge factory.

It was within this changing tradition that SD gradually developed its own distinctiveness. Part of its development was that it would gradually create islands of teamwork, e.g. to solve quality problems or to create teams that could be compared directly over performance with external suppliers. This gradual creation of autonomous and economically responsible teams created a new and pressing need for new skills among specialized workers. When this emergent system became systematized in the so-called TPM concept around 2000 it implied an explosion in the demand and need for training in maintenance, continuous improvement methods, quality control, team formation, etc. On the whole the regional training institutions were able to respond to these needs having prepared themselves for such a quantum jump during the 1990s.

One of the critical new jobs was the team-leader/spokesman of the teams, being responsible for external contacts and for setting the stage for internal and external negotiations on job planning. To help normal workers transform into teamleaders a new education was created in a very new way. In the education co-designed by SD and schools, the team leader would formulate a problem that reflected his/her experience in the new job and then be supervised by HR-people from the plant, while being taught available knowledge by teachers from the AMU-center or other parts of the vocational training system. Combining the two spheres meant that teamleaders themselves were "co-designed" by bringing into the relationship the best available general knowledge from the schools together with accumulated practices and

experience of the firm, in such a way that each new team leader would come to embody continually improved knowledge from the two spheres. On the other hand, by working with projects, the students would be solving problems, the solution of which was of interest to the larger group of team leaders and HR managers. Organizing education in this way in other words became a way for the work organization, continually to reflect on its practises. From what we know this system improved gradually and was very successful until it allowed Nordborg to expand very extensively on the American market.

However, the resulting explosive demand for new workers, huge investments in new capacity, the confused introduction of American versions of lean –production, and the constant struggle against deadlines not only undermined the TPM concept, it also made it impossible to follow a stringent training policy. Training evaporated and became again something, which different sections initiated when they would suddenly face dropping demands – primarily during the fall. One reason for this situation, compared to DSF, was that SD did not in a systematic way let their semiskilled workers follow the curriculum for industrial operators. The convenor held the view that in the region this education had been by and large used to socialize and educate troublesome youngsters to the effect that it demoralized the older SD workers that had attended. But in case SD had frozen training, the American managers would have faced major troubles dismantling the model.

As managers from the US subordinated such areas as Human Resources, Quality, Marketing and Communication, it simply became very difficult for the convenor to strike an agreement, and, as in DSF and APV, stabilize the labor force in a time of major threats. As the American vice-president was convinced that many a production area would be outsourced, there was no reason to invest in training. Money would be wasted. Notice how different this policy is from NovoNordic, which in a similar situation decided to handle it by massive investments in training.

However, despite the American view, the upgrading of skills did not stop. During seasonal fluctuations, when the demand for some products decrease, several workers are sent for courses. The courses to be attended are negotiated between the employee, her supervisor, shop steward and the HR-department. Focus is on technical courses, expected to support a more flexible workforce able to understand the lean production model and its concepts. Courses are focused to fit the needs of the company, and they are not responding to the high

skill-levels of old and some new employees. Workers do not see choice of courses, in effect, as a response to their aspirations. The courses currently offered, upgrade skills to a minimal level but do not improve employability at the external labor market. Thus the training “policy” rather than compensating for uncertainty, seems to signal to ambitious workers that the future lean model limits the challenges for the workforce.

Simultaneously, it is also seen as a destruction of the boundary-less careers that some employees had started to see in SD. For instance, a team leader had started as a skilled worker, worked for some time as shop steward, finalized a business bachelor, worked as a director at the local municipal administration, and returned to SD to form successful teams. Another example is unskilled women that had stopped working full time for temporarily dedicating more time to their families. When returning to full time jobs in a highly flexible workshop after children became teenagers, they were very eager to learn new skills and had time to pursue them. A final example is a human resource manager, who started as unskilled worker, made intensive use of his union education while being a shop steward and combined this with courses offered at the local AMU center to transcend from blue to white collar worker. From such persons the new SD way of organizing the last years have been disappointing and some will probably leave, making the internal labor market only attractive for to those that cannot find better employment elsewhere.

But prospects for the potential leavers do not look bleak. Danfoss has taken initiative to turn the many SMEs of the region into an engineering cluster that can help make Danfoss an attractive owner for foreign firms that are looking for being associated to an engineering multinational. As this gradually becomes realized, workers with the type of careers that we have indicated will have great chances to find employment in the region. Where this will leave SD, however, is another story – to be written in the future. The paradox for SD will probably be that they will have easy access to man the jobs that they are planning to outsource, while recruiting for the jobs they want to keep will be hard. It is indeed interesting to observe how difficult it is for American expatriates to make use of the Danish institutional system.

2.5.4. MicroMatic: Solving internal problems by continuously rejuvenating the institutional matrix

When we turn to our next example, to the contrary, we shall observe a through master in the art of making innovative use of institutional contexts. MicroMatic(MM) offers a chance to study a series of transformations in the use of welfare institutions.

MM produces and sells a whole range of products that make up draft beer dispensing systems in many types and variants. Demand for particular products and systems varies from week to week, and gross- demand shifts radically among seasons. In the 1990s the factory was reorganized towards a line organization, each functioning as a large team, with job rotation and allocation of manpower, dependent on shifting demand. This reorganization together with various training programs (CNC-operation, quality control, etc.) effected a radical up-skilling of a workforce of primarily specialized workers.

Benefiting from the Danish flexicurity system MM, as numerous other firms in the region, used to have easy access to numerical flexibility by firing quite a large proportion of its workers in the fall and re-hiring them in the spring. With high unemployment rates, it was possible for MM to hire enough of its former workers to make possible the new work organization. However, as demand for skills increased with the novel work organization, and as unemployment fell after 1995, it became obvious that combining up-skilling of workers with seasonally adjustments would become difficult.

However, the job placement center (ArbejdsFormidlingen (AF)) offered a solution. Working within the framework of the Active Labor market policy of the 1990s, the AF had access to resources for activation and training, but needed firms, where unemployed could be offered practical jobs and job-training for a number of months as a socialization back to employment. Thus what was a problem for MM was seen a great opportunity for AF. In principle, AF could place workers at MM in high seasons, have MM clear the space for them in low seasons and offer new openings at the next high season.

Together MM and AF agreed to set up a job-bank. The idea was that people would apply for a job with MM by signing up in the job-bank at AF, which would then make in dept investigation of skills, motivation and readiness of each applicant. From MM they would get descriptions of vacancies – both permanent and seasonal. With the changes in work

organization within MM, there were obvious and increasing discrepancies between what qualifications unemployed possessed and what qualifications MM requested. To solve this problem MM, AF and the AMU-center created a collaborative network, jointly designing an education lasting 14 weeks during which the unemployed under activation would first follow a number of courses in new technology, use of computers, principles of modern work organization, team-formation and collaboration, etc., and then be guaranteed some weeks of practice at MM. To ensure that the chosen unemployed were motivated for actually filling the jobs available, MM, AF and AMU would frequently interview the participants about their readiness for actually filling a vacancy in case it would become available, their attitudes to modern forms of factory work, etc. Sometimes these interviews would also detect that some students would need extra courses in order to learn better to read, write and do calculus. In other words, unemployed would be as carefully screened concerning skills as would normal employees and become prepared for working in high performance organizations.

This system worked from 1997 until 2003. Unintended the co-designers had invented an institution that enabled the labor market to transform unemployed into post-Fordist workers on a large scale. For unemployed that went through this sequence of activities, especially if a seasonal job at MM was included, bargaining power on the job market increased dramatically as many firms were being transformed along the same principles as MM. At the same time these activated workers created a challenge to the more permanent workers at MM, and some of the knowledge the unemployed had achieved became their aspiration. And this created a vision for a much more offensive and systematic training program and –agreement for the core MM-workers.

To the convenor and the shop stewards this form of institution building provided visions for a number of new initiatives. Internally, they wanted to educate a number of “pilots”, which were so multi-skilled that they could be used in every sphere of MM’s factory. The idea was to let these explore every job inside the plant in order to detect what kind of training, they would need to always be well-prepared and then use this to explore which courses and training needs should be followed by different teams of workers on a larger scale. Simultaneously, the job-bank had been implemented in a number of other firms in the region, so that a group of firms, all having seasonal fluctuations in employment and experimenting with new forms of work organization, was tied together in a small labor market reform movement. First, they would start communicate early warnings about layoffs or hiring-campaigns mutually so that they

could float a common pool of workers, exchanging practical and taught skills among each other. Second, some suggested a new system of “pilots”, chosen among the best workers from all involved plants, should be collectively available, for instance through a temporary employment agency. By circulating such workers it would be possible to explore emergent needs for training on a broad, regional scale and to circulate work-practise knowledge among many firms. In many ways such a system would create some of the advantages that is connected to the use of contract work in Silicon Valley (Barley and Kunda, 2004). However, this idea fell from resistance of both unions and employers’ associations as they were unable to see how such workers could be properly be integrated into Danish labour market agreements and how to make sure that firms did not use this to organize systematic poaching.

By 2003 the entire system evaporated. With declining unemployment, few job-applicants would accept 14 weeks of preparation before getting a job. Second, MM decided to outsource large parts of the more standardized parts of its production, which would reduce its labor force with one third, and after which Chinese sub-contractors would carry much of the seasonal fluctuations. Furthermore, remaining workers would be so multi-skilled that they could easily regroup according to changing demands.

But MM had learned a very useful lesson: It could be highly inventive to work with institutions to create support for internal change processes. For that reason they from the outset collaborated with the AMU center when having decided to implement lean principles in the remaining Danish production. Instead of introducing lean principles in a top-down process, all workers would in turn attend courses in “lean principles”. The courses would wind up in sessions on how to adopt the principles in the work areas of participants. Consequently, the courses became a search-machine for identifying possible improvements, which were suggested in immense numbers by the participating workers. Following these swarms of suggestions, MM’s work organization was changed dramatically. Instead of belonging to a team that comprised the whole line, the team was now a much smaller subsection, more like a U-cell, where workers could easier rotate. Within a quite short period, productivity improved by 18 % and in 2006 MM was considering to reintegrate some of the jobs that had been outsourced in 2003-4.

An unexpected outcome from the more narrow teams was less variable work. This was anticipated to be the cause for an increasing number of workers being worn-down, physically.

However, from earlier lessons, MM created an institutional innovation to get out of troubles. When problems were detected with an employee, the shop steward, a HR manager and the potential “client” would gather to search for possible solutions. If no replacement job within the firm proved possible, the firm would call for a meeting with municipal social workers and a vocational guidance counselor. Together the firm, the “client” and these advisors would plan for a sequence of acts that would effect a change and rehabilitation of the client and bring him or her in a position where the emerging occupational disease would cause much less harm. In this way former factory workers have transformed by attending educational institutions to e.g. social advisers, schoolteachers, clergymen, etc..

Such movements across sectors and in careers-trajectories may be highly effective in creating institutional innovations on itself. For onstance, the officer at the AF, who had initially been a co-designer of the job-bank, had a typical boundary-crossing career that made him eligible for institutional entrepreneurship. He was first working together with his father in a small family owned engineering firm. Then he moved to Copenhagen and became, after substantial additional vocational education, “Meister” at a large electricity plant. When his Copenhagen wife finished her education as a physician, he followed her to Funen and her new job, where he became unemployed. Under the active labor market policy he became activated and took a series of courses and practices that made him an “activation adviser” and it was in this new position that he played an active part in co-designing the job-bank with MM. Obviously, such a career makes it possible to think of a situation from many positions (firms, the unemployed, the activation agency, etc) and to create a co-designing team across sectorial boundaries.

2.5.5 The new art of retaining employees in the new work organizations: Fritz Hansen

MM was not the only firm in which we found a *deliberative polyarchy* (Dorf and Sabel, 1998) created around employees or unemployed in trouble. Fritz Hansen (FH), one of Denmark’s most famous furniture makers, has experienced a process of factory reform and outsourcing, very similar to MM. One of the consequences is that each employee has become a very critical and necessary resource that is not easily replaceable. At the same time, employees are often working under extreme pressure and tight deadlines, which make them very vulnerable to disorganization in some life-aspects.

FH has built an early warning systems that can detect if people are severely stressed, are developing an addiction or become partly physically or psychologically disabled, etc. Instead

of waiting until people are in so bad a shape that they qualify as clients in the social or healthcare system, a procedure has been created. A HR-manager, a shop steward, a spokesperson for and the person in question create a group, discuss a preliminary plan of action and which public authorities and services to involve. Then the relevant “partners” (social advisers, doctors, psychologists, family advisers, etc.) are called for to negotiate how the person can best be brought back to normal. The firm may offer reduced working obligations, a part-time salary, extraordinary assistance, etc., in exchange of getting services that the public sector would only provide, if disabilities had been more severe. The public authorities do not have to be strict rule-following as they are not dealing with a person that potentially try cheat but a whole set of stakeholders negotiating on his/her behalf. This deliberative polyarchy can create a program of part-time work, additional part time social insurance, a sequence of health-treatment and recreation, additional social services (childcare, home service, advisory counseling, etc.). Each stakeholder can see his/her own obligation as part of a larger scheme and understand the project of rehabilitating the person in question.

It is obvious that such polyarchies may be constructed for many situations creating an entirely new type of demand for public services, but it seems also quite obvious that working in this preventive way will be much more cost-effective if the system can be governed to avoid abuse. In this respect, it is interesting that a private firm, Falck, has created a number of services enabling firms to take preventive actions against a number of incidents that may cause lower effectiveness of their employees. For instance, insurance against employee divorce has diffused quickly. Falck delivers counseling, psychological assistance and lawyer advice so that employees will return to normal proficiency as fast as possible. It is clear in these cases that personalized services become a complex product that involves many partners from both several service providers, private as well as public.

2.5.6. Plant closings and re-employing skilled masters: The APV-Horsens end story

As mentioned in 2.5.2, APV-Horsens (APV) turned itself into a machine for upgrading skills among its workforce. Doing so allowed for continuous improvements in production, changing work-organization numerous times according to shifting fashions of shifting headquarters, innovating successive new product-generations and improving on external and internal logistics, reaching a delivery time of just 11 days. In 2005 the HQs decided that Horsens should outsource to China some parts, and move necessary machinery to a plant in Kolding also owned by the MNC. Workers under the leadership of the highly experienced convenor

made calculations that showed that APV probably would save less than half the wage of a skilled worker if everything went well and the Chinese did not disturb delivery patterns, quality, etc. The convenor also promised that he and the workers would jointly work out ways to save this amount of money within a short period. This time negotiations went against Horsens, though the European Work Councils supported it. Deutsche Bank, as an important lender, wanted to regain some of the capital put into APV at great risk. The Horsens plant was located in a housing area and the site could be sold for property development at the price of DKK 12 mill, whereas the machinery was believed to be housed in Kolding at nearly no costs.

The whole story of effects from such decisions is very complicated. The short version is this: All attempts to outsource to China failed both because of time schedules and quality levels. The Kolding plant was not prepared to receive the machinery from Horsens and was reconstructed for millions of DKK.. The Horsens workers negotiated a very favorable deal that helped the firm make the move to Kolding, but at very high costs in terms of extra pay to the workers, earning over three months an extraordinary 6 months salary. Finally, Kolding failed to organize production with the same throughput time, and at the time of our investigation, delivery time had increased to 3 months instead of 11 days. Before Horsens had run with a large profit, Kolding was now incurring losses.

What happened to the workers from the Horsens plant? First, they were all offered a job in the plant in Kolding, but less than a third accepted and left after having assisted in moving equipment and machinery and starting production. Many shared the feeling expressed by a secretary that: *“We had been fighting for the continuous improvement of this plant and had made small miracles for decades, and yet the executive officers had deceived us. Who cares to work for people like that?”*. Second, almost all except those that just wanted an easy period before early retirement, got a new job fast, often more challenging and demanding than their previous job. For instance, some of the most enthusiastic ones had been following series of courses that enabled them to diagnose and repair heterogeneous automated, CN-controlled manufacturing processes. Instead of being skilled operators for CNC-machines they now became responsible for large-scale processes in other firms in the region. One might say that their knowledge was not only retained but was made use of to a much higher degree in their new jobs, helping to make the region more competitive but through different firms. Another example was a CNC-machine worker, who was so highly trained in the newest generation of CNC-machining centers that he was recruited as a sales consultant by the CNC-machine

maker to help machinists in customer firms with the initial setting, experimentation and programming of newly sold machines. A repetition of careers pursued by former colleagues (Kristensen and Petersen, 1994).

The former convenor from the Horsens plant had originally negotiated with a new experimental school to become an all-round handyman. But shop stewards from other plants urged him to become a consultant for shop stewards and convenors that were going through work reorganization and living under the ownership of foreign MNCs. He was hired by the local office of the metalworkers' union and could now make use of two decades of struggles, negotiations and strategizing in advising union colleagues. By hiring him, the local union office took a strong move towards rejuvenating the role of unions in a direction, which looks very promising (Kristensen and Robson, 2006). His wife, who had been a trilingual secretary, became a language teacher at a vocational school, a job she enjoys very much.

A team-leader and two of the best CNC-machinist bought some of the leftover CNC-machines from the Horsens plant at very low prices, created a small company and started to make parts for their old employer in Kolding, who had failed in engaging satisfactory suppliers from China. At the time of interviewing they were very busy and had no excess capacity, though they had already bought more sophisticated machinery to enable search for new customers. Moreover, because the MNC also had great troubles in running a new plant for supplies in Poland that had been constructed in response to the Chinese failure, they were engaging with the new firm in Horsens, which they wanted to train polish workers in Denmark and to run the new plant in Poland.

Finally, a second firm was in the making, as another team-leader had used some leftover materials from the former APV plant to construct a new product, which was under patenting. While waiting for the patent application to be processed, the former team-leader had created a consulting firm so he could accumulate a starting capital, simply by selling his consultancy services to the plant in Kolding.

Though all the people mentioned were some of the most radical union representatives in the APV-Horsens plant, they had an easy time transforming into capitalists. Together with the former convenor they had become members of the local chamber of commerce, and through this they became connected to a whole new setting of institutions, advisers and business

networks that had public support to help them become new entrepreneurs. Simultaneously, they could use their skills in calculus, cultivated for wage- and other negotiations in the former plant, for new purposes. The former convenor was often called to negotiate prices and conditions for these firms towards customers.

All in all it was probably a great gain for workers and other employees that APV decided to close down the Horsens plant. On a visit just before the decision was made, it was obvious that the workers were tired of fighting continuously for the survival of the plant, making continuous improvements and innovations without the owners ever remunerating or recognizing their high performance and the extreme profitability of the plant. However, it would soon be clear to all that the locality clearly recognized their skills. Hardly had the decision to close the plant been made before local firms contacted many of the workers with job offers. And had the convenor not negotiated a favorable transition salary for these workers, it might have been impossible to move the plant to Kolding. One of the last lessons, which the Horsens employees learned was that the recognition of the plant's high skill level served as a certification device for all employees. Therefore, firms and public institutions in the region were more than eager to recruit people from a firm of such reputation.

2.5.7. Beyond the normal reach of institutions: Unimerco inventing a new high skill route

One of the crucial though unintended effects of the dramatic changes that has been going on in Denmark may be that highly positioned firms becomes un-intendedly "skill-certifiers", so that its employees have strong position on the larger, external labour market. However, reputation and recognition of high skill level for a firm may also be a useful tool in recruiting highly skilled people. Though probably unintended from the outset, Unimerco (U) has created an organization that looks so favorable from both the in- and outside that it is easy to recruit people of high caliber, even during times of low unemployment. The roofed village, employee shareholdership, profit-sharing and an extraordinary canteen with delicious food can be seen as a masterpiece of organization, if you want people to stay in the midst of a high-mobility labor market.

Given these considerations of its comparative advantages, it was surprising to learn that Unimerco in its brochure on employee training policy simply stated:

“Education and courses comparable to AMU-courses or short-term management-courses will never occur in UNIMERCO. We rather believe in more long-term forms of education, in which the student explores the subject in depth and in parallel makes use of the new knowledge in practice. Education and specialized courses will not be used as re-numeration or as ‘depository’ or ‘capacity-adjustment’ during periodic slumps.”

Thus Unimerco breaks with the pattern observed earlier, and rather emphasizes proficiency in languages, where nearly all language are relevant due to the ongoing globalization. In addition the firm suggests and supports education

- at universities, business schools and other tertiary educations,
- at business colleges and merkonom-, teknonom- and diplom-management-educations,
- at higher secondary educations (HF) within areas of language, math and IT;
- preparatory adult education,
- a variety of technical positions
- general adult education

The CEO, Kenneth Iversen, has pursued such forms of educations by being very entrepreneurial in creating the combined engineering and business high school in Herning (HIH) that has substantially increased the regional capacity for tertiary, middle-range academic educations. It is obvious that Unimerco tries to reach much further than do normal Danish manufacturing firms with this form of educational aspirations. The policy suggests that the individual employee have an educational project that develops in parallel with his or her job in the firm. Focus is not on short-term updating of knowledge, which the firm probably organizes internally, but on a long-term engagement that in the end may transform the professional identity of the person in question. The individual is asked to consider two questions in searching for relevant personal education:

- What education would it take to get my current job in competition with an external applicant? And
- What education might I need in order to get my dream job at Unimerco in competition with an outsider?

These questions are discussed in recurrent employee interviews with his/her manager, yet it is left to the initiative of the employee to suggest new education and which must be arranged so that it is possible simultaneously to do the normal job. Unimerco often arranges specialized

courses in their own facilities to cover specialty needs. But the facilities are also being used to run full diploma educations, where shifting university teachers comes to Unimerco to teach classes composed by students from both Unimerco and other firms of the region.

Unimerco's self-narrative is about a gradual transformation of itself and its manpower trying both to reach higher by taking on greater challenges and simultaneously educating people to increasing levels:

“The last 25 years Unimerco has developed immensely. The keywords that describe the processes, we have gone through, are restructuring, development, globalization and growth. Within 25 years Unimerco has e.g.increased from 35 to 600 employees, from DKK 16 mill in yearly turnover to DKK 550 mill, from craft-educations as the highest level to employing basic employees with educations as engineers, bachelor- and masters degrees and from a Jutlandic Danish to German and English and in the future Spanish, Chinese and Russian languages.”

Whereas technical-, commercial- and schools for adults and specialized workers have created strong ties and routines for working together with firms on upgrading skills (as we have seen), universities, business- and engineering schools in higher learning are much less in the habit of making such cooperation. Unimerco is probably among the first firms to actually push for a transformation of how such educational institutions interact with business firms. But a new pattern did not become clear to us. It is as if Unimerco is tired of waiting and makes new institutions internally, rather than externally, for instance by arranging new diplom courses in the university facilities on top of the factory.

2.5.8. How to govern institutional experimentation: New needs for institutional reforms?

Obviously, by entering the Danish Business System through only six cases, we have been able to reveal an astonishing variety and ability to experimentally create innovative deliberative polyarchies between the private and public sector. Firms and institutions have benefited highly from being able locally to experiment, governed by local corporate bodies at different levels. If abuse is being exercised it is within reasonable and acceptable ways of bending the rules. Institutional innovations are no doubt legitimate in the eyes of the local interest groups at such levels as school-boards, regional labour-market councils, etc. The largest problem is

that a number of innovations, e.g. the new team-leader education in Sønderborg, the job-bank and the series of courses transforming unemployed to high performance workers in Funen, is not known outside these rather closed local circles. Asking e.g. for some kind of documentation of the job-bank experience, we could only get the collaborative agreements that were signed when initiating the deliberative polyarchy between the AF and a number of firms. No description of its function, nor an assessment of effects or of future possibilities had been made. Only by in-depth case-studies of firms may such institutional innovations become detected and visible to a wider public.

There may be a way out of this problem. In a way the local union office in Horsens had early showed this by building a computerized overview over all available courses in the country to help the local metalworkers plan further training. They had to discard this system due to financial restrictions, however. Recently the national union office of electricians, which is among the most frequent users of continuous training, has created a computer system that makes it possible for the individual electricians to code into the system their own further training experience and then compare their personal profile with the average and best among their colleagues within different types of specialization. If such a system allows for the coding and assessment of all new local courses, it could become a media that rendered local innovations visible and diffused them to a much wider public. Especially if all unions or professional groups organize similar systems. However, it would be mis-information to enter into such a system just simply any ongoing experiment. Some kind of certification and quality assessment is called for to document, which kind of benchmarks may be achieved through certain courses or series of courses, and the big question is how such a certification of novel experiments can be organized?

Also from another point of view, there is a need for working with the experimental processes on a more systemic level. Unimerco almost illustrates the problem as the current system of unconnected courses may lead to complete disarray of the professional profile of an employee gaining totally unique combinations of skills and knowledge. Is it only if certain course combinations become clustered around a named certification as in the case of industrial operator or process operator that it will be possible to combine the short courses into more systematic educational efforts among firms and citizens? No doubt, a precondition for the high mobility on external labor markets in Denmark is the broad application of craft-educated workers with skills and vocational training comparable across the country. If a similar

outcome shall be possible in further training, then a way to proceed might be to cluster together series of courses in a whole, huge set of novel educations that make it possible to recognize and contest the qualifications of certain new groupings of employees. Such an attempt might be very helpful because with the constant changes in work arrangements in firms, new types of positions are constantly created between the small managerial hierarchy and the incomprehensive jungle of teams. In no case, apart from Unimerco, have we seen a lasting organizational solution to the emerging new type of firm that is evolving. By creating a systematic route to certain, certified professional roles, the institutional system might create the building blocks for constructing new, more coherent forms of organizations in the private sector.

Another point is that while the intensity of continuous training was high and increasing throughout the 1990s it has been less intensive and decreasing after 2000. This is probably due to two factors. First, the new Liberal-Conservative government has reduced the institutional support for continuous training. Second, due to very high activity and employment over the last couple of years, firms have had less time to send employees to courses and to help them initiate long-term educations.

In this way the training system unintendedly has become a device that works as a new form of “automatic stabilizer” more oriented towards output than demand as was the case under Keynesianism. Ideally the further training system could be activated quite heavily during slumps and be reduced under booms so that the slumps were times of exploring and developing new knowledge and booms for exploiting this knowledge. The consequence would be that not only students moved in larger numbers into the system under slumps, so would teachers, consultants and managers, whereas all groupings would move back into the private sector during booms to exploit new skills. For such a system to constantly improve across slumps and booms, it is mandatory that a monitoring system takes care of documenting and assessing practices so that they can be made useful later, given that the organizational memory of schools cannot be expected to rest with the teachers, etc. To the best of our knowledge, no government agency has of yet been assigned such a task. However, if this problem can be solved then teachers would probably gain a lot of knowledge by finding employment in private firms under booms as the changes and learning that goes on in private firms are very impressive and highly relevant for being able constantly to rejuvenate the curricula of vocational schools.

The institutional system surrounding the labor market seems highly plastic for those engaged in using the system offensively. However, it does not cover all groups. The system has difficulties in playing in concert with very small-sized enterprises that hardly can plan several weeks ahead concerning which workers to send for further training. Second, when interviewing the AF-consultant who had co-designed the job-bank in Fünen, he expressed great frustration with the new institution that had been restricted to unemployed under employment-insurance. People under social insurance were only allowed to participate if the municipality in which they lived was prepared to cover additional costs. Consequently, people under social insurance were systematically kept away from upgrading and modernizing their skills in accordance with developments in the labor market. This seems to call for some kind of novel state intervention. While the unions some years ago made it a universal right in the general agreement to have at least two weeks free for attending further training, they have in the 2007 general agreement created a fund that gradually will make it possible to finance such participation – in terms of salary and course fees. During the negotiations the unions were strongly in favor of reserving these funds for members of the LO-unions, and though they did not succeed in this claim, there is no doubt that they will try. By running a computer system for curricula planning as do the electricians' union, they might create a very efficient system that enlarges the division between the ex- and included. Some form of state intervention must secure that the excluded is not the most needy.

What we want to emphasize with the row of problematiqués in this section is that a very dynamical process is going on at many lower levels of the “system”, but these experiments are not deliberately used to re-configure and systematize the system so that its future potential can be detected and designed. Piecemeal innovations occur constantly, but as these steps are taken without being recognized at higher political and corporatist levels, which primarily see in the system devices to fight current and future unemployment, it is very difficult to make institutional innovations that turn the system into a tool for offensive continuous innovation. The danger is that firms simply outgrow the system, as illustrated in the case of Unimerco, and then it is evident that partnerships at firm-level may be less able to create offensive strategies through the creation of polyarchies between the public and private sector. For that to be possible in the future collaborative polyarchies must be created at higher aggregate levels and this calls for institutional innovations that none seems to be engaged in engineering.

3. Synthesizing the distinct dynamic of the globalizing Danish Business System and comparing its strengths and weaknesses with other Nordic Business Systems

3.1. Synthesis of the Danish Dynamic

At a first glance, it may be difficult to discover an overarching common dynamic between the firms we have described. It could be said that what unites the cases and the institutional adaptations that we have just described is their diversity and variety both in strategizing and in organizing. However, this view does not point to what the cases rules out. As mentioned, in 2000 only 30.000 became unemployed because of lay-offs, while 260.000 shifted employer primarily to get a more challenging job in another firm. This high labour mobility has many repercussions on the entire firm structure.

First, it means that there will be a tendency for employees to de-select firms that do not offer chances for continuous learning. Whereas in many countries transnational outsourcing is a major mechanism for reducing more simple, Taylorized work, in Denmark it is as much the mobility of employees that reduces the jobs that are stable and simple routines. This could be one of the reasons why it has been discovered that overseas outsourcing only reduces existing jobs by 5% yearly and that the firms that do outsource at a general level create as many new jobs as the farm out.

Secondly, we observe a high tendency for firms to react to flexicurity more by trying to use the institutions to “tie” workers to their plants by offering opportunities for training, shifting challenges and participation in different forms of team- and projects. Risk of loosing employees make firms up to their toes to find continuous better ways of tying workers to plants so that they do not suffer from extensive poaching.

But this dynamic is not all encompassing. Some firms enter for various reasons, temporarily (as in the case of Sauer-Danfoss) or more enduring, into a vicious circle where they loose the more offensive of their employees while recruiting to a larger extent workers that have much less ambitions for learning and challenges. When this happens, the loss is not only related to the quality of the immediate employees but also for making use of the institutions of the welfare state, in particular those connected with further training.

Despite the fact that Denmark has rescued itself from the tendency to create the strong dualism on the labour market that is associated with Anglo-Saxon countries, there is obviously also a tendency for firms and employees to drop away from the institutionalized mainstream. As Gjerding (1999) showed, 42% of all firms were neither internal nor externally flexible and within these there is a tendency for part of the unskilled workers, in particular, to stand outside the overall dynamic of learning at job and searching for further training programs (Undervisningsministeriet, 2005: 28 ff).

From our case-studies we think it is possible to characterize a mainstream dynamic for Danish firms. They enter into fairly tight engagement with customers and try to improve their capabilities to service their customers with increasingly more sophisticated products, services and consultancies, which they develop by gradually discovering how they can become useful. Thus Unimerco first sell tools, then start to repair and regrind tools, continue by developing specialized tools where the general market is found lacking and then finally starts to consult customer-firms on how to optimize management of tooling more generally. In a similar way Radiometer has used its instruments to become deeply involved with customers by adding accessories, services and consultancy. APV did it by customizing their pumps and valves and simultaneously reducing delivery-time so that their customers, primarily engineering staff, could specify pumps and valves just before a turnkey-food-processing plant were finalized for delivery.

The way in which Danish firms moves towards globalization probably differs. The complicated steps that lead Sauer-Danfoss to become a favoured supplier for John Deere and other OEMs on the American market differs very much from how Unimerco simply follow their Danish customers in their steps to globalization. However, when the step has first been taken, the trajectory of sophisticating services is continued so that their role is redefined, dependent on what the customers on a larger scale are now asking from them. This mode of pursuing a strategy is, as far as we can assess very different from firms that pursue a strategy of endogenous R&D, where it is the scientific and technical advances that create options and open opportunities. In these Danish Firms the logic operates in an opposite way as it is discoveries of customer-possibilities that trigger technical search and experimentation. A good example of this is when Unimerco discovers that it can open up an entirely new market segment if they learn how to make and maintain cutting tools after the new Airbus-specifications, or can apply Nano-technologies to the surface of tools. In this case increasing

technological capabilities is rather used to open up new relations of tight customer interaction and to increase services for those already serviced. In the case of Radiometer, close relations to certain points of acute care in hospitals open up for looking for new products for these environments beyond Radiometers existing product portfolio. This way of working makes it indeed difficult to create an R&D department that fits all purposes. Rather the R&D department, perhaps, becomes a device for being able to search and communicate in a proper technical way with both customers and suppliers and to organize - with whatever is available in-house resources - projects that serves to solve the problems that make it possible to exploit the seen possibilities.

It is a repeated pattern in our case-studies that employees in production belongs not only to a primary production-team. Across the firms employees are engaged in ad hoc project teams that serves to develop something new, often coordinated by the typically small R&D team. Thus the firms in a very spontaneous way make use of the increasing skills that is cultivated in production also in developing new products and services. Old demarcations become blurred, and often technical staff departments becomes located in production serving the process of continuous improvements and this process might easily move towards discrete innovations both in production processes and in services. The general impression from our case-studies is that this is most often, and in particular in Unimerco, organized in a very informal way, very much dependent on the situation. Danish firms therefore have had difficulties in implementing Lean-management principles and making the organization transparent. However, the often strong position of union-clubs, convenor and shop stewards and work-council arrangements have been used, best illustrated in the Radiometer-case, to prevent such organizations from evolving into departmental opportunism on a grand scale. The presence of a mutuality of “interests” from many parts of the organization in new, temporary teams and ad hoc committees make the organization transparent in very different ways than achieved by lean-practices. Communication becomes lateral, informal and yet it is a constant process of renegotiation of roles and rules that makes the involved collaborate in efficient ways.

This pattern of informal collaboration obviously makes “documentation” a seemingly unnecessary cost, but we think it has also repercussions to the larger pattern of interaction with external firms globally. Voigt (2007) studying the outsourcing of IT-jobs to India in a number of small Danish firms found that that the Danish firms originally expected to be the

“architects” of software-systems and the Indian suppliers to become the “craft” programmers – fully in tune with the normal expectations of how Western firms optimize the global value chain. In most cases these expectations proved wrong and the Danes discovered that they would have to specify and document jobs to a much higher degree than they were used to. But instead of searching for how to do this, they engaged in a different route by inviting Indians to Denmark and work with them in the Danish facilities so that the Indians became accustomed to the Danish way of interacting and collaborating. During this process the division of labor between “architects” and “craftsmen” dissolved and instead a more egalitarian way of discussing how customer-needs could be fulfilled in the most efficient way by their collective capabilities came into being. Thus instead of cultivating a closed collaborative relation to the Indians, this relation was used to experimentally make use of the skills in both communities and change the reach of both. For instance, a manufacturer of moulding-forms had used the Indian relation to increase its capacity both in terms of IT-programming and of craftsmen for making the forms. But the Indians succeeded in capturing new orders from the Indian based GM. The Indians dared to take this step by having the Danish firm as a backup, and by taking the step both firms increased their customer-range considerably. On the other hand the Danish firm started to service its normal customers on a broader scale taking on board also more simple, or labor cost intensive tasks that it had previously rejected, thereby creating much more new jobs for the Indians. As in the case where customer relations helps redefine the firm, we see that also supplier relations have this effect rather than stabilizing an optimal transnational value chain.

Thus we see a pattern repeated. Danish firms work closely together with customers in such a way that they continuously upgrade their services. They do the same with suppliers, so that they learn about new options (technologies, skills, and customers) that may gradually redefine the original relations in a quite encompassing way. And this dynamic of external relations is founded in a work organization in which employees can be combined and re-combined to solve highly shifting problems. Preparing the workforce for such work organization is done in a vocational training system that has always aspired for creating independent and responsible employees, which in case of new technologies, new forms of organization and shifts in labour demands are very offensive in searching for employment by which they can learn new skills. To manage such a labour force, firms engage in internal rivalry and collaboration, to a high degree monitored by the intervention of union representatives, in situational collaboration with vocational training, labour market- and social welfare institutions.

Obviously, the more this system becomes tied up to a multiplicity of customers globally, the more will it receive inputs and challenges that enable the firms to learn and to organize search. To the extent that firms are able to organize their home-organizations in Denmark in such a way that it is possible to react to this multiplicity of demands, it will be possible to cultivate this new version of the traditional pattern of Danish enterprises.

However, it is quite obvious that this at the bottom depends on how well the educational and vocational training system is able to respond to firm-level developments by supplying skills that co-evolves with the firms. Perhaps this task has been surmountable as long as the firms cultivated skills on top of existing apprenticeships, engineering specialties, etc. or renewed these by diffusing knowledge and mastery of new technologies or organizational forms. With the independent cultivation of products and services for each firm in each their idiosyncratic way, the system as such faces a major large-scale challenge. How to renew educations, vocational and further training in such a way that the system deliver on a broad scale employees that can be recruited and live up to the new demands? And how to offensively develop new skills that are relevant on a general scale so that employees are attractive on the larger labour market?

In its classical form, the Danish system had the Technological Institute and a number of branch-specific technological service-institutes, themselves engaged in research and development, upgrade curricula for both Technical Schools and AMU-centres. Today it is not very easy to identify independent institutions that serve the same purpose. So the question is how the offensive – ahead of the demands as incrementally recognized by firms themselves – identification of new skills can be organized?

In interviews respondents have told how small groupings of employees across firms organizes quasi-professional groupings that share interests in technical issues and by meeting each other at still more advanced courses form a community, which is mutually capable of assessing and progressing skills. In such quasi-professional-communities it is much easier to assess specialized skills and knowledge than is the case of individual firms, where the employees with the best developed skills are often isolated and without any group of likeminded colleagues. Skills without a social space could become a major problem for the Danish system. Whether such places may be able to develop through the internet is an open

question, but it is obvious that unions and professional associations in one way or another should frame virtual meeting places for such communities and could use these to point towards new and more advanced training/courses.

3.2. Comparative lessons from the other Nordic countries

Obviously, a number of Danish firms as Novo, Danfoss, Lego, Vestas, Bang & Olufsen, etc. are large enough to organize endogenous R&D departments of a considerable scale and by doing so setting a quite consistent, self-chosen agenda of learning and search within their organization. But compared with the large Swedish firms or Nokia in Finland, they are unable to ascribe this logic to and give a common orientation for the larger context of R&D institutions and the educational system. It has been very difficult for Danish firms and universities to develop increasingly intensive collaboration, and the Centres of Excellence (Brenner, 2003) that has been formed since the beginning of the 1990s seems not to have changed this pattern to a recognizable extent.

As far as we can assess from Gergils (2006) analysis of Innovation systems in the Nordic countries, Finland is the only country that have been making use of centralized corporate bodies to create systematically negotiated and coordinated Innovation Systems in which distinct firms becomes involved – as did Nokia – in a concerted action pattern that is even supported by the most important ministries. According to Gergil's account of Sweden, the large Swedish firms have not been able to mobilize the political system to such a pattern of combined action. According to recent case-studies of technologically advanced firms in the Norwegian oil- and gas- supply-industry by Eli Moen, the more general corporate system has been able to renegotiate reforms under which the interaction and collaboration between Statoil, its technical suppliers and their equipment suppliers have changed dramatically.

Such “layered” and partly complementary changes have not been discovered by us in the Danish case-studies. We would doubt this to be a more general trend in Norway, too. The oil-industry in Norway constitute an extraordinary concentrated system, where it is understandable that levels can interact in such ways. But outside this particular system, we would expect search and development to be as uncoordinated as it is in the Danish context.

When looking into the small subset of myriads of small incremental changes that we see going on, it is indeed very difficult to anticipate how the agents – firms, research-institutes,

vocational schools, professions and unions of different groupings – could organize lasting unifying innovative programs out of any corporate body and sanctioned by the highest political levels. As firms are penetrating or gets penetrated by out- and inbound globalization, their relations to other firms and research-institutions becomes increasingly “occasional” and situational. Andersen et al (2006) have found that globalizing firms make less and less use of the clusters out of which they have originated. We think that this might be a signal of a transformative period, where they less and less make use of each other for more stable businesses, but a new period may gradually emerge, where they use each other to help search for contacts globally, so that they can increase their global network as demand and problems changes. However, we do not think that this new search-network will emerge deliberately among managers in these firms and they may in responding to surveys, as in the cases studied by Andersen et al, even not know what networks the firm are tied into.

In the firms studied, among all employee groups, we have found very heterogenous careers that have brought the people through a myriad of different institutions and firms on their route to their current job. By taking this route they have created a myriad of contacts to many distinct persons in different firms and institutions and they may draw on these contacts if they in their current job faces a problem that they do not immediately know how to solve. Even among the group of so-called “unskilled” have we met people with a background as skilled workers, many with a high-school degree, engineer-drop- outs and graduates with humanistic university degrees that could not find a job in their original “trade”. Obviously, such persons have a highly varied repertoire of outside contacts and as they across their differences have expressed their satisfaction over working in a factory that has been turned into an experimental laboratory, it is obvious that a new system of multilayered networks is in the making in such firms. To identify new institutional devises that may re-enforce this evolution is an important research topic.

Obviously research-institutions could play the role of tying up and connecting firms mutually, when they discovered that a number of national firms were working within similar areas. But this would demand a feel for the game of the national Business Systems’ ongoing activities that is not easily detected. In these years, however, Denmark is suddenly discovering that through swarms of discrete and coordinated steps a myriad of firms possess jointly a capability to create energy systems based on heterogenous energy-sources and turn them into uniform output. On such a topic it might have a major effect to create unifying institutions,

meeting places and communities of quasi-professionals. For that purpose, we think the Finnish system has more to offer than do the Danish or any of the other Nordic countries. But if a meeting place for e.g. engineers is created, while all other groupings are denied access, it might reduce the overall communication within the system instead of increasing it. Thus to create national systems that on a systemic level enlarges the capabilities of each firm to specialize its distinctive relations to the global is indeed a difficult target.

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Chapter 4

Norway: Victimized by Rationalizing Refinements for Raw Materials or Saved by a Growing Periphery of Innovative Agents?

Eli Moen

1. Introduction: Norway - moving towards a petro-state or a knowledge-based society?

Due to her divergent economic structure and economic policies Norway has been named the odd man out among the Nordic countries (Gergils 2005). Norway's place in the group of dynamic Nordic countries is currently even being questioned. Particularly two factors raise doubt as to Norway's future direction: her resource-intensive economy and low investments in R&D. In fact, Norway's low ranking on international innovation scoreboards places her in the category of catching-up countries (EIS 2008).

Norway's failure to invest in R&D and other infrastructural arrangements is happening despite her unique macro-economic situation. Since 1990 she has had a positive balance of trade, no state debt, and since 1996 the state has accumulated assets that for the time being are amounting to about € 250 billion in her oil fund. Few small countries can demonstrate financial muscles like Norway for the present, and there is no doubt that this is due to huge windfall profits from oil and gas and favourable terms of trade. Professional groups in charge of managing the oil fund are also marketing the Norwegian solution to 'the curse of oil' as something historic unique. For the past two decades an overarching goal of economic policies has been to keep oil incomes out of the reach of politicians' hands, and by investing most of her oil incomes abroad Norway has allegedly avoided being trapped into a Dutch disease type of syndrome (cf. Karl 1997). Moreover, her current performance has prompted leading economists in Norway to question whether investments in R&D are a determinant variable for economic success.³⁵

³⁵ Empirical evidence provided for supporting such a line of arguing, is the fact that Norway is performing better than both Finland and Sweden in terms of balance of trade.

What has recently been termed the Norwegian puzzle (OECD 2007) refers to the fact that the Norwegian economy is performing well outside the petroleum sector. But how can it be that Norway - with low spending on R&D, a low innovation rate, and allegedly no technology progress - is at the productivity top globally? In addition to high productivity increases in terms of GDP per hour worked, the national economy is demonstrating high annual growth rates, high levels of GDP per capita, a low unemployment rate³⁶ and a high level of labour participation. OECD suggests that part of the answer is found in Norway's low share of innovation-intensive industries.

It is true that Norway is performing well due to investments and productivity increases in process industries. But at the same time we can observe emergent development trends that diverge from the dominant pattern of the endowment-based approach and process optimization. Rather than following the commodity strategy, emerging global players are staking on the sophistication of products and services. It is the main thesis of this chapter that business units from the peripheral part of the economy have become successful global players by searching for new roles and positions in global value chains and constellations. These peripheral actors have been able to do so by constantly experimenting with new business models and organizational principles. And these actors have gained agency by making use of accumulated competences, existing formal and informal networks, and inventing new ways of exploiting institutional resources to compensate for loss of previous risk sharing tools and policy support.

To put it succinctly, the Norwegian route to the New Economy has a dual character. Whereas the core part pursues resource-intensive exploitation, the peripheral part is in the process of creating a new path based on knowledge-intensive products and services. Our case studies of companies located in peripheral areas, which are sampled from traditional sectors such as process and engineering industries, reveal surprising outcomes in terms of change and innovativeness as a result of shake-up processes. To capture the distinct character of the Norwegian political system, the use of a centre-periphery model has since long been firmly established. In this context we refer to the centre as the part of the economy comprising the dominant sector and its link with the economic governance regime. The peripheral part

³⁶ In the first quarter of 2008 the unemployment rate was 2.2 per cent.

comprises sectors and firms that are not basing themselves on the exploitation of natural resources and process optimization but rather on producing knowledge-intensive products and services. The boundaries between the centre and the periphery are blurred, but the distinction made here refers mainly to sectors and firms' links with the economic governance regime and to their dominant economic logic.

Given the dualistic nature of the Norwegian business system, a key question is to what extent risk sharing between firms and institutional arrangements at the local level can provide business units with enabling capacity in the long-term perspective. To what extent have complementarities between societal subsystems been created that can continuously support firms, managers, and employees' efforts to cope with an unpredictable and uncertain environment? The extent of enabling complementarities will be informing as to the future direction of the Norwegian business system.

2. The traditional Norwegian business system: the exploitation of natural resources

The traditional Norwegian business system has been deeply entrenched in an endowment-based approach. But at the same time the Norwegian resource-intensive economy differs from the one that emerged in both Finland and Sweden. Both these countries have used their natural resources as a platform for industrial diversification and for increasing their knowledge bases (Moen 2002). This has not been the case in Norway. Throughout her history Norway has largely restricted her resource-intensive economy to the manufacturing and export of raw materials and semi-finished products: fish; timber; minerals; oil and gas. In addition the country has highly benefitted from a plenitude of waterfalls that in the first place made it ideal for the production of mechanical wood pulp through direct turbine operation, and in the second place for the production of hydro-electricity (Moen 1993). Thus, basing business on the exports of raw materials has – for various reasons - become an intrinsic part of the Norwegian business system to the extent that this logic has been reproduced through generations and has become dominant across sectors. The saying 'why should we refine, when we earn money by selling the raw material' has been repeated from sector to sector.

The strong resource-intensive orientation has been possible due to access to a variety of natural resources. Historically it is also linked with deliberate policies. Being a part of the

Danish absolute power, Norway was rendered the task of providing raw materials, whereas Denmark was to take care of trade and industry. The production of raw materials was encouraged through monopolies and privileges.³⁷ In the Norwegian case this type of mercantilist policy did not only impact on business logics, but it also gave rise to a dual structure of the Norwegian economy with a clear demarcation between a centre with access to critical resources and a periphery partly excluded from the same resources. The compartmentalized system that emerged from these power structures, and that over time has been continuously reproduced, in different forms and with different social configuration, has rendered a business system with low cross-sectoral coordination. It is within this institutional framework one has to understand Norway's distinct resource intensive economy, and the challenges connected with it. The way economic activities are controlled and coordinated have led to little cross-fertilization and diversification. Thus, inherent systemic mechanisms have the propensity rather to impede than trigger internal dynamism. The same goes for the system's dominant economic logic. A narrow cost focus in commodity production has often proved to be a dead-end strategy.³⁸

***The construction of the Norwegian business system after World War II:
compartmentalized sector coordination***

The business system constructed in the postwar period was in several respects a replica of previous patterns. When the Labour Party ascended to power in 1945 the state again became a key actor. Its planning ambitions were high and the state entered on a strategy in which it designed an active role for itself, among other things to promote further industrialization. In fact, the state's strongest involvement was to facilitate the exploitation of the country's comparative advantage in terms of cheap hydro-electrical power. This strategy was realized by either establishing state owned companies or favouring private ones within the energy intensive sectors such as electro-metallurgy and electro-chemistry. Together with incomes

³⁷ In 1688 the most dramatic intervention in the Norwegian economy ever was made with the introduction of the Saw Mill privileges that effectively shut out Norwegian farmers from the trade that came to be taken over by a bourgeoisie that largely was of foreign origin. It was not until 1860 that this law was repealed.

³⁸ However, throughout history two intervening mechanisms have counteracted dead-end strategies: luck and the ability to team up at critical junctures. Some stylized accounts of Norwegian history will have it that its economic development and growth is shaped by mere luck. An illustrative case in this respect is the shift in sector specialization in the postwar period. From the late nineteenth century until the 1960s the pulp and paper industry was Norway's export sector number one. Refusing to realize major technological shifts, Norwegian pulp and paper exporters were facing increasing problems throughout the 1960s. The first bankruptcy, which ended with the closure of most mills, happened before Christmas 1969. On these very days oil was discovered in the North Sea.

from shipping these industries provided the economic foundation of the so-called Labour State.

The endowment-based approach became the dominant strategy, but for certain reasons the Labour State launched alternative strategies. One was the establishment of state companies which were to serve as flagships and management models for the private sector. The second one was to base industrial development on technological development. An influential group within the Labour party – known as the technocrats - with links to research communities on the one hand and defence on the other developed a vision that technology and science was the appropriate approach to modernize Norway.

The technology approach became particularly relevant after Norway joined the NATO in 1949, and the decision was then made to develop a weapon industry in Norway. The intention was to connect the development of this industry to the NATO's military strategy. The 1950s was the period of 'big science' and nuclear research became a targeted area, but from 1960 onwards it changed to focus on electronics. To support technological development several research institutions were set up and organized according to a sector logic that came to characterize the national research system.³⁹ Some of the state owned companies became linked with the new research system, and formed the nucleus of a business and academia relationship that was unique in the Norwegian context. In general there have been weak ties between industry and research communities. It was unique also in the sense that the type of horizontal collaboration that emerged included multi-disciplinary co-design processes. Common development projects were financed either by government funded R&D or by development contracts concluded directly with the NATO, with individual member countries or through offset agreements. This horizontal collaboration brought some of the state companies, first and foremost Kongsberg Weapon Factory, to the technological frontier quickly in areas such as cybernetics, computing, and electronics. On the basis of acquired competences Kongsberg was among the first in the world to launch CND tool and drawing machines. However, for certain reasons this proto-type form of a national innovation system

³⁹ These institutions comprised a research council for science and technology, and sector based research institutes like the Norwegian Defence Research Establishment (FFI) and its spin-off the Institute of Nuclear Energy in addition to a large number of sector based research institutes.

did not diffuse at any significant degree beyond partners involved.⁴⁰ It rather added to the existing cleavage between the state and the private sector. Private enterprises considered these state owned companies to enjoy undeserved privileges from the state, and that private companies were neglected. Subsequently, the accumulation of knowledge linked with these state driven programmes did not result in clusters of new firms let alone a number of successful businesses.

The core part of the economy, the endowment-based economy and power socialism as it was nicknamed, was simple to manage and coordinate. The favoured industries were run with an emphasis on volume and cost reduction in up-stream operations. Largely the energy intensive industries restricted their operations to the export of semi-finished products. Since they did not diversify operations, they developed few ties to the rest of the economy and functioned more or less as isolated enclaves. Price fluctuations on raw materials and semi-finished products had few socio-economic ramifications, and could easily be handled through stock and import management. The Labour state's commitment to support the private sector and other types of industrial development included direct subsidies, infrastructural support like cheap energy, tariff protection, development contracts and other public benefits as well as favourable financing through state banks for industrial development and other development funds, especially those designed for districts. However, this type of risk sharing mechanisms kicked off a game that made industrialists particularly focusing on having their pipes into public funds rather than developing and upgrading business.

When the Norwegian oil sector emerged in the 1970s, its structure, routines, and patterns of interaction were largely shaped in line with the planning tradition of the postwar period. The state's ambitions for controlling the development of the Norwegian shelf remained unchanged. Subsequently, the authorities did not confine their roles to property rights management and tax collection; they wanted to play an active role. Since international oil companies at the time were conceived to constitute a threat, political consensus about a national project for developing the North Sea was achieved (Olsen 1989:34). A main objective of the national project was to develop national competences for exploring and exploiting Norwegian resources. Statoil, a Labour Party construction, was to be the state's tool to achieve this goal. In exchange for developing the North Sea, petroleum incomes were

⁴⁰ As a high-ranking civil servant in the Ministry of Industry expressed it: 'Raufoss and Kongsberg (two state owned weapon factories) lived in splendid isolation'.

to be used as an instrument for regional development, and to transfer competence into other business sectors, research institutes, and universities. This objective should be achieved by encouraging oil companies to engage Norwegian suppliers (Oljemeldingen, St.meld. nr. 25, 1973-74).

The clause about using Norwegian suppliers and developing regions had unintended consequences. It triggered various actor groups to participate in distribution games that over time came to induce a reciprocal game between coalition partners. Oil companies, supplier industry firms, local trade unions, and local politicians in coastal regions formed ad hoc or more long-lasting coalitions to have their bits of the oil cake. By using arguments about job creation and the like, these interest coalitions became a strong lobby group in the Norwegian political system. The distribution game made actor groups focusing on negotiating ‘baits’ rather than focusing on organizational and technological challenges. The pronounced goals of industrial diversification in relation to the exploitation of oil did not materialize. Typically, the Norwegian oil sector has been and is dominated by the production of crude oil.

In general risk sharing between the state and the private sector did not result in any sort of strategic interaction. When the state after World War II came to be identified with the Labour Party⁴¹, the historical distrust between management and Labour transformed into an antagonism between the state and the private sector more generally. The distance and mutual distrust between the two sectors was upheld by a conflictual divide in the wider Norwegian society hinted to above. The policies of the absolute state had not only produced social and economic inequality, but also a cultural cleavage between civil servants representing the foreign state and the local people. This social and cultural cleavage has been continuously reproduced, and identified and denoted by Stein Rokkan (1967, 1975) as the centre-periphery cleavage.

On the other hand, a strong complementarity in terms of economic logic evolved between the economic governance regime and management. Both groups share a strong belief in competitive strategies based on cost cutting measures. A resultant outcome is that a strong alternative to the resource-intensive economy did not develop. One reason for this is linked with the way firms were constituted. The majority of Norwegian firms are small and medium-

⁴¹ The Labour Party was able to stay in power more or less continuously from 1945 to 1965, and was able to enjoy an absolute majority until 1959.

sized enterprises, often family owned.⁴² Norway has to a lesser degree than the other Nordic countries developed large corporations, and, typically, several of these enterprises have been state companies or state owned. The dominant pattern of Norwegian firms has been strongly influenced by their type of ownership. Family ownership implied a strong centralization of control. The centralized control system had a bearing on both firms' internal activities and external relations. A centralized and narrow span of control impacted on the pattern of growth, risk management, and the way firms have organized their cooperative and competitive relations. In principle firms were to be financed through reinvestments and the rule of the thumb was to avoid external capital. Thus, risks were internalized to the extent that firms' concentrated on one single activity, production. New products were rarely introduced, and this type of task specialization resulted in a short-term cost focus as main competitive strategy.

Moreover, the distinct task specialization restricted the development of cross-functional capabilities within firms, necessitating them to externalize complementary activities. These activities were carried out through arm's length forms of coordination. Largely such activities comprised marketing and sales that were contracted to intermediaries. This specialization debarred firms from developing a customer orientation and from information about future development trends, and ultimately from exploiting potential resources generated within the national innovation system. Lastly, the internalization of risks excluded risk sharing based on a long-term mutual trust and commitment with suppliers, customers, and bankers. Thus, the inter-firm way of organizing production and distribution that evolved among small and medium-sized firms in Denmark evolved in Norway only to a little extent. The coordination of production across organizational boundaries led to conflicts with the principle of control and discretion. For this reason autonomous firms in Norway would demonstrate an unwillingness to merge and to integrate vertically and horizontally. Task specialization instead of multi-skilled operations also prevented the development of institutional arrangement for the upgrading of skills as was the case in Denmark (Rynning 1993, Moen 1998). Another reason for the distinctiveness of Norwegian SMEs is the fact that the majority of them was and still are life-bread operations.

⁴² By international standards Norwegian firms are rather small. In 1995, 80 per cent of all employees were employed in firms with less than five employees (Moen 2002:61).

The nature of control and coordination is linked with authority relations in a society (Whitley 1992). The strong orientation for centralized control and autonomy in Norway stems from the nature of ownership in the pre-industrial society. Instead of village communities, the traditional Norwegian community was organized around autonomous farms. The pattern of autonomous units was constitutive for authority relations in the community. An autonomous farmer had full discretion over his economic resources. This sort of ownership was protected by law and when certain conditions were fulfilled a family enjoyed an allodial privilege to a farm.⁴³ As a result loyalties and identities were linked to the family and the farm. Thus, collective commitment beyond these entities was hard to achieve and would only take place in ad hoc situations (the institution of *dugnad*). Any sort of intrusion on this authority system, such as the decentralization of control or risk sharing, would cause conflictual situations as did Labour's strong ruling ambitions after World War II.

The compartmentalized business system that evolved in the postwar period – framed by the nature of societal background institutions together with the political set-up - impacted on the development of most macro-institutional arrangements. Typical in this respect is the Norwegian education system that differs from the other Nordic countries. The Norwegian education system was constructed with a special focus on equalization, social solidarity, democracy, and personal development. Whereas Finland established a network of polytechnics nation-wide, Norway concentrated on developing district colleges with more general academic disciplines and professions to serve the public sector (Teige 2007:104). Unlike in Denmark, in Norway both the state and the trade unions failed to develop a solid system for vocational education and training. Less cross-sectoral and social mobility in the Norwegian society made the system less flexible. As indicated in the Introduction chapter, less people with working class background in Norway obtained top level positions than in, say, Denmark. According to the last Power and Democracy project (1998-2003) this state of affairs has not changed. The social background of people recruited to the political, bureaucratic, and industrial elites differ significantly suggesting that the compartmentalized nature of the system was still working after the turn of this century.

With changing environment from the 1970s on, this system was facing serious challenges. First, general industrial policies had failed to generate the upgrading and renewal of

⁴³ The law is named 'odelsloven', and it remains unchanged since 1814. Apart from one attempt to reform it in the 1850s, the reform of it has mainly been avoided.

businesses. To a large extent industrial policies had become mixed up with district policies and other sorts of power games. Secondly, the policy of state owned companies proved to be a disaster, and the strategy of picking-the-winner in high tech industries likewise. Thirdly, key industries within the private sector such as shipping, ship-building in addition to pulp and paper were all struggling to survive. To remedy the crises the state started to inject money into sectors and companies that were in trouble. This policy of 'spending oil money' in advance proved soon to be futile and only producing counter-effective effects.

3. A Crooked Path to the New Economy

Failing to deal with the crises of the 1970s as well as the volatile economy of the 1980s produced a picture of an economy out of control. This was a blow to the Keynesian ideology the regime was based on.⁴⁴ Discovering that the counter-cyclical measures did not work was a shock. In a state of bewilderment central civil servants together with leading members of the Labour Party joined the neo-liberal bandwagon. These groupings were referred to as the 'from plan to market group' (Løken and Trygstad 2006). Equipped with new public management templates, their aim was to make the public sector more efficient. The macro-economists in the Ministry of Finance carried out a similar u-turn 'from plan to market'. The planning paradigm was replaced with market regulation, and when the fixed rate system was introduced in 1986, the Ministry of Finance and the group of macro-economists were able to restore and consolidate the authority they had lost during the economic crises. These u-turns implied that the people in charge of the planning regime constituted the same group of people that were to reform it (Hanisch et al. 1999).

In line with New Public Management doctrines Norwegian politicians and civil servants announced competition, the market, to be the main vehicle for improving quality, efficiency, and effectiveness in the public sector. To improve the public sector, regional and local institutions were rendered more autonomy in order to provide them with strategic. At the same time market regulation was considered the appropriate tool for economic and industrial policies. A first step taken in this respect was to deregulate the financial system. The general boom in the 1980s together with failed management and monetary policies generated a bank crisis in Norway at the beginning of the 1990s. The other Nordic countries were all

⁴⁴ To what extent the Norwegian economic governance regime was 'truly' Keynesian has been a debated issue.

experiencing a bank crisis in this period. But how this crisis was dealt with and the outcome of it varied across the countries. In Norway the state invested quite heavily in the major banks in order to prevent bankruptcies. One effect of this strategy was that the state ownership and intervention in the economy increased. Another effect was that the processes of reforming the bank sector became protracted.

The development of the financial sector in Norway deviates from the one in Finland where deregulation and the crisis led to reduced state ownership and intervention and the advancement of a market-oriented system that lubricated corporate transformation. In direct opposition with the declaration of reducing the Norwegian state's involvement in the economy, it has increased its direct and indirect ownership. Between 1985 and 1996 public ownership doubled. For instance between 1984 and 1996 the share of public ownership at Oslo Stock Exchange increased from 9 to 21 per cent.⁴⁵ The state had ownership stakes in 29 out of the 100 largest companies in Norway. These moves increased the latent tension between the state and the private sector. The Norwegian finance system and Oslo Stock Exchange became known for a high degree of rumors and inside trading, and was shun by foreign investors⁴⁶. Typically, Norway was subject to less inward flows of FDI than the other Nordic countries (Moen 2002). Of the Nordic countries Norway has the lowest percentage share of market capitalization of GDP (Sinani et al. 2008:30-31).

The market doctrine has been most consequently applied within the area of industrial policies.⁴⁷ When the state-led industrialization came to a halt during the 1980s, no alternative industrial policies were framed. The state owned industrial companies were either sold or closed down. R&D programmes to support technological development were dismantled, and attempts to formulate a research policy for the knowledge-based society likewise brought to a close. The most important steps taken were to close down a council for research policy and an organizational restructuring of the research councils. The reason for establishing a singular research council in 1993 was to create an efficient tool to promote research (Skoie 2005). However, as the government at the same time cut back public investments in R&D, this tool was left with little power to accomplish its mission. The reduction was particularly strong in

⁴⁵ This is partly a result of the part-privatization of state companies

⁴⁶ Financial Times often referred to the situation in Norway as 'There is a muddy line between political life and commercial life in Norway', and 'In a consolidating world, Oslo (is) not the obvious choice for a head office for anything' 3.11.99.

⁴⁷ Even within this policy area there are several inconsistencies. One is the biased support of businesses in districts another is protective measures for certain industries like food and agriculture.

industrial R&D, and together with the termination of the technology programmes, a vital part of the postwar innovation system was suspended.

The most important measure taken to regulate the economy beside the fixed rate system was the introduction of the Solidarity Alternative to curb increasing unemployment in the early 1990s. The Solidarity Alternative came into being as a result of an agreement between the state and the social partners. After having sized down the economic policy repertoire to macro-economic regulation to exchange rate regulation, the government chose to intervene via the centralized wage bargaining system. This was a viable way since the logics of national economic policies and companies' cost advantage strategies converged. The economic logic shared between the three partners was easily calculated and understood and therefore won general approval. Unemployment was to be counteracted by increasing competitiveness through wage moderation. In exchange for wage moderation employees were promised training as compensation and marketed as a way to meet the challenges of the new economy. In this way the Solidarity Alternative was to function as a sort of industrial policies.

The introduction of the Solidarity Alternative was a reinforcement of the cost-cutting and process optimization focus. It was also a reinforcement of the centralized wage bargaining system based on an economic model that presupposes cost optimization and national borders. Both instruments were poorly designed to push the business system towards a more innovative mode of operation. Nor did the Lifelong Learning part of the Solidarity Alternative come to function in that way. When Lifelong Learning was placed on the political agenda in the early 1990s, it was counted among initiatives that earned Norway the reputation of being a frontrunner in educational policies, particularly in vocational education and training (Teige 2007, OECD 2002, 2000). But what was promised was never delivered. Despite the fact that the confederation of trade unions campaigned for Lifelong Learning throughout the 1990s, and a pact between the state and the social partners called the Competence Reform Programme was made in 1999, the whole initiative disintegrated in the early 2000s. The claim is made that Lifelong Learning only was a 'commodity' for controlling wage formation. It is a fact that none of the tripartite members showed any genuine interest in developing the programme let alone funding it. Nor was any attempt made to embed it among the rank and file. Trade unions locally would rather have money than skill training. It is even claimed that trade unions centrally were afraid that workers should gain so much competence that they would migrate to other and rivalling unions. At any rate, none of the social partners or the

state in Norway has been committed to an active labour market policy similar to ‘learnfare’ in Denmark beyond its symbolic significance (Teige 2007, Døving et al. 2006, Nye and Skule 2005).

Thus, the system of centralized wage bargaining is playing a key role in the macro-economic regulation of the economy in which the overall goal is budget balance. In contrast to the other Nordic countries that in the 1990s expanded their priorities in economic policies to include areas for transforming their economies, Norway only stuck to macro-economic regulation and the rule of budget balance. The argument given for this priority was to avoid inflation. Institutional arrangements were typically changed in order to support this new policy orientation. The mandate to regulate the interest rate was transferred from the parliament to the Ministry of Finance. When capital started to accumulate in the Oil Fund in 1996, which had formally been established in 1990, this policy orientation became increasingly more entrenched within the central administration and the polity, and a main strategy to avoid inflation is to invest the Oil Fund abroad, of which the management of investments is delegated to international financial institutions. Whereas political prioritizing induced a widening of the sector specialization in both Finland and Sweden, Norway on the other hand developed to become more of a mono-cultural economy based on oil and gas.

In the 1990s Norwegian companies started to internationalize more enduringly. The most salient example in this phase of the globalization is the pulp and paper company Norske Skog that as a result of an aggressive internationalization strategy made it the most globalized company in its sector and the second largest newsprint producer in the world. By the end of the 1990s the company had operations on five continents (Moen and Lilja 2001). However, most of the other companies that internationalized rather continued their routinized practice as diversified corporations with unrelated businesses as in the case of Norsk Hydro and Kvaerner or as Telenor by replicating its ‘rolling out’ strategies in immature markets. This meant that core competences were not a platform for internationalization, nor a future focus for further investments.

Motivated by cost cutting strategies, several companies relocated their production to countries and regions with lower costs. In 1990 one third of the work force of the largest companies were employed abroad. By 2000, eleven of the 30 largest companies had a larger part of their work force abroad than in Norway (Hveem et al. 2000). Thus, company strategies’ in Norway

gave fewer stimuli to the renewal of the business system than in Finland and Sweden. A key player in the development of communication technology, Telenor, even cut back its investment in R&D when it was partly privatized and adopted the rules of the shareholder value game.

However, there were some initiatives taken to promote change and innovation in Norwegian business. In a programme initiated around 1990, the so-called Enterprise Development 2000 (ED 2000), the main purpose was to link research resources to cooperation between the parties in the labour market in order to make cooperation instrumental for development, change, and innovation. One goal was to involve all sorts of employees, referred to as broad participation (Gustavsen et al. 2001). But evaluating the effects of the programme, which included about 3 – 4 per cent of the employees in Norwegian industry, there was hardly found any evidence that the experiences had disseminated to any significant degree to other parts of Norwegian industry. The conclusion was therefore: ‘still much to be done’ (Gustavsen et al. 2001:47). This evaluation was consistent with the findings in a comparative study of flexible enterprises in the Nordic countries commissioned by the Swedish National Board for Industrial and Technical Development in the late 1990s. The comparative study showed that Norway was lagging behind the other Nordic countries as to flexibility (Nutek 1999).

Emergent dynamics after the turn of the century

Contemplating the dominant endowment-based approach in the core part of the economy, ongoing processes of adaptation in peripheral parts of the economy can be characterized as a surprising outcome. After the turn of the century such processes have become visible. What can be observed is that innovation takes place in the form of business renewal of traditional industries in peripheral localities, but it can also occur in the form of start-ups of new science based and research intensive sectors such as software⁴⁸ and biotechnology. These processes are happening bottom-up in the sense that there are no central strategies let alone master plan that have initiated them. NPM inspired decentralization of governance together with the retreat of the state’s active economic role has opened up new social spaces for various types of entrepreneurial initiative. To a large extent such initiatives have sprung out of situational contingencies: upheavals of traditional companies; change in business models; unhappy acquisitions; lack of opportunities within existing organizational frameworks. The extent to

⁴⁸ Some software firms have attracted international attention to the extent that Financial Times in October 2005 asked whether Oslo was about to become the new Palo Alto.

which managers and employees have been able to compensate for loss of risk sharing mechanisms and gain enabling capacity from complementary institutions vary. But a common feature in ongoing adaptation processes appears to be linkages with global value constellations and/or epistemic communities. In fact, both our micro-level case studies and statistical data suggest a distinct Norwegian adaptation to the New Economy: a main driver being Norwegian players integrating in a variety of global value chains first and foremost by following the ‘servicing-the-sophisticated-customer’ strategy (SSC strategy).

The fact that Norway is scoring low on investments in R&D and has a low innovation rate has not prevented Norwegian players to become globally integrated. On the contrary, by being connected with global networks peripheral actors have been able to renew and upgrade their businesses. Low investments in R&D are compensated for by the ‘servicing-the-sophisticated-customer’ strategy. By servicing customers through project-based operations they are continuously upgrading competences and knowledge at the same time as they are transforming their products and services to serve a wide range of ends for new sets of customers. Statistical data give support to the relevance of the SSC model. According to the EU’s Fourth Working Condition Survey (2007) the Nordic countries have a far stronger intensity as to customer relations as other countries within the EU. Interestingly, among the Nordic countries Norway is scoring highest as to customers influencing the pace of work. The survey data is strengthened by the most recent data collected by the Federation of Norwegian Industries. Its investigation shows that the most important cooperative partners in R&D and innovation activities of Norwegian firms are foreign suppliers and customers (Norsk Industri 2007). Data in this investigation also suggest a slight increase in firms’ orientation towards R&D activities.

An open question is whether business renewal is taking place on a broader basis in the Norwegian business system. Recent data indicate that the nature of Norwegian integration into the globalized economy is about to change. Norway has a lower level of both inward and outward FDI relative to GDP than the other Nordic countries, but since the late 1990s there has been a steady increase in outward FDI. From 1998 and to 2005 the amount invested abroad almost tripled (SSB, Utenrikshandel). There also appears to have taken place a change as to the geographical direction of outward FDI. In 2005 more than 70 per cent of outward FDI went to the EU15 area and to North America. Such geographic preferences do not suggest that regime shopping are a main driver. Rather, qualitative studies suggest that market

access, access to complementary expertise, and closeness to customers are motivating Norwegian firms' FDI strategies. Parallel with internationalization Norwegian firms are in the process of increasingly outsourcing activities. A large number of Norwegian firms have already outsourced activities, and a survey suggests that this figure will increase in the next few years. These restructuring trends appear to be resource and competence driven. Access to resources and competence was the main reason given for outsourcing (Solli-Sæter and Gottschalk 2008).

May be the strongest evidence for suggesting change and adaptation in the Norwegian business system are changes taking place at the organizational level. In the 1960s Norway had a pioneering role in experimenting with new forms of work organization, but after the 1970s experimenting slowed down, and according to the Swedish NUTEK study Norwegian enterprises were lagging behind the other Nordic countries as to the development of flexible organizations. For measuring flexibility the study focused on two sets of strategies: decentralized responsibility and continuous learning. Indicators for decentralized responsibility were, among things, daily planning, work teams, and job rotation, and for continuous learning skill development plans. General trends found in all the Nordic countries were extended use of work teams, a decrease in the number of managers and managerial levels, and an increase in employee responsibility. But in Norway decentralization had not taken place to the same extent as enterprises in Denmark, Finland, and Sweden. Norway at the same time had the lowest share of employees participating in training (NUTEK 1999).

The fact that the EU's Fourth Working Condition Survey (2007) shows that Norway is levelling the other Nordic countries as to the share of learning organizations. This figure suggests that substantial changes have taken place in Norwegian working life since the turn of the century. In terms of 'using your own ideas' and 'learning' Norway has joined the group of the other Nordic countries. Moreover, the participation rate of employees in training and education is about the same level as in the other Nordic countries. Yet, there is a difference to the other Nordic countries. The case is that in Norway this happens in the job context. This means that in Norway adult training and education is largely paid for by employers. This share is the highest within the OECD area (Nyen and Skule 2005, OECD's Employment Outlook 2004). Typically, rather than public providers companies, customers, and suppliers constitute the most important external providers of further education and training (Nyen and Skule 2005).

At one level of analysis this state of affairs could be said to be the outcome of Norway's failure to introduce active labour market policies. It has been a pronounced stance among a large part of the polity and the bureaucracy that further training and education is firms' responsibility. When provided for by the public, training and educational activities are mostly restricted to employees with higher education. Subsequently, a smaller part of the total population in Norway is participating in further training and education than in the other Nordic countries. This approach is reducing large groups from re-entering the labour market and using opportunities provided in the New Economy. At another level of analysis the nature of Lifelong Learning policies can be said to reflect the dual structure of the Norwegian business system: illustrating the failure to develop strategic interaction across sectors. A third level of analysis suggests that firms' educational systems underscore the nature of how Norway is adapting to the New Economy by way of bottom-up initiatives and mobilization.

Yet, by stressing Norway's adaptation to the New Economy as driven by bottom-up initiatives in the peripheral parts of the economy, it may appear paradoxical that ongoing adaptation to the New Economy is most salient in activities linked with the very core of the economy, oil and gas: the offshore sector. The key concern of increasing the exploitation of oil resources on the Norwegian shelf has had an unintended consequence in the creation of a highly competitive supply sector. The point is that the offshore sector has become the third largest export sector after petroleum products and metals. The fact that sales and activities has increased more abroad than at home is indicative as to ongoing transformative processes. Between 2003 and 2005 foreign sales accounted for 75 per cent of its growth (Heum et al. 2006:12, Vatne 2007). Most activities within this sector are highly knowledge-intensive, and it is a complex one⁴⁹ comprising seismic, reservoir analyses, drilling, well services, engineering, subsea installations etc. In certain offshore market segments Norwegian players have become market and technological leaders. For instance, three of the four largest subsea companies are Norwegian or Norway based, and in 2005 Norwegian players had a market share of 48 per cent in subsea systems (Quest Offshore Resources, Inc. Jan 2006). The so-called subsea-corridor in the wider capital area of Norway (Oslo-Kongsberg) has become a global hub within subsea technologies.

⁴⁹ Since this sector is not classified as a sector in its own right, its significance is not readily recognized.

In several regions of southern Norway this sector has become an engine of growth. Depending on how the boundaries of this sector are defined, whether firms are entirely or partly offshore suppliers, the number of entities varies between 1500 and 2800. Over the years this sector has transformed itself from being in the position of catching up to becoming frontrunners. One of the case studies in this chapter and other studies indicate that companies have been able to accumulate competences in project-based operations and in cooperation with customers at the same time as they have changed their business model from manufacturing to engineering operations. Based on technological excellence Norwegian players are currently seizing opportunities in expanding offshore markets worldwide: Europe, North America, South America, the Middle East, West-Africa and Southeast Asia. Arguably, its global position would not have been possible without the division of labour between large and small enterprises, and the co-evolution of enabling institutional arrangements through public and private partnerships intervention. Such institutional arrangements include financial support, counselling, R&D and educational services. Intensive interaction within a network of flagship companies, suppliers, public and semi-public institutions have resulted in complementarities between various subsystems at both the local and national level. Largely, the emergence of the offshore sector is the resultant outcome of situational contingencies and co-evolutionary processes as will be explicated in a case study narrative.

To highlight the decentralised nature of change processes the cases of companies have been sampled from peripheral areas and they are indicative of how Norwegian players have been able to cope with global games.

4. Case studies: The transformation of a state owned weapon factory into world class players

Kongsberg Weapon Factory (KV) was founded by the Norwegian state in 1814, and sold in 1987. In the postwar period KV was designated to be a national locomotive for the development of high tech industries as part of the technology approach in industrial policies. The idea was to develop new civilian products based on defence technology. From the late 1950s until the dismantling of KV in 1987 activities were marked by a continuous stream of projects. Assigned projects enabled KV to widen its mechanical competence to also include cybernetics, computing and electronics. The technology programme policy pre-supposed horizontal collaboration between research and industry, and particularly KV's cooperation

with the Norwegian Defence Research Establishment (FFI) enabled KV to quickly reach the technological frontier. Accumulated competence enabled KV to develop a large number of production lines - missiles, components for satellites, maritime steering systems, tool machines, gas turbines, jet engine components, subsea systems, and components for the car industry – turning KV into a large and highly diversified company by Norwegian standards.

Whereas KV was a technological success, it was a commercial failure⁵⁰. Its failure to produce profits together with the change in economic policies in the 1980s prompted the government to either sell or close down parts of KV. It was a shock to the municipality and the employees alike to hear that Santa Claus would not turn up any more. At that point of time KV employed about 4500 people. Most of these people had a local attachment and together with their families they made up a large part of Kongsberg town's population of 23 000 inhabitants. Kongsberg was thus a typical one-company town. Both the municipality and employees were sharing the understanding that 'the state will always take care of us'. For the town this had been the state of affairs for more than 350 years. It was founded in the 1620s after silver ore was discovered in 1623.

The dismantling of KV opened up social spaces for new players. Provoked by the threat of being closed down, former managers and employees decided to take action and fight for their places of work. The board of directors eventually accepted to split KV into 24 units of which all apart from one are still alive. The state kept ownership shares in only one unit, the defence division, today forming one of the company called Kongsberg's two main business areas. Five of KV's former units have grown to become large by Norwegian standards and have achieved global visibility. Two of these units, Kongsberg and Kongsberg Automotive have become multinational companies in their own right. The former subsea, gas turbine and jet engine component divisions are subsidiaries of foreign multinational companies. These are the USA based FMC Technologies, the USA based Dresser-Rand, and the Sweden based Volvo Aero respectively. Either as multinationals or as foreign own subsidiaries these units are success stories, and as an actor involved in the dismantling process phrased it: 'it has been an industrial adventure beyond my imagination'.

⁵⁰ An important reason for KV's financial failure was its peculiar system of governance that was highly irregular in terms of how state owned companies were to be managed. It was described as a 'one-man show' with decisions made behind closed doors. This implied a gap between the strategic and operative level and the authoritarian style of the key person prevented any form of intervention.

The largest five successor companies are as follows:

Kongsberg

Kongsberg represents the continuation of the core of former KV, the defence division. A contingent event, the end of the Cold War, caused the company to change its course of direction. Due to the new international situation national investments in defence technology were to be strongly reduced. The new business model was to make it less dependent on the defence market. The decision was made to include the sales of civilian products, first and foremost within the space and the maritime information technology. This step represented an unrelated diversification, but both areas had previously been part of KV's activities and the company could draw on its past experience. Today Kongsberg primarily targets the offshore, merchant marine and defence markets. Within some of these segments Kongsberg is a global leader. Currently it employs about 4400 people, which is a doubling since its start in the late 1980s, and it has operations in some 25 countries. Among its customers are leading organizations and institutions world-wide such as the US Armed Forces, NATO, and the European Space Agency. It has had a long-term partnership with world-class companies such as Raytheon and Lockheed Martin in the United States, Aerospatiale and Thomson in France, and Hyundai in South Korea. Within its markets it has earned a good reputation, and, for example, has been named Raytheon's Four Star Quality Supplier and the Australian Defence best supplier ever.

Kongsberg Automotive

From being a licence producer for Volvo in the 1950s and organized as the Automotive Parts Division at KV until 1987, Kongsberg Automotive (KA) is today a multinational corporation with more than 50 facilities in 20 countries and over 11 000 employees.⁵¹ The company presents itself as a global provider of systems solutions to vehicle makers world-wide.⁵² When the new company was incorporated in 1987 the then 315 employed people were still mainly

⁵¹ The acquisition of the US-based Global Motion Systems (GMS), a diversified industrial company listed on the New York Stock Exchange, was completed at the beginning 2008. As a result of this acquisition KA has made its most significant expansion. GMS has a global presence with about 8000 employees working in 16 production facilities in North and South America, 13 factories in Europe and 5 factories in Asia, and is a long-term supplier to blue chip customers like Mercedes Benz, Toyota, Ford, GM, Renault, Peugeot, Lear Corporation, Caterpillar and Scania.

⁵² A more detailed description is a global provider of engineering, design and manufacturing for seat comfort, driver and motion control systems, fluid assemblies, and industrial driver interface products (www.kongsbergautomotive.no)

producing components for Volvo. In order to save the work places the manager carried out a management buyout. The manager himself and a group of employees financed the buy by borrowing money and mortgaging their houses. This was a provisional solution and after a couple of years the company was taken over by professional investors. Its aim is to become world leader within its business areas. After completing a major acquisition in early 2008, KA became part of the top 100 automotive suppliers in the world and a market leader within some of its core segments. It is a supplier to all the major car makers world-wide, and is at the same time a financial success.

FMC Technologies Kongsberg Subsea AS (KOS)

KV's former subsea division is today owned by the US-based FMC Technologies. Totally FMC Technologies employs approximately 13 000 people and operates 33 manufacturing facilities in 19 countries. The former subsea division makes up the largest part of its business area Energy Systems and Services which accounts for about $\frac{3}{4}$ of FMC's total revenues.⁵³ Today FMC is the world leading supplier of subsea systems to the oil and gas industry with a market share of 40 per cent. FMC has met the expectations of the finance markets. In the five years period since incorporation in 2001 the company has doubled its total turnover, and in 2006 its return on investment was some 20 per cent. Since 2000/01 the energy business and in particular the subsea part, which is largely operated from Norway, has been the main driver of growth of the entire MNC. In this development KOS has played a key role. Fortune Magazine has named FMC three times (2005, 2006, 2008) America's most admired oil and gas equipment and service company ahead of renown companies like Schlumberger and Smith International. The evaluations are based on factors like innovation, management, and financial strength (Annual Report 2007, www.dn.no 17.3.2008).

Dresser-Rand

The Gas Turbine Division belongs to Dresser-Rand which is among the largest suppliers of rotating equipment solutions for the energy industry globally. The KV division was partly sold before the privatization in 1987. Lacking both competence and resources to develop a marketing organization for gas turbines, KV started to look for a partner in order to penetrate the US market. Dresser Industries expressed interests and purchased first 50 per cent of KV's shares in the Division in 1985. The remaining shares were purchased soon after. The

⁵³ The other two business areas comprise Foodtech and Airport Systems

organizational resources Dresser could offer proved to be a perfect match for developing the Kongsberg gas turbine concept internationally. Dresser merged with Ingersoll Rand in 1987 and with the new name Dresser-Rand Company it was listed on the New York Stock Exchange in 1990. In developing the business unit, the Kongsberg division primarily targeted the North Sea and became the dominant supplier of gas turbines on that market, but is increasingly expanding its share on foreign markets.

Volvo Aero Norway (VAN)

VAN started on the basis of offset work from the F-16 programme, but the Jet Engine Component Division (JET) is today an independent company jointly owned by the Sweden-based Volvo Aero Corporation, a wholly owned subsidiary of AB Volvo, and the US-based Pratt & Whitney and it is named Volvo Aero Norway (VAN). Within this sector competitiveness is highly reputational and based on technological excellence. To start with JEC's task was strictly restricted to build-to-print. Over the years JET/VAN transformed its business model by focusing on production efficiency and developing its own technological solutions, particularly in shaft design. Within this market niche it has achieved world class reputation. Internationally it is known as a proven supplier for both military and commercial players, and is the main supplier for turbine shafts for Pratt & Whitney and General Electrics (US Department of Defense 2003).

Adapting to the New Economy: Path creation based on knowledge intensive products and services

In several respects the Kongsberg units are not typical examples of a Norwegian firm: they have a higher export share, they invest more in R&D, and are innovation driven. We will nevertheless argue that they are illustrative cases as to how an emergent type of Norwegian firm is adapting to the New Economy. This pertains to type of business model, modes of operation and type of work organization. Instead of relying on the exploitation of natural endowments and process optimization, the emergent type of firm is knowledge intensive and explorative. For coping with pressures to innovate and cut costs, the emergent type of firm is in a constant process of experimenting and negotiating their roles and positions in global value chains. In this perspective the Kongsberg experience is relevant as it sensitizes us to current strength and gaps in the national business system.

The Kongsberg units' adaptation to the New Economy is a protracted process. This process can be characterized as a process of coordinating an increasing number of action levels. These action levels refer both to intra- and inter-firm levels and to the institutional environment at the local, national and transnational level. To meet global challenges there is a trend of increased interaction between private and public partners of local experimenting for creating innovative forms of business networks and for the creation of institutional arrangements for supporting business' need of competence. Stronger participation in global games seems to necessitate co-constructive processes at the local and national level.

The Kongsberg units adhere to what we call the servicing-the-sophisticated customer strategy and they base the customer approach system engineering. However, the narratives of the Kongsberg units evidence that underlying these overt strategies there is a critical element that is vaguely referred to as the Kongsberg way or culture. The Kongsberg culture is the resultant outcome of past experience and accumulated tacit knowledge, and can be subsumed under the notion of pragmatism. Pragmatic organizations are characterized by continuous experimentation. Employees have routinely to question the suitability of their current routines and continuously readjust their ends and means to one another in the light of such questioning. The organization is open for unlikely innovation and 'the unexpected to happen and gain organizational space' (Chapter 3, Mead 1967). This form of organizational behaviour presupposes interaction, and typically innovation and improvements are co-designed processes.

In accounting for the ways in which the units' are carrying out multilevel coordination, we will in the following structure them according to their two main tasks: satisfying owners on the one hand and customers on the other. Whereas the issue of financial and organizational resources have been solved differently, the units have adopted the same servicing-the-sophisticated-customer-strategy to a large extent (SSC).

The issue of financial and organizational resources

When the state divested KV, the owner had no plans for its future development. In the first phase a critical issue for survival was ownership. This was a critical issue because, first, the stock exchange plays a comparatively small role in the Norwegian financial system and it is mainly active in second-hand trading. Secondly, bank regulation restricts banks from developing strategic ownership in companies. Thirdly, in the late 1980s there were only a few

venture funds, and these lacked proper professional experience for industrial investment. Still today there are only four private equity funds in Norway (Grünfeld and Jakobsen 2006). Although the KV units were sold cheap, there was for all practical purposes no financial market in Norway that could or would finance high tech industries.⁵⁴ As a consequence foreign companies acquired three of the largest divisions. For the two divisions that have managed to become multinational enterprises in their own right growth has mainly occurred through acquisitions both at home and abroad, and learning the financial game has been a prerequisite for their global expansion. Allegedly both companies have profited from the competences of professional owners. Two of Norway's four private equity funds have invested in KA and Kongsberg respectively. An important step for transforming Kongsberg - in replacing 'iron and steel' with high tech products - was to be listed on the Oslo Stock Exchange in 1993. In this way the company signalled its adherence to the principles of shareholder value, which has been followed up by introducing 'best practice' methods, and increased transparency in its accounting. Producing increased profits have facilitated the company's need of funding growth. To start with acquisitions were a strategy for expanding its product portfolio.⁵⁵ Its expansion abroad was initiated by follow-the-customer strategy, and the localization of customers' facilities has been important for green-field investments. In Asia, Kongsberg has also established joint companies with local partners in order to comply with protectionism in these countries. But more recent foreign direct investments concern the acquisition of complementary competence such as Gallium in Canada and GlobalSim in the USA (Annual Reports). These acquisitions form part of Kongsberg's strategy to increase its technological expertise by tapping into more international technology milieus (Annual Report 2006).

For KA it was clear early on that growth had to take place abroad, but it lasted almost ten years until it was capable of making its first acquisition. The fact that KA is a commercial success has facilitated its expansion internationally. From 2001 to 2005 its EBITA increased from 5 to 12 per cent. In 1996 KA acquired two companies in Sweden and one in England. The following year it acquired a company in the USA. These acquisitions were made to secure and develop the position KA had attained within clutch and gear actuation. By 2000

⁵⁴ The most disreputable example of the inadequacy of the financial system is its failure to capitalize on the GSM technology. Norwegian research communities had played a prominent part in developing the new mobile phone technology, but researchers failed to attract the interest of both industrial and financial communities. It is a well-known story that the GSM standard enabled Nokia to become a global leader (Moen and Lilja 2005).

⁵⁵ In 2005 Kongsberg divested its Yachting and Fishing division in order to solely concentrate on business-to-business activities.

the company was a world leader in clutch actuation. But realizing that customers' requirements and expectations were constantly changing, KA saw the need of global presence, and from 1999 it pursued an intensive internationalization strategy establishing production facilities in Mexico, Poland, South Korea and China. For KA cost pressure has also influenced localization to some extent. The rule of thumb is set by the cost structure. If wage costs surpass 10 per cent of the sales price, off-shoring is considered. Another factor is that customers' 'require' suppliers to relocate, a circumstance that has led to a relocation process increasingly taking place eastwards (to Asia). KA's successful globalization has taken place in cooperation with a Norway based Private Equity fund. This cooperative arrangement has facilitated the development of KA's financial competence as well as strategic, organizational, and managerial ones. In 2005 it was listed on the Oslo Stock Exchange.

In early 2008 a preliminary peak in its globalization strategies was attained when KA successfully could conclude the buy of the automotive activities of the US based Teleflex. The acquired part had more than the double size of KA in terms of production facilities and employees world-wide. An exceptionally strong industrial fit between KA and the acquired unit, named Global Motion Systems (GMS) was the reason given. The two units complement each other in terms of product platforms and customer base, i. e. gear shift, seat comfort and fluid systems. GMS had been on KA's target list for ten years.

The three other units are subsidiaries of foreign multinationals. Particularly for the subsea and the gas turbine division this was a form of ownership by choice. For these two units foreign ownership has been a strategy to solve the issue of financial and organizational resources in order to become global players. The two USA based multinationals provided the two Kongsberg units with a marketing organization and an industrial structure that were not available in Norway. The multinationals were also preferred owners because of complementary technologies and product portfolio. However, when acquired the goals and ambitions of the two Norwegian subsidiaries were not readily accepted. Through constant fight and negotiation both subsidiaries have managed to enhance their mandate and improve their position within their respective corporations. Within Dresser-Rand the Kongsberg unit has ousted other gas turbine suppliers from the market to the extent that it is the only supplier left within the owner corporation.

Within FMC, KOS micro-political game even resulted in a radical change of the entire MNC: its business model, its mode of governance and operation. The process started with the clash over KOS' mandate. During the contract preparations it turned out that the HQ wanted to restrict the subsidiary's market access only to the North Sea. This was in direct opposite with KOS' aspiration of becoming a global supplier. The fight for its interests took place at several levels, and was spearheaded by the employees' representatives. The Kongsberg people won through, and the head quarter accepted that subsea engineering and production should take place in Norway and that the subsidiary should keep its intellectual property rights, expertise and patents. KOS was given the responsibility for supplying subsea systems world-wide apart from North America, which was awarded to the mother company. The HQ obliged to develop KOS internationally: its marketing organization should assist the subsidiary in internationalization. Lastly, KOS was denominated a Centre of Excellence.

Rather than releasing a power game, the conflict released a learning process. FMC used to be a traditional manufacturing company. In its inherent logic assets were tangible. By visiting Kongsberg the HQ executive officers had the opportunity to observe a different world and a different logic. Instead of tools they saw that 'the main value went out of the door at four o'clock in the afternoon'. As the representative of the HQ expressed it 'KOS has helped us to see the big picture in subsea systems, with the emphasis on *systems*'. In the make-over process from a low-tech product-oriented enterprise to a high-tech systems supplier the HQ recognized the fact that knowledge and competences are locally embedded and accepted the decentralization of technological excellence. Like Kongsberg other local sites were given the status of Centre of Excellence.

Servicing-the-sophisticated customer strategy

Whereas KV could rely on public research facilities and financial support for the development of core technologies, the successor units faced a challenge as to further financing and risk sharing of explorative and innovative activities. By being cut off from any sort of public support, they had to find alternative strategies to compensate for this loss.⁵⁶ The compensatory strategy that over time evolved and that they all adhere to is to deliver tailor-made systems for customers.

⁵⁶ Kongsberg failed to benefit from the Norwegian generous district policies because it did not obtain the status of being a district. The Norwegian district policies are based on geography. The defining criterion is the distance to the capital. Districts close to the capital area are not counted as districts and subsequently not entitled to state support.

In a recent survey investigating what sort of partners the Kongsberg enterprises were cooperating with in innovative activities, they indicated foreign customers as the most important group (Oxford Research 2006). The enterprises also indicated that market innovation had improved their sales of products and services, and enabled them to penetrate new markets and obtain new customers. Kongsberg indicates that it cooperates more than most other firms in their area, and KOS assumes that it has been able to form more types of cooperative arrangements than any other player in its market sector (Annual Report 2004). If we consider general global tendencies in terms of increased competition in product markets stemming from vertical disintegration implying constant role shifts towards other firms (cf. Herrigel 2007 and as pointed to elsewhere in this book), it makes sense that this strategy has proven to be successful. For the Kongsberg units this strategy meant in the first place that they were able to share risks with customers, secondly to reduce the risk of failed innovation since products are co-created with customers, and thirdly to re-negotiate and change their position in value chains.

The SSC strategy appears as a model for solving issues linked with funding and risk taking. The strategy has also enabled the units to constantly upgrade their competence. 'We went from being underdogs to becoming super dogs' as a former CEO put it. Moreover, it has been a strategy for explorative activities. For example when assigned a project the project team might have no idea of what the result is going to look like, but 'technological solutions are found in the intimate cooperation with customers' as they phrase it (Kongsberg Annual Report 2006). 'How otherwise to develop the technologies of the future? How to develop and design things you don't know of?'

However, co-creating products and services with customers can be fraught with challenges and a central theme in collaborative activities is ambiguity and their provisional nature (Sabel et al. 2000). Collaboration can be hampered by struggles for influence, provisions relating to property games. Large companies might pass on innovation costs to their suppliers, but firms may also appropriate innovative concepts or product ideas. One solution found among the Kongsberg units is to secure further use in the contractual agreement. The supplier can retain the right to commercialize new technology against paying a royalty to the customer that has paid for the development (Kongsberg Annual Report 2005).

Another strategy that has emerged relates to the units' business model and to KV's past experience in developing weapon steering systems. This strategy implies developing unique products and using them in systems that are interrelated thus becoming indispensable for the end user. Another way of phrasing it is to use own products in tailored systems.⁵⁷ As one of the CEOs formulated it 'the more complex packages we can deliver, the more our share of value added will increase'. 'It was a truism in the 90s that it paid to move as high up in the value chain as possible. But since 'everybody' now is engaged in system integration the margins have fallen, and we are instead focusing on 'in-sourcing', i.e. creating products with high competence.' For instance in the production of car components KA states that there is currently a counter-trend from producing components to designing and manufacturing sub-systems.

Today the Kongsberg units refer to their systemic innovation approach as system engineering.⁵⁸ KOS' success in standardizing subsea systems is a telling example of the Kongsberg way as to dealing with the management of accumulated knowledge in a project-based mode of operating, and it is an example of how it has enabled a unit to redefine its role and position in a value chain and the wider national business system.

In the early 1990s KOS was a comparatively small organization, employing less than 100 people. Due to its small size a problem arose when it was offered two projects simultaneously, one for Statoil and one for Shell. Typically, both oil companies required quite different technology (Annual Report 1991). The employees' first thought was we have to choose one of them. The next was, why don't we develop a common technology base that both can use? They did. And they managed to persuade both companies to accept their suggestion, without either of them knowing about the other.

⁵⁷ Kongsberg phrases their business strategy in this way 'to create unique products through combining different knowledge' (www.kongsberg.com). KA: To provide systems solutions, to develop unique products with best functionality at lowest cost' (Annual Report 2006). FMC: To deliver sophisticated systems and products and services (Annual Report 2006). Dresser-Rand: Delivering systems and business practices that provide value to all participants (www.dresser-rand.com). VAN: To innovate customized partnership solutions (www.volvo.com).

⁵⁸ System engineering is defined in the innovation literature as a typical innovation game: 'The important capabilities required for playing this game are understanding the evolution of rapidly evolving infrastructure technologies, such as information and communication technologies; and user applications, such as management processes, manufacturing, retailing, and billing; and generating faddish waves of investments such as reengineering...' (Miller and Floricel 2007). This definition stresses the technological aspect of system engineering, whereas in this context the Kongsberg way is defined in terms of interactive processes.

Making this proposal implied two things. First, KOS as a supplier took over the responsibility of designing the project on their own. Secondly, their design involved a standardized solution to some extent. Standardization represented something totally new in the offshore industry, and the companies in question expressed doubts. However, an accidental situation helped persuading Statoil about the standardization ideas. Some time after KOS submitted its offer, Statoil experienced that one of its platforms, Sleipner, disintegrated and sank on 23rd of August 1991. Statoil got a dilemma since they already had sold the gas from Sleipner. They needed to solve the problem instantly. Normally it would have taken two years to replace the installations, two so-called subsea templates. The subsidiary delivered both within nine months after they got the job. To quote from the subsidiary's annual report 'That gave Statoil a good taste of the advantages of standardization' (Annual Report 1992).

This contingent situation represented the start of a technology development and innovation process that revolutionized the subsea business. The modular approach laid the foundation for the development of the system approach. At an earlier point of time the subsidiary had lost an important contract due to opposing interests and strained relations with a partner. This experience taught them a lesson about the importance of owning and controlling the technology. In their own words they started methodically to amassing knowledge about 'how things work', product group after product group. Succinctly put, the system approach reduces risks. Being able to control the design and construction of integrated systems⁵⁹ has reduced uncertainty in customer relationships

For the oil industry this sort of flexible specialization proved to be ideal for meeting new requirements in terms of cost reduction and flexibility in relation to variation in the nature of oil fields. Standardization or modularization allowed increased flexibility, reduced costs, and shorter installation and project cycle time. Standardization in subsea systems implies modules that can be configured to suit every application in use on subsea oil fields. It also implies the redeployment of tools, technical, and management resources. The effects were visible right from the start. The learning curve of the dual project surpassed expectations. One of the offers the subsidiary submitted was estimated to cost around 480 million NOK.

⁵⁹ Subsea systems comprise subsea wells for the production of oil (the extraction) and the further processing of it, including oil, gas and water separation. This takes place in so-called subsea trees and manifolds. The inner part of the physical outfit is filled with complicated electronic control systems.

This figure was some 300 million lower than the second lowest offer. It was considered craziness. However, between 1991 and 1997 KOS managed to half costs twice. KOS' stroke of genius can therefore be described as taylorized solutions for standard prices. Generally, project-based operations tend to be idiosyncratic and cross-project learning consequently low (cf. Whitley 2006). Modularization facilitated the use of accumulated knowledge.

When introducing the modular solution, a new contract form called EPI (Engineering, Procurement, Construction) was used. This type of contracts are characterized as efficient incentive contracts. They are also known as relational contracts because they contain elements, so-called functional requirements, which are difficult to treat legally. For a third party it is difficult to assess an engineering service. Its nature is therefore seen to be self-enforcing and reputational motivation an integral part. Mutual trust facilitates these kinds of contracts and partnerships, and they will consequently contain a high degree of 'soft governance'. For the emerging collaborative interaction on the Norwegian shelf, the new forms suited well. For cost reduction and improving quality they are considered indispensable (Kvaløy 2006:51). Furthermore, for players who have a good understanding of how the total system is functioning and of operational requirements, this sort of contractual relationship opens a space for manoeuvring and increasing the supplier's share of the profits. This is possible because the specification of functional requirements opens up for innovation. These contractual forms provide an opportunity to better control 'insecurity zones'. Also standardization in relation to functional requirements can imply increasing returns to the supplier. The resultant outcome of this institutional change was that the offshore sector changed from being buyer-driven to becoming supplier-driven and last, but not least, innovation driven.

Projects require competences from a variety of internal and external sources necessitating the cooperation with a large number of sub-suppliers. The opening provided by the EPI contract enabled KOS to change its role from supplier to integrator and flagship company. Together with a few other suppliers it represents the link between local firms and the global subsea market. Currently, KOS has about 185 qualified sub-suppliers in Norway. Some of their contract manufacturers have become partners. This implies that the partner cooperates with the KOS in the co-design of products and processes.

Due to their integrator role between the global market and local firms, all the five Kongsberg units have assumed a flagship company role.⁶⁰

A dual innovation strategy: in-house R&D

It is a striking feature of the Kongsberg way of open innovation that in-house R&D work is highly valued. The survey carried out in 2006 indicated that in-house sources of ideas were almost as important as ideas from customers (Oxford Research 2006). As indicated above, all the Kongsberg units invest above the national average in R&D. For example Kongsberg devotes about 10 per cent of operating revenues for the development of new products, an investment it considers necessary for achieving a sufficient, modern and cost effective product portfolio (Annual Report 2006). For KA long-term in-house development is essential. In-house product development has been a key strategy for accessing new customers and markets and for meeting customers' changing demands. By systematically pursuing their unique marketing strategy the company has been able to produce products, as they say, that 'impress our customers through innovative solutions that create customer value'. Today 90 per cent of what the company is manufacturing are own products. One such unique product is the use of a highly flexible hydraulic technology in gear change systems. KA is the only supplier of this system in the world.

The dual innovation strategy sustains continuous innovation and is highly cost effective at the same time. Dynamism is linked to the fact that it can offset risks inherent in both long-term and short-term strategies. The lack of high-powered incentives often connected with long-term development strategies is balanced by the project type of business. At the same time long-term technology projects prevent expertise to remain project specific.

Interestingly, the Kongsberg units have also been able to launch mere R&D projects with customers. In the offshore sector long-term development projects are referred to as framework contracts. It started with the introduction of the first Technology Development Agreement between KOS and Statoil in 1994. A year later Mobil, Elf, and Shell joined the agreement. The aim of such joint projects is not to produce a specific product or delivery, but to further develop inventions and technological solutions for perceived future challenges. Much of

⁶⁰ For example at the national level Kongsberg has 2 – 3000 sub-suppliers. Over 70 per cent of these firms are located in the Oslo region and along the eastern part of the south coast. Many are spin-offs of former industrial enterprises, including Kongsberg itself.

Kongsberg development is also carried out in this way, and roughly about a half of investments is customer-funded. One such example is the development of the autonomous underwater vehicle Hugin. This started as a collaborative project with the Norwegian Defence Research Establishment (FFI), Norwegian Underwater Intervention, and Statoil in 1995. The project represented a continuation of a small underwater vehicle developed in the mid-eighties. Today the Hugin concept is a leader within this market niche (Annual Reports).

Some of these joint R&D projects represent the continuation of the postwar horizontal cooperation between research and business created through the technology programmes. The Kongsberg companies have maintained contact and cooperation with these research institutes. For example VAN states that its cooperation with Norway's Institute of Technology (today Norwegian University of Science and Technology) and Sintef have been crucial for the development of the jet engine components. In 1996 when Kongsberg Defence and Aerospace concluded a 10-year contract with the Norwegian Navy to produce an advanced missile, it completed the development work in collaboration with the FFI. Some of the contacts forged with American institutions related to projects within the NATO framework have been kept. Recently, networks at the national level have formed the basis for alliances for targeting and accessing the EU's research programmes. A future challenge is to widen the cooperation with research institutions at the international level.

The Kongsberg units' strategy of carrying out and financing R&D activities together with customers and other partners is a mechanism for risk sharing that enables them to continuously upgrade competence and explore new opportunities.

A key input: the internal talent market

Managers and employees in the New Economy are faced with two in some ways contradictory pressures: at the same time as they have to dedicate resources for innovation, they have to cut costs. To the extent the Kongsberg units have become business services companies implies a different approach to efficient operations than manufacturers that can optimize controllable processes. Providers of business services on the other hand have to reduce the costs of operations that support and maintain their product lines and services. This implies that services organizations have to manage many variables that include unique requests, changing environments, and differing levels of employee motivation.

It is recognized that top-down, centralized and rigid roles and rules for specific tasks and behaviour is not a feasible strategy for managing creativity and the participation in distributed networks indispensable for competitiveness. In the management literature emergent managerial strategies for coping with decentralized challenges are described as pull systems based on flexibility. Pull systems are characterized by modularly designed, decentralized levels that connect a diverse array of participants. Two dimensions are emerging as critical: first, in a multi-project environment the importance of project management, and secondly, firms' capability to manage and deploy its internal talent market. In short, competitiveness depends on labour output that comprises co-workers' creativity and dedication to tasks and problem-solving. Thus, critical for competitiveness and business renewal are task force operations in the form of project based assignments in which internal and external experts are mobilized and competence is developed. Such operations are highly autonomous and the relation between projects in such a multi-project environment could often be characterized as competitive. This places project managers at the core of the New Economy through his/hers position at the intersection between top management and external actors. To the extent that competition prevails in 'management by projects', project manager are engaged in negotiations and issue-selling processes with top management. This type of micro-politics is well known in HQ-subsidary relationships (Kristensen and Zeitin 2005, Dörrenbächer and Geppert 2006).

Work practices and the work culture that evolved at KV made the successor units well fit for the New Economy. In fact, KV was operating in an open mode of innovation *avant la lettre*. In addition to competence in modularity based on weapon system experience, KV had long experience in project management and team work. Some of its divisions were always run on a team basis, and KV started early experimenting with work practices, a consequence of its political role of being a technological spearhead. For instance, production cells were introduced in the jet engine division in the late 1970s, and KOS began working in integrated teams with customers in 1994. Projects normally involved the cooperation across boundaries within the company and with external actor groups in other companies and in research institutes nationally and internationally. 'At the time there were open doors throughout the whole company, so we could simply walk into any workshop and get a problem solved. The foreigners couldn't believe their eyes'. Autonomy in work and making use of own ideas were

early cherished. Management's response to challenging projects and even 'wild' ideas was 'go ahead'.

When explaining current achievements, various representatives of the companies are emphasizing the importance of organizational effectiveness. 'It is not because we are cleverer than others'. As a local manager put it: 'we are quicker, more flexible, faster in making decisions and we communicate fast in an informal way'. 'It is the way we communicate.' For instance, it is not uncommon that a shop-floor worker addresses the CEO by his first name. Thus, in some ways one could say that the nature of social structure with short distances between social and professional groups provides an unintended competitive advantage in the emerging decentralized economy. But the fact that Norwegian trade unions have pushed for the principles of co-determination and broad participation has certainly facilitated an open and experimenting approach to work organization.

Today all the units have a flat hierarchical structure, but the delegation of tasks was introduced relatively early since KV's multi-project operations made centralized decision-making ineffective. The capacity for delegation reflects a culture marked by trust. This is linked with the fact that until now all the CEOs have been former KV employees, and their collegial ties were forged to be based on openness and trust. As one CEO puts it: 'If you don't enjoy trust, you don't have freedom. But this requires honesty', and 'What should govern work? Fear and fright, or positive challenges?'

Kongsberg companies can to a lesser degree than enterprises in Denmark rely on a dynamic labour market and active labour policies as incentives for experimentation and adaptation. Instead capacity for searching and experimentation is sought created within firms and units. Already in the KV era employees were pushed to develop new projects and business opportunities, and 'people went to the task with a pioneering spirit and enthusiasm'. Today Kongsberg stresses processes of knowledge sharing in groups and cooperation at all levels. As a project co-worker put it: 'we are supposed to enrich and upgrade one another and to pull one another forward'. In Dresser-Rand it is stated that everybody is to participate, to give one another collegial support and pull together. 'Together we achieve things, and there is very little of this is not my job.' VAN is also pursuing a policy of involving everybody and refers to the 'spirit of dugnad' (cooperation) in teams. In KOS the sense of all-for-one and one-for-

all is deliberately cherished. As the CEO of KA expresses it, ‘the more operators and engineers cooperate, the better’.

Innovation and exploration are risky operations, and to preclude risks from stifling innovation, for instance KOS’ policy is to make teams collectively responsible for projects. This implies that nobody is hanged in case of failure. KV employees discovered the advantages of risk sharing when encountering American work culture in the North Sea. ‘The Americans, and particularly the Texans, were obviously prisoners of their own system’. The personal consequences involved with failure in American corporations induced a behaviour that was basically preoccupied with protecting themselves and their jobs, in other words defending established practices. The resultant outcome was, in the eyes of the Norwegians, an archconservative approach to innovation.

Nevertheless, KV used to be a traditional, hierarchical industry company, and in adapting to New Economy the units have been in a state of continuous change. In 1997 Kongsberg established a new main organizational principle: the decentralization of decision-making and functions. Changes in the work organization have been supplemented by a break down of the social division of the work force. All employees are enjoying the same working hours, and the same sort of employment contract. To the extent that changes in work organization changes involve autonomy and broad participation, it represents an increased democratization at the work place level, but it has also implied more stress for many professional groups.

The transformation has involved a change in internal skill and role matrices leading partly to layoffs and partly to hiring new workers in order to recombine employees. Layoffs and recombination have also been driven by the ‘make-or-buy’ dilemma. Kongsberg started to outsource activities, and to buy standard products and components when possible. This has been particularly felt in manufacturing part of the units’ operations. Within ten years the number of employees directly engaged in production processes was halved. The trend towards focusing on engineering as a core activity has persisted. By 1998, 59 per cent of the work force consisted of engineers/technicians with a secondary or tertiary education. In 2006, the share of engineers and technicians had increased to 72 per cent of the total work force whereas operators accounted for only eleven per cent (Annual Report 2006). In average the share of employees with a tertiary education in Kongsberg firms is 61 per cent (Oxford Research 2006).

In addition to layoffs, the work organization has gone through considerable changes. In the manufacturing part one transformation has involved the cross-over from universal production to production cells and to data-based steering-systems. At the same time as operators had to adjust to new technology they were faced with continuous and increased pressure to improve productivity in order to be more cost efficient. The local trade union described the transformation to have been tough, but, in line with the overall policy of the Trade Union centrally, the local 'club' participated and cooperated in changes (Dahling 1996). KA has been most consequent in adopting lean principles, and a relentless work based on lean mixed with the Kongsberg way in its human resource strategies has enabled the enterprise to attain a unique position in various value chains. But it is a common feature in all the units that the role of the 'club' has decreased in pace with globalization processes. Regularly discussions and meetings about work take place as a part of organizational practices rather than by the 'club'.

With increased interaction across all sorts of boundaries together with the creation of virtual work organizations the issues of team building and communicating has intensified. Some units consider these issues to be the greatest future challenges. Kongsberg has a reputation for successfully combing teams, and management has dedicated attention and resources to secure their functioning. The company has even initiated its own education in project organization. The team leader picks the co-workers, and this has been possible in a situation where 'everybody knows everybody', but in a situation in which the company has grown internationally established organizational practices are constantly challenged.

A few years ago Kongsberg devoted a lot of work to understand conditions underlying collaboration in projects. A method of story telling was used to identify relevant experience. The lessons from these exercises were codified and taken back to the organization. A method for monitoring cooperation and learning in projects was subsequently developed. Kongsberg considers the potential for learning in cross-divisional projects and in customer-supplier relations still to be high. It is an issue how to systematically learn across business units (Annual Report 2004).

Practices in project work have likewise been subject to alteration and new tools have been introduced to improve efficiency and quality such as bench-marking and 'best practice'. To ease cooperation several types of data systems are used, one being to increase the visibility of

co-workers knowledge and experience across the entire organization. To improve software development the company has introduced the Capability Maturity Model (CMM), the world most used tool for process improvements. In project work iterative development is employed which allow the teams in a pragmatic way to monitor and assess each phase of a project as well as its totality (Annual Reports, interviews).

Currently Kongsberg is experimenting with creating improvements with ‘agile’ methods. This experimentation is linked to a national project, and is tested in Kongsberg Spacotec to improve software development. The method is based on employees working in 30-days cycles with 15 minutes project meeting every day, and a four-hour meeting every month that is also attended by the customer. The system allows swift responding to any changes ordered and to deliver accordingly rather than in accordance with contract specifications. Currently, this method is used in two pilot projects, one being the modernization of NASA’s ground stations, and the other an in-house product development project. The method increases the visibility of participants and facilitates communication. It focuses more on results rather than methods, and is based individuals’ action and the interaction between them. Another important dimension is the principle that change are normal and that participants can make changes into a useful process (Annul Report 2006).

Education and Training

For managing their talent pool, all the units are making considerable investments in the further education and training of employees. As indicated above, employers in Norway can to a lesser degree than employers in the other Nordic countries benefit from active labour market policies. Thus, in Norway employers and employees are sharing risks to upgrade the work force for enabling firms and employees to experiment and innovate.

In the Kongsberg units education and training strategies include all sort of employees and are based on a ‘life-long learning’ perspective. For instance, at Kongsberg all new employees receive a six months training programme at the beginning of their engagement. Engineers are trained at Kongsberg whereas operators receive on-the-job training. The company has a programme for active searching management talents and run tailor-made management development programmes. In 1998 the company established the Kongsberg School, an initiative to map and develop the company’s knowledge and competence.

KA introduced a trainee programme in 1994 targeted at tertiary educated engineers. Today this is run on a two years' basis providing the trainees training in all functional areas as well as international training. In 1995 it started systematically to map all employees' competences. At the same time they started compiling expertise requirements for different positions and comparing them with the employees' profile. In case of disparities, these are rectified with training measures. Employees' competence profile is also used for evaluating future need of competence. On the basis on such evaluations the company construct development programmes, which are partly obligatory partly facultative. Training is also linked with remuneration in order to encourage employees to develop their skills and creativity. This is a measurement to support KA's belief in principles of delegation and personal responsibility. As the CEO puts it 'you cannot be world champion without feeling confident'. KA sets individual targets and standards for all employees and in return provides the employees opportunities and support for mastering their own job and for reaching their own personal career goals.

FMC is pursuing an Annual Performance Appraisal which is used both to evaluate and map the company's competence and to develop career development plans for the employees. Employees are offered further education support and scholarship schemes. To further competence upgrading the company is practicing job rotation, trainee schemes and buddy/mentor schemes. Dresser-Rand is also encouraging employees to use the firm's fully paid tuition reimbursement programme for continuing formal education. It offers internal training provided by external experts as well as the attendance of professional development programmes world-wide.

A large part of training and education takes place as internal activities, and to the extent that external providers or courses are used, this kind of interaction takes place less with the national education system than with international providers. As KA puts it 'knowledge acquired at school is considered to have a 'shelf life'. The Kongsberg companies have for a long period of time pointed out that the educational programmes delivered by the local college have not matched their need of qualifications. As pointed to above, Norway does not have a well-developed VET system and companies like VAN has to train operators themselves. However, interaction with a part of the higher education system is about to change as a result of the introduction of the master programme in system engineering at the local college.

The creation of institutional complementarities at the local level

With approximately 23 000 inhabitants Kongsberg is a small town. It is situated in the interior of southern Norway, and it is a sort of contradiction in terms that a world leader in subsea systems is located in the middle of a forest. Location represents a common challenge for the Kongsberg units. It represents a disadvantage as to customers, competitors, sub-suppliers, research and educational institutions and labour markets. The most important reason for sticking to Kongsberg is that firms share the same basic knowledge and the culture. The Kongsberg culture provides managers and employees with a distinct identity and approach to cope with challenges. They also share a unique understanding for industrial development by Norwegian standards. The cooperative mode that characterized KV has been sustained by the successor firms. Cooperation takes place both formally and informally. After the dismantling of KV company representatives started cooperating also with the municipality. The local public-private partnership, largely initiated by the enterprises, has resulted in the creation of a large number of institutional arrangements for supporting both business and the development of the town.

The first common project was the establishment of Kongsberg Chamber of Commerce and Industry. One of its first tasks was to support business activities internationally, but over the years its mission has been expanded to support local development more generally. An overarching goal for public-private partnership projects has been to make Kongsberg an attractive place to work and live in. Until the late 1990s it was easy to recruit additional work, but since that point of time recruiting and retaining competent co-workers have become a major challenge. In the search of strategies to solve this problem the firms and the municipality have co-designed a large number of institutional arrangements. Two main strategies have been pursued.

The first strategy involves the improvement of public and other civil society services such as housing, public health service, the building of a new highway - financed by the companies, improving shopping facilities, financial support of cultural activities, the establishment of an international school for the children of employees from abroad, and a day-and-night kindergarten. The Chamber is also offering a tailor-made programme for expatriates and their families in order to make the transition to Norway as smooth as possible. The programme includes all sorts of practical counselling including dual career support and language classes.

The second strategy includes the creation of an attractive and innovative business environment in order to attract new firms and support start-ups. A diversified and dynamic industrial community is considered imperative for attracting the most competent and talented work force. The Chamber of Commerce and Industry facilitates networking between large and small firms and provides cross-sectoral meeting places. Such arrangements include an annual Technology Day, and a forum for CEOs of large companies and small companies respectively. Courses and study trips are arranged, for example to Brussels in order to get to knowledge about business opportunities within the EU area. Kongsberg Innovation has been created for supporting start-ups of innovative enterprises and it co-operates with entrepreneurial groups all over the country. This service institution offers varied support such as counselling, links to funding institutions, technology, equipment etc.

Joint efforts have paid off and today there are more than 100 firms located at Kongsberg. As to future development there are, nonetheless, several gaps to bridge. Public-private interaction has been characterized as a learning process, particularly from the part of local civil servants. Before 1987, KV and the municipality had lived completely separated. Understanding the need of having profitable business was quickly learned. Yet, after a couple of decades of interaction the contextual rationality of global companies is hard to understand for local servants, and occasionally causes some rubbing in developing facilities that can further attract firms, entrepreneurs and employees.

Most recently firms' struggle for 'brains' has become increasingly more salient. For instance, to ease recruitment both Kongsberg and KA make use of their offices in India for outsourcing tasks to Indian engineers. But to secure relevant competence locally, the firms are also making use of national programmes. By being designated one of six National Centres of Expertise, the Kongsberg companies in cooperation with the regional college are using this development programme to run a master programme in system engineering. The aim is to expand the education in system engineering to include a doctor programme. This cooperative arrangement represents a new turn in the relationship between the Kongsberg companies and the local education system. Until recently the companies considered the local education provider incapable of providing the students with a relevant and qualitative acceptable education. To secure a qualitative educational programme the local college is cooperating with Stevens Institute in the USA. The next step on the regional college's agenda is, in

cooperation with other higher education institutions, to jointly expand and achieve the status of university. The plan is supported by regional politicians.

In fact, the fight for the establishment of local universities has constituted a platform for local collaboration in many regions. Different forms of public-private partnerships have emerged in which politicians, business people, and representatives of higher education institutions have joined forces to further economic growth and the creation of jobs. The decentralization of the public governance system together with reforms of the higher education system has opened up for local initiatives and triggered a process of ‘academic drift’. This kind of public-private partnership has been particularly prominent in Rogaland, in the south-western part of the country. Here, local interest groups jointed forces early onto have a regional university established. Interestingly, the regional initiative was contrary to the intention of central authorities that wanted to restrict the number of universities in Norway, and maintain the dual structure of higher education (Moen, Maassen and Stensaker 2008, Gammelsæter 2002). Despite resistance from central authorities, the regional interests won through. Other regions have followed suit. In several other regions all over the country similar public-private partnerships are emerging to boost economic development through reforms of the higher education system. Also in traditional manufacturing districts like Grenland in Telemark initiatives are taken to start cooperation between industry and higher education institutions in order to secure competent work force to facilitate the renewal of business.

In the Rogaland area the cross-sectoral initiatives has resulted in increased cooperation between business and research institutions. Currently this region has the highest export share of all the regions in Norway. A large part of the activities are linked with the oil industry in Stavanger, but the industrial growth occurs in multiple sectors. Consequently, local interest groups are claiming more influence at both the national and regional level for being able to better tailoring political measures and the use of institutional resources, thus reflecting the traditional centre-periphery cleavage. Typical topics are the decentralization of research policies and increased investments in infrastructural means and transportation. Tensions between the centre and the periphery are spurred due to the former’s failure to prioritize other areas within economic policies but macro-economic regulation.

Complementarities of local and national dynamics

An emergent trend in various local initiatives is that local institutions are linking up with national level institutions and programmes. For example Kongsberg Innovation is partly financed by Innovation Norway, the main national policy tool for facilitating and financing innovation, and SIVA, a national policy tool for providing infrastructure. The Research Council of Norway supports the Chamber of Commerce and Trade in its national level arrangements, and some of the Kongsberg units are also participating in some of the Research Council's research programmes.

Kongsberg's participation in the National Centre of Expertise programme is also signalling the need of cooperation with and support of national level institutions. This programme was initiated by the Research Council of Norway, Innovation Norway and SIVA jointly to boost regional development through industry and research cooperation in 2006. Six regional centres were chosen to participate in the programme. The Kongsberg units are participating in four of the six centres. Kongsberg in Instrumentering Trøndelag, KOS/FMC in Subsea Hordaland, Kongsberg in Microsystems Vestfold, and KA in Raufoss specializing in aluminium and plast composites in addition to their own System Engineering. The financial support to the programme is rather insignificant, but it provides an opportunity for establishing and extending cross-sectoral cooperation. In addition to a large number of companies, research institutions and higher education institutions, regional and local authorities are participating in these cross-sectoral horizontal networks.

Given the compartmentalized nature of the Norwegian business system, this kind of strategic cooperation represents a novelty. Only occasionally have inter-firm interaction let alone cross-sectoral interaction taken place. Beside the horizontal collaboration that evolved in relation to the technology programme in the postwar period, the maritime cluster in the north-western part of the country, Møre, and the automation/robot cluster in the south-western part, Jæren, can be counted (Andersen 1997)

However, may be the most prominent example of cross-sectoral cooperation is the communicative corporatist arrangement that evolved in relation to the offshore sector. As stated in the preceding, it is this type of cross-sectoral coordination that has enabled Norwegian offshore technology to rise to global leadership. To remedy the situation on the Norwegian shelf after the oil price shock in 1986, the Minister of Oil and Energy launched a

cooperative project called NORSOK (The Competitiveness of the Norwegian Shelf). The aim of the NORSOK programme was to encourage search for technical and organizational solutions that could attain acceptance for all relevant groups, and to develop interaction patterns that induced efficient and mutually beneficial routines and procedures. In practice the programme aimed at removing technological conservatism attached to the Norwegian style that had become a problem in its own right. Apparently the NORSOK initiative failed. Developing technical standards that everybody could agree on proved to be a futile project.⁶¹ However, the communicative interaction that took place within the framework of the NORSOK programme became important in the long-term perspective.

The members of the programme were oil companies, supplier and services firms, industrial federations, employers' and employees' organizations, and Norwegian oil authorities. It had the structure of a tripartite corporatist arrangement, but in contrast to the traditional one it replaced, the constellation of actors developed different rules of the game. A more open culture was created, and through continuous interaction to solve common problems actors' mind-set changed. The attitude of 'we are the best in the world' was done away with as was the distribution game. Instead the focus was directed towards innovation. The Norwegian oil authorities assumed a general responsibility for the future development of the national oil sector, and they came to the understanding that technological development was imperative. Since the Norwegian oil companies enjoy considerable prerogatives, they are sensitive to the authorities' objectives. They were thus willing to enter on protracted joint development projects with the supplier industry, as shown above. Through these arrangements the foundation for continuous innovation and technological development was made. Through such arrangements, in which the Norwegian state, the oil companies and the supplier industry share risks, the Norwegian shelf was turned into a sort of experimental laboratory. But in fact, the state is carrying a large part of risks since oil companies can deduct expenses linked with operations from their taxes (Olsen, 1989:151, Engen and Olsen, 1997:165-66).

The three Kongsberg units that target the offshore market have benefitted from the explorative orientation that emerged on the Norwegian shelf in the mid-1990s. A contrasting example is the jet engine business. The development of jet engines is highly resource demanding and extremely protracted. They are highly complex products and require the most sophisticated

⁶¹ As demonstrated above, standardization won through due to KOS' intervention.

technologies, but the degree of sophistication makes this type of industry an attractive component in a national research and innovation system. Projects can last 10 to 20 years. For this reason technological development depends on defence contracts or offset agreements. The dismantling of industrial policies in Norway together with heavy cut backs in defence has strongly impacted on VAN's business opportunities and growth. The Swedish owner's points of view on investment in Norway are illustrative of the non-support economic policies in Norway. For Volvo Aero it is less attractive to invest in VAN than in its Swedish facilities due to lack of governmental project financing in Norway.

5. Synthesizing the distinct dynamics of the Norwegian business system: possibilities and limits

Like the other Nordic countries Norway has been persistent in maintaining and further developing a welfare state. Educational policies and policies to integrate all sorts of social groups into working life have resulted in a high participation rate in the labour market. First and foremost this concerns the participation rate of women. Today seven out of ten women are participating in the labour market in contrast to eight out of ten men (www.ssb.no/arbeid). Norway is also among the countries in the world with a population with the highest share of tertiary education, and certainly the provision of a highly educated work force and unemployment benefits have provided the business system with risk sharing mechanisms that have been of importance in periods of business renewal.

But despite her substantial investment in human resources, Norway lags the other Nordic countries as to her degree of economic integration in the New Economy. Judging from the core of the Norwegian economy, the country appears to be out of pace with global development trends. After the turn of the century the petroleum sector has accounted for almost one fourth of her GDP and more than two-thirds of total commodity exports. Within the OECD area there is no other country that depends to such a degree on the exploitation of natural resources. Norway's industrial base has contracted strongly since the 1970s.⁶² At the same time the country has failed to formulate and implement strategies for the upgrading and expansion of her industrial base. On the contrary, when new technology – the digital revolution – took off

⁶² Since the 1970s Norway has experienced a strong industrial decline. Today manufacturing accounts for only about 9 per cent of value added. This share constitutes the lowest percentage in terms of industrial production within the OECD area (OECD 2007). Manufacturing is on the decline in all western countries, but Norway is alone in experiencing an actual decline in total manufacturing output (Andersson et al. 2004:37).

and increased competitive pressure started to become salient from 1990 onwards, Norway actually cut back her investments in R&D. Her investment of 1.6 per cent of GDP, places the country well below the OECD average let alone the 3 per cent goal set by the Lisbon agenda – that Norway in rhetoric has adopted as a policy goal.

Considering efforts the other Nordic countries have made to trigger transformation processes - whether it is about a robust innovation system as is the case in both Finland and Sweden or active labour market policies as is the case in Denmark – it is relevant to link Norway’s slow adaptation to the priorities of her economic policy. Whereas the other Nordic countries have widened their priorities to include innovation and active labour market policies, Norway has largely failed to do so. Since the country is currently enjoying a high degree of economic success in terms of her macro-economic situation, high growth rates, and exceptionally low unemployment, there are few if any open incitement for changing her economic priorities.

Yet, there are trends suggesting that the Norwegian economy is becoming increasingly integrated into the New Economy. These trends are emerging in the peripheral part of the economy and there are a number of cases showing that Norwegian players have ‘passed the market test’ and have reached world class level. But to the extent that local players have been able to integrate into global value chains, they have been able to do so in the first place by making use of accumulated knowledge and skills and in the second place by sharing risks with employees, other firms and local institutional arrangements in order to reach their goals. A motive force for forming public-private partnerships is a shared concern of local development. Such concerns converge in business’ need of a more competent workforce and communes and regions’ need of creating new jobs. Thus, this kind of partnerships have resulted in bottom-up initiatives for reforming public institutions locally, in particular the higher education system, to fit local needs. To the extent that the tailoring of institutional arrangements are enabling managers and employees to cope with challenges, new institutional complementarities have emerged.

The case is that in Norway such complementarities have emerged in opposition to the dogma of the economic governance regime. Cross-sectoral initiatives have taken place bottom-up in order to compensate for lack of central initiatives to further renewal by introducing new risk sharing mechanisms. Whereas public institutions in the other Nordic countries are reformed to support and co-evolve with business renewal, in Norway it is business that often has

initiated and released reform initiatives. Given Norway's substantial investment in her education system, it is paradoxical that measures taken bottom-up particularly concern educational issues. Apparently, there are several gaps in the Norwegian education system as to enabling firms and employees to cope with the challenges of the New Economy.

That there is a gap as to a functioning VET system and lack of Lifelong Learning can be justified through companies' in-house educational strategies. But in a business system perspective this represents a limitation since further education and training is restricted to those who are employed. In a business system perspective the failure to develop risk sharing mechanisms between the private and the public sector reduces the capacity for creating a dynamic, diverse and skill based labour market. This pertains particularly to people with a low level of education and unemployed. Despite substantial investments, policies have failed to secure the quality of education for all social groups, just like many other western industrialized countries. Typically, Norway scored badly in the PISA studies. The failure to secure the quality of education has led to an increasing number of drop-outs from the school system. Most of these are boys later found to receive disability benefits in their twenties. Young people and in particularly young men with low education thus fail to be integrated into the labour market. Instead they are becoming members of the increasing group that are receiving social benefits. In 2001 this group numbered 700 000 and by 2006 it had grown to 800 000 despite attempts to stop it from growing.⁶³

Recently a national level study shows that the Norwegian education system is out of pace with the requirements of working life. Although the dominant pattern of knowledge generation in business can be said to be a typical Doing, Using, Interacting (DUI) mode, the fact that private companies are increasingly funding professorships to national level universities could be an indication of a mismatch between the providers of higher education and business' needs. This affects the public research system as well. The fact that Norwegian research communities are failing to be ranked among excellent communities internationally could be an indication of failed research policies. In a recent European ranking of excellent graduate programmes of various sciences, only biology at the University of Oslo obtained the

⁶³ To secure a better coordination between health, social and labour market services in order to provide better and more 'taylorized' services for the people, the parliament decided in 2006 to merge the states bodies managing these activities. This major institutional reform is to be implemented within a three years period from 2007 to 2009.

status of excellence (www.che.de). In this perspective the high ranking of the Norwegian biotech cluster is not an accidental outcome, but related to horizontal collaboration between business and academia.

The maintenance of the centralized system for wage bargaining likewise lacks incentives for boosting the upgrading of competences and innovation although the system has decentralized a part of negotiations. Based on a model developed in the 1950s, it sticks to the logic of process optimization and capital investments as key inputs. Not even its solidarity argument for keeping it up proved to be a success. Among the Nordic countries the wage difference has increased strongest in Norway. Whereas the richest groups' share of incomes steadily declined throughout the 20th century, this trend has stopped. On the contrary, since 1989 the richest groups' share of incomes has increased (www.morgenbladet.no 2.5.2008)

The question to ask is whether dispersed decentralized initiatives suffice to provide firms and employees with the necessary support to maintain and widen their positions globally on the one hand, and to create sufficient knowledge concentration on the other. Recent attempts to strengthen the links between the national and the local level might be an indication of the limitation of decentralized initiatives. Participating in several newly created national centres of expertise as the Kongsberg business units are doing could be an indication of this limitation. Their investment in in-house R&D could be an indication of the need of competence upgrading beyond the open mode.

Another question relates to the peripheral parts' capacity for transforming the national business system on a broader basis. The case studies as well as other known cases demonstrate that Norwegian players are skilfully adapting to the New Economy. Nevertheless, knowledge intensive industries' share of total gross value added is still small, and its share is far smaller than the ones in Sweden and Finland and even in Denmark.⁶⁴ In fact, as to the share of knowledge-intensive industries Norway is ranged close to the bottom among the OECD countries. Typically, of 900 start-ups in Norway only 15 was classified as high tech companies (OECD 2007a, Herstad and Nås 2006, Andersson et al. 2004). Given

⁶⁴ Exports of high tech products from Norway account for 3.5 per cent of total exports as opposed to 13.8 in Sweden, 17.7 in Finland and 13.1 in Denmark (The Research Council of Norway 2006).

Norway's strongly contracted industrial base and strong mono-cultural economy, it is facing a real challenge as to become a 'full-fledged' economy.⁶⁵

⁶⁵ Since the 1970s Norway has experienced a strong industrial decline. Today manufacturing accounts for only 9 per cent of value added. This share constitutes the lowest percentage in terms of industrial production within the OECD area (OECD 2007). Manufacturing is in decline in all western countries, but Norway is alone in experiencing an actual decline in total manufacturing output (Andersson et al. 2004:37).

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Chapter 5

The Demise of the Swedish Model and the Coming of Innovative Localities?

Christer Peterson

1. Introduction to the Swedish Case-study

For elaborating the diversity of national business systems in the Nordic countries and for detecting nationally specific dynamics of change in the current period of globalisation, Sweden is a difficult case. This is because the Swedish economy internationalised very early due to a number of brilliant innovations and developed the most diversified economy among the Nordic countries. This multitude of sectoral variety, experience of global competitiveness and the long history of industrial competence accumulation provide potential platforms for renewal. Such multiple resource-bases can at the same time through contradictory mechanisms stimulate developmental paths and patterns in contrasting directions.

1.1 Some characteristics and development paths on the national level

Sweden was by the mid of the 19th century an advanced nation with many modern institutional elements in her economy and was therefore well prepared for the emerging industrial epoch. The exploitation of natural resources continued, and during the next decades a number of brilliant innovations became platforms around which national champions and world class engineering enterprises were to be built in the future. The year of 1932 would start processes that would provide the business system with new characteristics, which still are fundamentals: The social democrats won the election, developed a corporatist regime resulting in a universal welfare system financed through a high level of taxation.

By the beginning of the 1970s, Sweden was positioned as third richest country in the world, ranked according to GNP per capita with 15 percent over the OECD-average.⁶⁶ However, this decade became “the decade of industrial crises” in Sweden. The growth decreased in all industrialised countries but struck Sweden more than comparable countries. The first oil-crisis years caused a deep recession and stagnation during more or less the rest of the decade.

⁶⁶ Purchasing power adjusted, Nilsson, 1998, p. 28.

During the first years of the 1990s, Sweden was struck by an economic crisis, which was the deepest during the whole post-war period; it resulted in large fiscal imbalances and a very high unemployment. (This crisis also struck Finland with even a higher unemployment rate while Denmark was struck somewhat earlier and less dramatically). Sweden had now dropped to 18th position, six percent below the OECD-average. In the mid of the decade, Sweden became a member on EU, however voting No! to Euro. A number of big companies, like Ericsson, moved their HQs abroad. Also, it was obvious that Sweden was lacking small- and medium-sized companies (SME). The productivity of the Swedish business system was really questioned. However, fifteen years later Sweden has recovered and is now in the forefront in a number of industries. Sweden's (and other Nordic countries') financial markets are open to the world, the Nordics have developed a reasonably well-functioning system of corporate governance, and in the corporate sphere they have produced a disproportionate number of world leaders, not Sweden the least.

1.2 Research design, empirical field and research questions

As underlined in the introductory chapter of this book, the purpose is to develop a dynamic middle range theory of change of the Nordic model. Consequently, the overall objective of this Translearn-study is to identify differences and to detect unique mechanisms of change in each of the Nordic national business systems “under the effect of globalisation”. For detecting such nationally specific dynamics of change, Sweden is a difficult case. This is because Swedish industries became global players long before its Nordic counterparts. The long history of break-through innovations creating several competence blocs, provide rich platforms and potentials for renewal. From the societal point of view, when talking about the Nordic model as a holistic ideal type of institutional complementarities, Sweden has been the example mostly used, often taken as the epitome for it without further elaboration.

The special task of this chapter is to report of the search process through which we have tried to identify distinctive aspects of the dynamics of change in the Swedish case. Therefore, we have chosen to study the county of Västernorrland, which has described the most negative change in population in Sweden in the period of 1951-97. More precisely, we have chosen the eco-system of Örnsköldsvik, which hosted the European forest industrial giant MoDo. What makes this community interesting is that it represents a case of negative development, which has succeeded in turning around to a positive one. What makes the company interesting is that it represents a case in a peripheral part in the north of Sweden that has been a pawn in the

globalisation process.⁶⁷ Firstly, this town has had a long tradition of being dominated by a forest industrial company. This has of course, for better or for worse, created a special regional culture and “mental pictures” in the county. In 2000, important parts of its operations located in the community were acquired by a Finnish-based paper industry company. Unfortunately, this company had expanded too fast, and started to make losses soon after the acquisitions, which jeopardized the local knowledge intensive operations in Örnköldsvik. In fact, the MoDo Group was one of the leading Swedish-based forest industry companies and is today prospering under the corporate name Holmen AB⁶⁸ after a very complex restructuring and downsizing process driven by the globalisation of the whole industry. We have chosen as focal unit the renowned R&D-concentration at MoDo. The motivation for this type of focus is that this interdisciplinary competence bloc has been restructured due to the global drivers, and furthermore, Sweden is in fact at the very top of the world rankings when the percentage of R&D-investments of GNP is rated. The question related to this context is: *What is the leverage of high R&D-intensity concerning new business development and through what kind of organisational, institutional and social mechanisms are the R&D-input turned into business relevance?*

Secondly, to avoid being biased and choose a “thriving region”, we have on the contrary chosen an eco-system where new knowledge intensive entrepreneurial initiatives are *not* obvious under present stage of globalisation. Örnköldsvik is a town in northern Sweden, with about 60 000 inhabitants and located 600 km north of Stockholm, however positioned along - with northern measures - the dynamic Bothnia coastal strip. The question related to this context is: *What kinds of internal and external competences and resources have contributed to the community revival, and what does it tell about the Swedish business system concerning the institutional resources available for local actors in a peripheral industrial town?*

According to the overall purpose of this Translearn-project, the analyses should provide empirical data for cross-national comparisons between the Nordic countries and Slovenia, as to the following types of research questions: *Are there differences as to the types of institutional resources that regional and local actors could use when conducting their eco-*

⁶⁷ In the north of Sweden, the northern region etc. (in Swedish ‘Norrland’) refers to the five northern counties covering 58 percent of Sweden’s surface, with abundance of ore, forest, and hydroelectric power, the classical components of which Sweden has built its welfare (Norrländsk uppslagsbok).

⁶⁸ <http://sv.wikipedia.org/wiki/Holmen>; 2008 02 24

system? What do the analysed decentralised experiments imply for the study of national business systems and especially for their dynamics of change under globalisation?

This type of methodological approach means that the explanatory mechanisms are based on several causal effects that are highly embedded in the local and national contexts and in the history of the Swedish national business system. Also, the methodological approach implies that the explicated explanatory mechanisms cannot be generalised to other contexts. On the other hand, the uniqueness and richness of the explanatory mechanisms provide inspiration and intellectual tools for institutional innovations in other contexts.

1.3 Disposition

In the next section we will present distinct features of the Swedish national business system. By that we highlight some unique historical aspects that have facilitated a developmental path that differs from those of the other Nordic countries. The third section is devoted to, firstly, the historical background of MoDo's renowned research laboratory. Furthermore, MoDo had already from the mid 1980s on gradually through acquisitions expanded to a European giant. Parts of this company were acquired by Finnish Metsä-Serla in year 2000; due to several shake-ups the laboratory was transformed into three R&D-intensive service business organisations. Finally, these organisations were through entrepreneurial initiatives, special processes and reorganisations at the Finnish owner, organised in independent companies, which are followed as mini-cases. Secondly, we will describe Örnköldsvik community as an eco-system, which was struck by the stagnation of the mature pulp and paper industry. We will illustrate the rise, decline and revival of this eco-system as a sort of a third mini-case. Thus, the historical background of the mini-cases, its characteristics and event histories are first described. Then we depict the emergence of the outcomes in terms of events and processes, and for the community the awakened Sleeping Beauty, which all is in need of explanation.

In the fourth section we are synthesizing the sediments and dynamics of the mini-case outcomes. This is done by further discussing identified characteristics, mechanisms and phenomena. Even though our choice of empirical field (company, municipality and their renewals), and the holistic narratives of the units we analyse, set the frame of our report and restrict our possibilities to making inductive inferences, the nature of the use of institutions, its changes and complementarities in the Swedish case is revealed and elaborated through the

explanatory mechanisms linked with the outcomes of our mini-cases and their interrelated dynamics. Finally, in section 5 we will discuss in what extent the new business formations we have revealed are representative for the new Swedish national business system.

2 Characteristics of the Swedish national business system

In this section we describe in short terms the Swedish development from the emergence of 'Industry Land Sweden' over to a modern industrial nation, and by that the establishment of the Swedish national business system. One of the dominating institutions in this system has for a long time been what is usually called 'the Swedish Model'. The Model is deeply embedded in the Swedish society and has functioned as a "basic chord" since decades.

2.1 Innovations as platforms for building the 'Industrial Sweden'

Stora Kopparberg (today a part of StoraEnso) is supposed to be the oldest company in the world still operating. It was founded in 1288 and its copper mine history is regarded being the principal representative of the early Swedish business system (Sjögren, 2008). Sweden was during the 1820s still a poor country but had by the mid of the century developed into an advanced nation with many modern institutional elements in her economy. Thus, the country was well prepared for the new industrial epoch, which soon was to come by a continuous exploitation of primarily iron and forest products, and gradually hydroelectric power; the three classic components, which were to build up the nation's welfare during the next 100 years.

The break-through of the engineering industry around the turning to 1900 is an important evidence for Sweden having reached an industrial maturity. This "industry of industries" is some kind of a base in a nation's industrial system and creates its own growth through its own demand. A number of these engineering enterprises were built on innovations from the 1870s and 80s. Today they represent competence concentrations and provide rich platforms with intrinsic potentials for renewal. Sweden hosts for instance clusters around ABB's Swedish part (former) ASEA (transmission), Ericsson and other ICT-businesses, Astra and Pharmacia (medicine), Volvo, Saab and Scania (vehicles), the forest and ore and mining operations. These clusters are not only positioned in the metropolitan areas but are spread all over the country and are therefore bringing about a regional economy dimension. Some of them are even marketing themselves as "dynamic areas" to draw investors to the region. Thus, during

the 90-year period up to 1910, Sweden had described an exceptional economic development and had undergone a dramatic transformation; it was now teeming with activities and was world leading concerning many important industrial goods. At the outbreak of WWI, the Swedish living had reached the highest standard after maybe the fastest growth in the world (Olsson, 1993, p. 52; Myhrman, 1994, p. 102). Gunnar Eliasson (2007, p. 220) describes this development as a 60-year period (1860-1920) of Silicon Valley example during which a New Industrial Sweden was created. During that period 17 out of 32 of the largest Swedish manufacturing corporations of today were founded.

Also, when deciding to enter the EU, the traditional goal of full employment was abandoned, and in stead the mastering of inflation became prioritized; by that the Swedish central bank became independent. Consequently, during the 1990s the Swedish capital markets developed to be relatively comprehensive in a European perspective due to the Swedish over-representation of hosting MNCs. Stockholm has got its own “the City” with a strong finance cluster and a stock exchange, which has developed to a central gateway to the Nordic and Baltic financial markets. OMX Nordic Exchange has recently been acquired by NASDAQ and became thus a part of the world’s largest exchange company with operations spanning six continents.

The outbreak of WWI had a stimulating effect on Sweden’s economy by the increased demand on raw material. However, the 1920s showed up two extremes of development: in the beginning a depression combined with a severe deflation followed by bankruptcies, financial and structural crises and stagnating industries; Sweden had been hit by the “the second industrial revolution” and in the end of the decade a boom, which continued into the 30s. The collapse of the US spectacular business cycle in October 1929, and the following Great Depression, reached Sweden in the end of 1930. The year of 1932 would later on show up to be a classic one in the Swedish economic history. The crash of the financial genius Ivar Kreuger’s empire and his death, accompanied of a wave of bankruptcies, was a dramatic event, which had a tremendous impact on the institutional context in the country (Lindskog, 1970). The crash resulted in “a grab-and-scramble meal” among many of the Swedish core businesses, which were “transferred” into different bank spheres. This event structured the ownership and stakeholders in a tight grip, and secured credit relationships and personal networks, which still exist. Also, new bank laws and currency regulation followed (Glete, 1987). However, out of all crises came up something new; the 1920s became also a period of

arrangement of 'development blocs', and foundations were laid to many of the Swedish multinational manufacturing companies of today, preparing Sweden for the expansion to come in the 30s (Dahmén, 1950).

2.2 Sweden - the Middle Way

The social democrats won the election in 1932, which opened a new era in the society leaving sediments for decades to come. The new Government with prime minister Per Albin Hansson started building what was to be known as "the People's home" (folkhemmet) "with room for *all* people, with no darling favourites and no stepchildren and a relaxed atmosphere between different social classes" (Elmbrant, 1993, p. 318). He formed a crises-policy built on a progressive income and wealth tax for equalizing purpose and social reforms, and presented a program for expansion in combination with another depreciation of the currency, and finally, in July 1933, its "nailing" to the British pound, which lasted up to the out-break of the WWII. "The importance of this single event, the nailing to the British currency, has been underestimated" (Rehn, 1990)⁶⁹. However, the whole period 1929-39 became, in spite of the stagnation in world trade and the Great Depression, which hit Sweden "disastrously", actually a good decade in Sweden in international comparison. And in the end of the decade the country's policy was renowned. The concept *Sweden: the Middle Way*, a sufficient combination of capitalism and socialism, was established already in 1936 by Marquis Childs. Thus, Sweden was established as an industrial nation during the interwar period. And again the rearmament in the world gained the Swedish export. The industrial progress, and by that an increasing standard of living created demand of consumer products. The Swedish Model of well-being was emerging, and the development of the industrial systems with its mass production was a basic condition for that. In 1949 the Swedish currency was depreciated with 30 percent; Sweden could now hang on to what would become the second period of the world's trade expansion, and really in earnest benefit by the privilege to having escaped the war; the following 1950s and 60s became extremely prosperous in Sweden.

The parties on the labour market were invited to deliberations by the Government in 1936. However, both parties claimed that they were going to start negotiating by themselves (Hansson, 1942, p. 154). This is supposed to be the real break-through for the negotiations that brought up what is the well-known 'Saltsjöbaden-agreement' between Labour union (LO)

⁶⁹ Quotation based on the author's own notes from professor Gösta Rehn's speech at Umeå University on Feb. 22, 1990.

and Swedish employers' federation (SAF) in 1938, followed by a long period of compromise solutions (Myhrman, p. 139). By this agreement a unique climate of co-operation was created; it kept together the society, gave the industry and trade autonomy without severe conflicts and constituted an important condition for the rapid post-war social and economic development. Encouraged by and in cooperation with the capitalistic sphere, the Social Democratic party developed this concept into a governing model, which is known as the "Swedish model" with centralized collective wage bargaining, sharpened with the "Rehn-Meidner model" from which the so called "solidaristic wage policy" was deduced. This policy aimed at rewarding high productivity firms at the expense of low productivity firms, which were expected to go bankrupt and thereby transfer the labour force to more productive firms in a positive circle. The Government played an active role through imposing increasing taxes, accumulating budgetary surpluses, implementing active labour market and countercyclical investment policies (Henrekson, 1996). Thus, the business system acquired elements that would later classify it as a coordinated market economy (CME).

The reasons why these principles survived several decades were that all social classes, not only workers, had interests in maintaining the Model. It was "a practical and inexpensive method for the right-wing society to clear out its difficulties". The employers were liberated from crises and social revolution, and the employees from fear of pecuniary and lack of social promotion. Also, the Model was not only a social democratic project; it emerged out of a common responsibility from both right and left, from labour and capital. It seemed to be a universal system for welfare and the first alternative in the world to cold capitalism and fierce power competition. This policy, a reformed capitalism, also supported by the non-socialist parties, was a consensus among the Stockholm School economists⁷⁰, who carried out Keynesian ideas before Keynes, and the politicians; they all agreed on the benefits of a stable economy. This Swedish *labour model* emerging in the early 1930s was still functioning up to the legislation of MBL and LAS⁷¹ in the mid 70s.

2.3 End of the Swedish Model?

The highest percentage ever of the Swedish industries' market shares abroad is registered in the mid 1960s, finalising the post-war period of "golden years". Sweden was one of the most prosperous and riche countries in the world around 1970, ranked fourth on the OECD

⁷⁰ The most prominent were Bertil Ohlin, Gunnar Myrdal, Erik Lundberg and Erik Lindahl.

⁷¹ MBL, the law of co-determining; LAS, the law of job security.

purchasing power list.⁷² However, Sweden has lost positions in this list and was ranked number seventh 1980 and 17th in 1997.

The 70s became the decade of industrial crises, which were measured by bridging policies and devaluations as usual. The Model was questioned for the first time, and the election in the mid of the decade became “an SME-election”, which the social democrats lost after having been governing during 44 years. The size of the existing collection of enterprises had a profile of an hourglass with a smaller glass bulb above with “the back bone firms”, an extremely slimmed waist, and a big bulb at the bottom of SMEs and micro firms. Through studies we know that the companies in the bottom bulb were not growing due to lack of financial options, which mirrored the banking system’s priority for big companies, or simply did not find incentives to grow. IKEA and H&M are examples of just a few family-owned firms that have grown out of its “family-suit” during the post-war period. In the beginning of 80s, the social democrats returned to cabinet and devaluated immediately the currency, which in combination with an international boom resulted in a seven year flourishing period. This conserved old industrial structures, and Sweden was therefore badly prepared for the crisis to come in the 90s. Also, the new left-wing Government imposed the so called ‘employees’ funds’ (wage earner funds), which was considered as a huge confiscation of shareholders’ assets and would result in a so called ‘fund socialism’ within some decades. This single event was regarded like firing a broadside against the specific mentality of the compromise thinking in the Swedish Model, and the employers’ federations started withdrawing from cooperation like centralised agreements and representations in different societal organisations. “The Nordic wonder” had come to an end and the social democrats lost the cabinet in 1991. Olle Krantz (2004, 2003) argues that the Model had a negative growth contribution as early as around 1950. His comparison with Finland, which followed Sweden’s institutional arrangements, shows that Finland has not experienced a negative development throughout most of the post-WWII period to the same extent as Sweden. This is due to the fact, Krantz argues, that the Finnish institutional design has more leverage on the business prerequisites, and less on the political and union influence.

This employers’ institutional breaking-up from the Swedish model is supposed to be one of three reasons to the on-going stagnation of the dominating union (LO). The second, structural

⁷² After Switzerland, USA and Luxemburg.

reason is that the classical strongholds for union business, like mills, wharfs, and mines have weakened. In stead a new labour market has emerged characterized by temporary and part time jobs, and a private service sector with small and scattered workplaces. The third reason is an inner, cultural one, created by the unions themselves; in Sweden, like in Europe and other continents, the picture of the Union is a rigid and hierarchic organisation, incapable to renewal with apparent problems “to bring the union ideas and tools into our own time”. Further, fewer are taking part in union meetings, and only half of the young generations are members in LO, and 40 percent are voting for other parties than the social democrats. However, Sweden and Norway are still clinging to a political interaction, whereas unions in Europe in general have broken up from that kind of corporatism (Sahlström, 2008). On average Swedes are staying by their employers twice as long compared to the Danes. This behaviour holds, however, only for people with a weaker position on the labour market, while well-educated younger people are moving around. Also, to a large extent they have not joined the unions; they are not, like their parents ideology committed, and do not simply see the benefit, and a big portion is even unsecured against unemployment. It is obvious that the globalisation has caused a displacement of power between labour and capital, and by that changed the conditions for union operations and the cooperation with the employers’ federations. However, these two parties on the labour market still think that it is their task to adapt the rule system to the working life’s new conditions. And all parties in the Parliament have stressed the importance of defending the Swedish Model of collective agreement in relation to EUs rules of free movements. Therefore, the parties have started discussions how to reform the famous principle agreement from 1938, which has been the fundamental in the Swedish Model, and still is the pillar for consensus and mutual understanding in the Swedish business system.

By the beginning of the 1990s, Sweden had full employment. Suddenly however, Sweden was thrown into a real estate crisis; a ‘property bubble’, which developed into a severe bank crisis forced the Government to establish a ‘bank emergency’. The bank crisis in combination with a general international recession caused the whole Sweden a severe industrial crisis, which also was followed by a political one. Again, these crises brought up shortcomings of the Swedish Model: not only the housing but also the whole public sector seemed to be too much subsidised; the industrial Sweden was dominated by a ‘big company-perspective’, while labour and financing reforms for SME had been neglected, and earlier crises had been measured by the typical Swedish Model ‘economic engineering’. Further, Sweden was not

considering to joining EU, and had voted for phasing out nuclear power by the year 2010. Simply, the Swedish institutions were regarded being uncompetitive, and the fact that 47 HQs belonging to the Swedish national champions and well-known brands were moved abroad during the period 1997-2001 was just one evidence for that. Moreover, Swedish companies were implementing huge outwards flow of FDI's in Europe, for instance our case, MoDo, developed to a European giant through acquisitions (Peterson 2001). The Swedish Model was really doubted, and in order to start restoring the Swedish institutions, the social democratic Prime Minister applied for membership in the EU in the beginning of the 1990s. So, in 1995 Sweden became an EU-member, though voting No! to Euro in 2003.

All governmental regulations after the WWII had hindered an organic renewal in industry and trade. Taxes were raised "to confiscation heights", and the inflation caused "a gigantic redistribution of wealth from innocent to system smart people"; all became dependent on the state. The Government could through its Central Bank and Ministry of Finance, currency and bank regulations and pension funds control the whole capital market. The political purpose was to favour the public sector and the housing construction. And this regulation policy became "a double burden" by first smothering the growth of SMEs, and then cause "devastating adjusting shocks", when the deregulation started during the 80s. This resulted in the crisis in the beginning of 90s for which the then retiring Minister of Finance, K-O Feldt, and the then head of the Central Bank are responsible. The market liberalisation was done decades too late, and was implemented in an order, which brought the country down in crises. It was "a financial ice age with long-term consequences" and the main explanation to Sweden's drop to 17th ranking on the OECD purchasing power list (Jonung, 200x). Feldt defended himself against this criticism in a TV-program⁷³ and stated that the 60s and 70s brought about huge labour removals from sparsely-populated area to in the first place the Stockholm-area with housing shortage as a consequence; this led to the political decision to start building one million new apartments ("the million program") from mid 1960 and ten years onwards. This requested low interests as the living was to be subsidised, which in turn requested regulation. At the same time we had the objective of full employment: no one should be unemployed, which was strongly ideologically rooted. This led to inflation during

⁷³ Chanel Access 2007 12 09; Editor Niklas Ekdal, professor Lars Jonung, professor Magnus Henreksson, Kjell-Olof Feldt, social democrat, former Minister of Trade respectively Finance 1970-90, Sandro Scocco, chief economist in ITPS (The Swedish Institute for Growth Policy Studies), which is the Swedish Government's agency for understanding growth and for evaluating government policies.

the 70s, and a cost crisis, which forced deregulations, and with them causing the crisis in the beginning of the 90s. Thus, the root of the crisis of the 90s is to be found in the inflation crisis of the 70s. We were alone in the whole world of full employment; neither did the right-wing Government of 1976-82 deregulate. Yet, the regulation system was hollow like a cheese; capital was running out and a grey capital market emerged (see also Feldt, 1991, p. 138). Concerning the lack of venture capital and SMEs, Feldt commented that a small country like Sweden needs big companies; however, my party has to be anti-capitalistic. Henreksson added to that that “Sweden wants capitalism but no capitalists”, which implied that the left-wing governments have been focusing on the big companies and by that the old Swedish financial dynasties.

A right-wing Government was founded in 1991 and dismantled immediately the 'employees' funds', and transferred the money to 'R&D- and Knowledge foundations' in order to make Sweden more competitive. Further, the state invested billions of Swedish crowns in rescuing the banking system, carried out 'crisis-measures' (jointly with the social democratic opposition). The unemployment was 14 percent, half openly and half in labour market measures. Sweden was borrowing to the daily spending, and by so doing she could keep the official unemployment level relatively low. Also, the Swedish currency was let floating, which meant depreciation with some 30 percent (after one year) to the big international currencies, and by that preserving from even more unemployment.

2.4 Towards a decentralised knowledge-driven growth promoted by a new spirit of mutual understanding?

The social democratic governments noticed early that the working class children did not apply to the traditional universities, and therefore continued to be heavily underrepresented in higher education. This started a decentralization of the university system and a number of new university colleges were established from the 1970s and onwards. This deliberate policy was criticized for spreading out the research and education resources, and by that neglecting to secure the critical mass and strong research milieus at the old, traditional universities. On the other hand, the decentralisation of these resources has resulted in the fact that there is a university or a regional college more or less in every county. In fact, these new centres of education and research became very important to absorbing the unemployment among (young) people and contributed to the extremely fast economic transformation when Sweden during the 90s lost one third of the industrial job options during a few years. Also, these were

very suitable receivers of the employees' funds' money when it was transferred into the R&D-system in the mid 90s. It resulted in a decentralisation and a huge restructuring of the innovation context with implications in the whole national business system. Billions have been invested in up-grading research environments with distinctive profiles at Sweden's new universities and other higher education institutions. They play regionally a new and important role by firstly, developing a profile which fits the industrial and cultural characteristics of the region, and by that, secondly, constitute a natural link for strategic interaction with the regionally operations; simply, they constitute a partner for sharing know-how and exchanging information, and together with the industrial competence concentration they constitute the ingredients of a local innovation system. In Sweden this concept has become a policy by the turning of the millennium: programs for growth and increased international competition are formulated on the national level whereas local or regional innovation systems are invited to compete for funding and by that sharing the technical and commercial risks by the Government. The money has worked to promote the exchange of knowledge and skills between higher education and the business sector, and the use of IT in such sectors as education, teacher training and healthcare. Over the years, new working methods have emerged and the foundations act as initiator, fund provider, knowledge resource, prime mover and net worker in bringing higher education, private enterprise and the public sector together.

Also, in every county there is a state owned organisation, Almi, with the mission to finance and develop the whole process from an idea to a profitable business as a complementary to the market; its organisational task is further to promote the development of competitive SMEs as well as to stimulate new enterprises with the aim of creating growth and innovation in Swedish business life. Also, the County's administration has special financial tools to for instance support employment and training activities. Both these organisations supply important risk-sharing measures for business development. Besides those cooperative bodies in every county, there are special organisations, preferably in the North and mostly state financed, with the mission to share commercial risks and supply consulting services. In other words, the supply of "hands on services" and the very first financial support are quite good. However, Sweden is really lacking a competent venture capitalist market, which can recognize entrepreneurs and finance the bigger innovative projects.

Today all political parties in the Parliament are SME-friendly. And in fact, at present a fairly good breeding ground for entrepreneurship is under developing. A recent study shows that the

SMEs (less than 50 employees) have created 80 000 new jobs net in Sweden during the last five years. During the same period the big companies (50 employees and more) and the public sector decreased their employment by 10 000 in net terms.⁷⁴ Obviously, it is the small enterprises that will bring about the increase in employment. However, as mentioned, Swedes are self-employed to a smaller portion (10 percent) compared to the EU-average (15 percent); and especially the frequency of start-ups is severely low. Furthermore, Sweden has for many years been low-ranked concerning spin-offs from university campuses. In spite of state promotions through Foundations, science parks, and municipality support on more or less every campus, the spun-offs from Swedish universities are relatively low.

We have in this chapter referred to literature which has analysed the Swedish model, pointed out its bearing elements, questioned its advantages, and even declared its death. However, some 70 years after the principal Saltsjöbaden-agreement from 1938, a new spirit of mutual understanding might be emerging as it is formulated in the Swedish Government's Globalisation Council's first report, *Knowledge-driven growth*, (Ds 2007:38).⁷⁵ This document depicts firstly a very optimistic future of the Swedish economy and secondly, which makes the document remarkable, describes a mutual understanding and concordance among MPs and corporatist actors from left to right in the Council about the nation's possibilities and threats. Also, the Council claims that the globalisation process is very feasible for the small and open country of Sweden. The development in the Eastern Europe and Asia is creating demand on refined natural resources, goods and services, which Sweden has an advantage to produce. Further, the Council argues that the country's present strong economy is not a lucky coincidence but reflecting good institutions and a gradually improving business climate in the country. Also, the Council states that the Swedish model's welfare state perspective and the specific mentality of compromise thinking are fundamental elements for a continued competitive Sweden. The long tradition of basic agreements in the Swedish society, the strive for equality, the common social insurance, and the consensus on labour markets, make it easier to develop international competitive institutions. Maybe the most important source to wealth is the historical accumulated practice, values, and pronounced and tacit knowledge by a population, is a country's social and human capital. Examples of threatening clouds are the industry and trade's too low investments in the country. Also, the

⁷⁴ http://www.foretagarna.se/templates/NewsPage_106023.aspx 2008 05 14

⁷⁵ The Swedish Government has set up a Globalisation Council. It consists of experienced people from a number of sectors of society. Its role is to analyze how best to equip Sweden to address the challenges of the future. <http://www.regeringen.se/sb/d/9420/a/89862>

growth of the service sector is weak in international comparison, which holds especially for the whole SME-sector. It is obvious that the Swedish milieu for entrepreneurship is less favourable and has to be stimulated. Moreover, the Swedish global companies will remain very important but their gradually weaker attachment to Sweden makes it even more necessary to create dynamic milieus for entrepreneurship and conditions for small firms to grow bigger; one basic element for such a development is the mobilising of Swedish venture capital and Swedish-based ownership, the Council argues.

3. From the national to the local

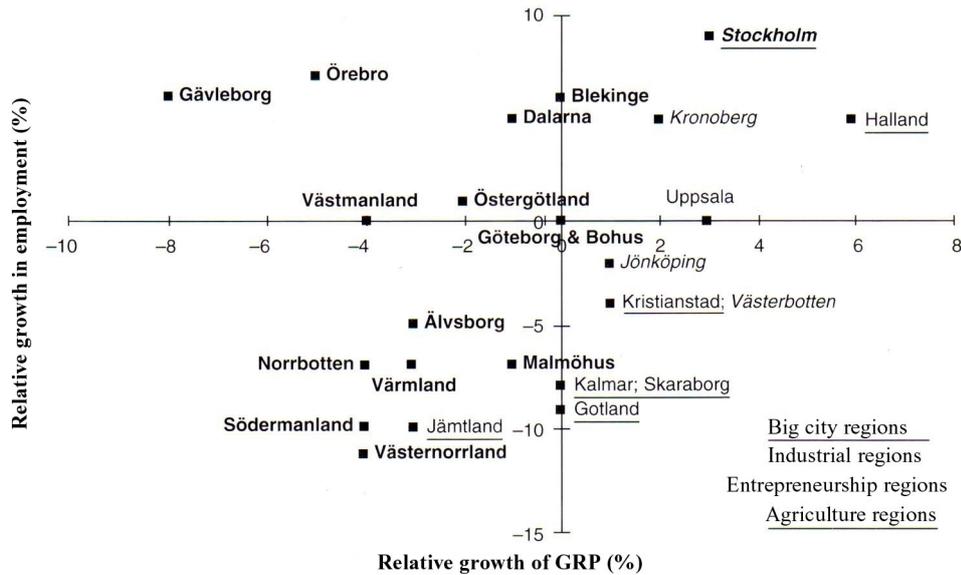
The largest Swedish manufacturing corporations of today were founded during the 60-year period of 1860-1920. These historical investments have determined the economic geography, and consequently Sweden hosts today a number of dynamic areas driven by 'industrial competence blocs'. In this section we will describe the renewal of an old classic mill site, the one of MoDo's in Örnköldsvik. Also, we will describe the hosting town's renewal as a peripheral part in the north of Sweden. The company and its site have survived two industrial revolutions; it has, through mergers and acquisitions and the following restructuring processes, been a pawn in the globalisation game, and is now struggling to survive the third revolution.

3.1 What happened under the macro-surface?

Figure 1 below shows that the county of Västernorrland has described a negative growth in GRP and employment during 1985-95. In this region, there are five towns of which two are hosting big forest industrial companies: MoDo in Örnköldsvik and SCA in Sundsvall.⁷⁶ Moreover, two towns are heavily dependent on forestry, and the fifth town is the regional capital with a historical tradition of education. This region with its abundance supply of forest assets has historically and in relative terms been (one of) the most exporting regions in Sweden; however, it has obviously lost its dynamics.

Figure 1. Changes in Gross Regional Product (GRP) and Employment in Swedish counties, 1985-1995. (Reproduced and translated from Nilsson, 1998, p. 51).

⁷⁶ The name of the classical MoDo site is Domsjö, a suburb to Örnköldsvik, with among others its sulphite mill from 1903, the ethanol research and production facilities (today called Sekab), and Akzo Nobel (a company developed on a special MoDo cellulose derivate). See Appendix 2.



Statistical information (partly available here) shows that this region combines a high GNP per capita (5 percent over national average in 1985-95) with the most negative growth in the country and a permanent decrease in its population. This region has constantly since the beginning of the 1950s undergone a negative restructuring process. The region has not managed to create new jobs in net terms. This is due to the huge productivity growth in combination with the over-capacity all mergers and acquisitions created to this matured forest industry, which this region so heavily is dependent on.

3.2 MoDo as an early representative of the Swedish business system

Stora Kopparberg in mid Sweden is regarded being the principal representative of the very early Swedish business system. Another representative of the early Swedish business system, also built on natural resources and founded of – what would become - one of Sweden’s classic financial dynasty, the Kempe family, is Mo & Domsjö AB (MoDo), which developed from trading enterprising in wood, acquiring of forest premises, putting up wharfs for constructing wooden sailing-ships, plants for manufacturing sail-cloths, building and managing iron and saw mills into one of the biggest forest industrial companies in Europe. Thus, the saw milling became the principal root of this forest industry company, which took the next refining steps in the forest value chain by further refining chips and other saw milling waste into a pulp, and later on, paper industry. In 1903 the company built a sulphite pulp mill in Domsjö. Some 15 years later on a sulphate mill was built in Husum, 30 km north. Like all companies in Sweden and the western hemisphere, this family controlled firm had crises-stricken years during the forthcoming decades. However, on the whole the company developed successfully with investments financed over the bond market and by reinvested earnings (Kempe, 2006, pp. 18-

19, 39; Wichman, 1943, pp. 242-244). We will in this section describe its progress through the globalisation, and the effects it has had on the company's original site in Örnköldsvik, 600 km north of Stockholm.

3.2.1 The Kempe Research Foundations

Around 1930 the board of MoDo started discussing the possibility to go public to make the financing of the future investments easier. The older family members were doubtful to that suggestion, and started worrying that the family would lose the control over their company in the near future. A daughter of the original family head had become a dominant shareholder of the company; she was now a widow in her mid 70s, and had lost her only child. The key tool to keeping control over the company when going public was to establish foundations. So, this principle owner was persuaded to establish two foundations in memory of her father respectively her brother, and with purpose that the income of the capital would be reinvested in the areas where the values once had been created. Thus, the introduction of the MoDo share in 1936 on the Stockholm stock exchange, and the establishment of the first Foundation “were done paralleled, and were partly each others prerequisite” (Kempe, pp. 222-229).⁷⁷

Consequently, the main purpose of the foundations is to promote scientific research, and scientific and other teaching and education, also religious, charitable, social, artistic, and other with that comparable cultural purpose, as well as to promote agricultural operations in three counties in the North where the original plants were established.⁷⁸ The Kempe Foundations are every year distributing an amount corresponding to some 8 million €.

3.3 Shake-ups at MoDo creating entrepreneurial initiatives

3.3.1 Mergers and acquisitions

By the end of the 1970s, there was a common vision that only those forest industrial companies that had a complete product range would remain competitive in the future. Through acquisition from 1980 and onwards, MoDo consequently fulfilled this vision and developed into ‘the third forest industrial bloc’ in Sweden, and by that a European giant.

⁷⁷ The foundations are: Stiftelsen JC Kempes Minne respectively Stiftelsen Seth M Kempes Minne, usually called ‘Kempestiftelserna’, that is ‘The Kempe Foundations’.

⁷⁸ Translated extracts from the Foundations regulations: http://www.kempe.com/index_start.html; 2008 03 15

Consequently, during the 1980s and 90s, MoDo went through several structural changes. In the late 90s MoDo and SCA (another Swedish forest industrial giant) amalgamated their fine paper segments into a 50/50-joint company called ModoPaper AB⁷⁹, and prepared it for going public on the Stockholm stock exchange. However, the parent companies had regulated that only one company with the name 'MoDo' was allowed to be registered on the stock market, and therefore, the 50 percent owner, MoDo, changed its name to Holmen AB. The intention to go public was not fulfilled, however, and ModoPaper AB was acquired in 2000 by Metsä-Serla, a Finnish-based European level paper industry company that changed the name to M-real to signal the dramatic change of its identity.

The focus of this present study is in the organisational changes of the MoDo Group, and especially in its R&D organisation. We will study the changes (1) that were implemented in the mid 1990s as a result of the decentralisation ambitions, and (2) in connection with the post-acquisition integration measures done within M-real. This latter phase will be described through two mini-cases. Particularly, we will explore how the local managerial actors have used their local, national and international networks and institutional resources in a post-acquisition integration phase. This phase became more dramatic than could be perceived through the acquisition in the year 2000. Although a good business cycle, all these big mergers and acquisitions within the graphic paper segment around the world resulted in big increases in productivity, thus followed by an over-capacity; this in turn made it impossible to rise price levels. It turned out that M-real (Metsä-Serla) took a too ambitious approach to grow the company and the solidity suffered a lot. Thus, the post-acquisition phase of the operations in Örnsköldsvik has occurred during a deepening financial crisis of the new owner.

3.3.2 Towards a Chandlerian firm with the laboratory of 1941 and breeding into a cooperative cluster

In the 1950s, Sweden was a global leader in the development of technology for the forest industry. At that time the Swedish forest industrial companies were running centralized and big R&D-organisations (150-200 people) of their own. The MoDo Group's research laboratory had been established already in 1941 on the Domsjö site, close to Örnsköldsvik. In 1903 a sulphite mill was established here. The sulphite technology is regarded as much more

⁷⁹ Observe the small "d" (Modo) of the subsidiary compared to the big "D" (MoDo) indicating the Group.

fruitful as a “bio refinery plant” compared to a sulphate mill.⁸⁰ This sulphite pulp producer, still running; started in 1948, the production of dissolving pulp, and from 1990 and onwards, it is producing high tech dissolving pulp, whereas other sulphite mills around Scandinavia were shut down.

The 1940s with WWII and its blockings became an extremely dynamic époque in Sweden’s chemical milieu; and this positive development was continued up the mid 60s. On this particular MoDo site a lot of products were produced from sulphite remainder like cellulose, lye, and chlorine to be exported, but also as substitutes for what could not be imported: for instance glycol, ethanol for air craft fuel, alcohols were refined to acetic acid, chlorine acetic acid, and thickening means were produced from chlorine and cellulose. The company concentrated all its competence and capabilities to a centralised laboratory, which gradually developed into a renowned R&D-department with some 150 people.

This research laboratory has for decades been path breaking in the chemical forest industry. For instance the first industrial application for chlorine dioxide bleaching was implemented in 1946 in Husum (Carlberg and Scholander 1989, p. 41). This leap forward in development gave this plant a substantial upswing as the only one in the world, which could produce total bleached sulphate pulp; a second part of this technological revolution was that not only long fibre but also short fibre raw materials could be bleached. This brought birch into use as a raw material; this resulted in a big technological shift in the whole industry. Later a second process innovation was implemented when the first oxygen bleaching production line was built at the same plant. This method was known but was further refined at MoDo and is today applied all over the world as well. It is one of the absolutely most important technical innovations within the forest industry concerning environmental improvements. “What a powerful firm MoDo was during the 1950s and 60s. No other Swedish company developed so many business ideas” (Hultman and Persson, 2004, p. 33). The third radical innovation was a computer-based product called “The Kappa-batch”, to be used in the analysis of samples. These three radical innovations were complemented with environmental investments, like the bleaching plant “close up” in Domsjö 1991 and in Husum 1994. Thus, there has been a long history of innovations that illustrate the creativity of MoDo’s R&D (Peterson, 1996). The two last innovations mentioned above are to a large extent developed by an innovative person who

⁸⁰ Professors Nils Hartler and Börje Steenberg, interview at the Royal Institute of Technology (KTH) 2007 02 20

became world famed because of the innovations; he plays a central role in this Swedish case, and we denote him simply “the world famed technician”.

All these break-through resulted in a number of spin-offs. To be able to capture the market for this new technology MoDo Chemetics was established in 1974 as a joint by MoDo and a Canadian partner specialised in digesting and bleaching processes. It was one of the first knowledge-based firms within the global forest industry.⁸¹ MoDo was growing considerably and acquired other companies into what was called ‘the third Swedish forest bloc’; Eurocon became a spin-off from MoDo Chemetics, and specialised in governing processes and systems. Today this company is a parent company of some 15 subsidiaries with some 90 employees in Örnköldsvik in Norway and Canada. There is a saying that this laboratory is the cradle of the Swedish chemical industry.⁸² And indeed today, when the oil is expensive, the chemical industry is flourishing again, Sekab and Akzo Nobel, other spin-offs on the site are currently bringing the heritage of the site forward (see Appendix 2).⁸³

“So, from this company some kind of a cooperating cluster has been bred during the decades,” is a statement of the head of the R&D-unit, which confirms that MoDo from the establishment of the laboratory in 1941 and onwards has been acting like a Chandlerian firm, the vision of the eternally superior technology of some leading firms in advanced nations (Chandler, 1990). Also this person plays a central role in this Swedish case, and we denote him simply “the (strategic) visionary”.

3.3.3 Restructuring the MoDo Group R&D-organisation

In the mid 1990s, when the Lab of 41 served the Group’s production plants in different places in Sweden and other European countries, the group technical director was assigned to investigate how the R&D-function should be adjusted to the widespread structure. The trend in the industry’s R&D-behaviour world wide had now developed into searching for knowledge where it was to be found; to use the fastest and smartest way of using research in the surrounding world, and to do a puzzle rather than start from the beginning. So, also MoDo started building up competence centres in cooperation with universities, and simply started

⁸¹ MoDo Chemetics is from 2004 a part of the Örnköldsvik-based consulting company Kværner Power. Kværner has been acquired by Metso Power, belonging to the global Metso Corporation serving customers in the pulp and paper industry among others.

⁸² However, initiated claim that Skoghall (belonging to Uddeholm) was a rival to this appraisal epithet as long as their sulphite mill was in operation. See previous footnote.

⁸³ Sekab is “MoDo’s old ethanol factory”. Akzo Nobel is developed from the ‘MoDocoll’, a cellulose derivate (ethyl-hydroxyl ethyl cellulose - EHEC), which is soluble in water, and therefore can be used as thickening means.

buying basic research services; the Chandlerian firm behaviour had simply come to an end also in the MoDo Group.

The result of the reorganisation was that relevant R&D-competencies were decentralised to corresponding business areas. However, people and equipment for the pulp and paper research were still remaining on the site close to Örnsköldsvik. Although the research force had been halved to some 75, some executives were still questioning if it were optimal for the operations? Therefore they started discussions with other forest industrial companies in Sweden how to make use of the R&D-potential, which now had been strengthened by the Digital Printing Center (DPC), designed as an academic programme with industrial PhD-students at Örnsköldsvik University campus.⁸⁴ With such an arrangement a critical mass was achieved, the education in the discipline secured, and also financially supported by the Mid University. These issues occupied the R&D staffs when suddenly in 2000, Metsä-Serla acquired ModoPaper AB, which had been operating only one year or so.

3.3.4 M-real's Technology Center in Örnsköldsvik

When M-real acquired ModoPaper AB, technology centres (TC) were organised covering competences in four European countries where the Group had operations. After all decentralising and outsourcing from the original MoDo Group, the R&D-unit now consisted of only paper technology and belonged to M-real. So, out of that, M-real established in Örnsköldsvik a TC (under charge of 'the visionary' mentioned above) to refining 'office papers' with some 20 people. He has stated that "the core business of our TC is the co-operation between the Group's different TCs; and what is strengthening us, is the nearness to the Group's biggest production plant, only 30 km away". That means that M-real can offer the most skilled seniors a research milieu, which is the best in its field in Sweden.

This TC has focused on a few research concentrations; one is the mentioned DPC, the academic programme at the local university campus, which is financed primarily by MoDo Paper AB, SCA, the Kempe Foundations, and EU/County administration, but also to a smaller extent by the Mid University and a number of local SMEs in the printing industry. Thus, also this part of the former Lab of 41 started building alliances with related companies, research

⁸⁴ Mid University started as Mid College and received its university status 2006. It has campus in Sundsvall, Östersund, Härnösand and Örnsköldsvik.

centres and relevant financiers. ‘The visionary’ states “that a strong, local research financier, like the Kempe Foundations, is invaluable for a place like Örnköldsvik”.

3.3.5 MoRe Research – developing into a global technology supplier

Thus, great thinking pains had been invested concerning the future of the MoDo R&D-capabilities. The key actors in this process were the two already mentioned, extremely technology skilled managers, the one with a world wide fame in the industry, and the other a visionary and a strategic change agent. They realised that the Finnish owner with their own R&D-capabilities concentrated to Finland, and with no pulp production of their own, and a close connection to the Finnish research institute KCL, would not be interested in retaining a heavy R&D-volume of some 75 people in pulp research in Örnköldsvik. By contrast, MoDo had a strong focus in the pulp (and paper) industry, and especially in its R&D. However, the two key actors also knew that the pulp competence including the production milieu was unique. It had a critical mass, synergy potentials and nearness to maybe the biggest sulphate and paper integrate in Europe (Husum) and to one modern sulphite mill (Domsjö). Thus, in order to secure the survival of these renowned skills, all pulp related research was outsourced from M-real to a new company, MoRe Research Örnköldsvik AB. Although implemented after several brainstorming sessions, it was a very logical business step derived from the competence of the original MoDo R&D-lab.

One important criterion was that the firm should be ‘neutral’ concerning ownership structure and being regarded objective when managing the research findings. The first outlining of the ownership structure of the new company was that M-real was to hold 49 percent, in combination of a majority of local stakeholders. However, Holmen (former MoDo Group) withdraw from the possibility to be an owner. This bias with M-real as a dominant owner was supposed to be a dilemma when marketing the company as an independent consulting firm. Moreover, the firm’s equity was too scarce for an emerging research organisation. Therefore, the two main actors “consulted” another important person; it was the head of the Kempe Foundations, and still a local stakeholder. As a result, MoRe was established in 2001 under charge of ‘the world famed R&D-engineer’; the Kempe Foundations entered into the game with some 130 000 €. (20 percent), Eurocon (30 percent), and the Sulphite mill (divested from MoDo in 1999, 10 percent); these three owners are all site and industry related, and consequently M-real’s portion was reduced to 40 percent Further, the head of the Kempe Foundations was appointed chairman of the board, and by that, as also being deputy chairman

of the Holmen board, strengthened the independency further in the market place from its dominant owner, M-real.

MoRe started operating by taking over some 50 people from the Lab of 41 while the rest, some 30 people, remained at M-real's TC. However, M-real's financial situation developed negatively, and the TC had to close down. Consequently, MoRe took over TC's people and equipment in the paper and printing niche. "This was very logical as you have to produce a paper to assess the quality of the underlying pulp". That means that MoRe covers competence and has equipment for the whole pulp and paper value chain, that is "the whole way". In Swedish this is expressed *Hela vägen*TM, which is registered as a trade mark; this has become the firm's business idea. Further, MoRe has established strategic alliances with Eurocon Consulting (one of its owners) and Swedish Optimation (with links to a technical university in the region) under the registered trade mark *Euromore*TM. This, in turn, has registered the trade mark *Processakuten*TM, which operates in acute process failures. The company has been profitable from the start, is serving some eighty external customers, and is today a global technology supplier with R&D-commissions in for instance Western Europe, Chile, and China. "We believed in this but the result exceeds all expectations"; it is obvious that there is a market for companies supplying R&D, and we are probably the first player in our industry", according the CEO. The emergence of MoRe as an independent globally operating company from the intellectual cradle of the Lab of 41 is a remarkable bottom-up entrepreneurial initiative by two key employees. Thus, a strong will among a few key local actors made it possible to keep this pulp, and later on also paper research group of some 75 people in a coherent whole.

3.3.6 M-real's withdrawal of its stake on the MoDo site in Örnsköldsvik

As indicated above, M-real's financial situation developed negatively, and the HQ in Helsinki decided during spring of 2007 to decrease its stake in MoRe. This meant that Sekab, another of the companies on the MoDo site, took over 30 of M-real's 40 percent ownership in MoRe. 'The visionary' and head of M-real's TC quitted the company but remained on the site as a new head of research at Sekab. Of the initial 30 people from the Lab of 41, who had joined the TC in 2001, a number connected to the paper research had been transferred to MoRe, some had been transferred to M-real in Husum, and a few had been transferred to other companies on the old MoDo site. Three people had accepted special pension contracts, and just a handful, younger people had left the TC.

What happened with the employees at M-real's TC when the close down decision was taken is a good illustration of the Swedish and Finnish models' way of functioning. M-real supported financially to some extent the transfers to MoRe. "The great majority got new jobs without losing money or any contribution from the social security system". This is of course due to the fact that there was an industrial receiver competence present locally to recycle the released resources: It is obvious that if the TC not had been established when M-real acquired ModoPaper, probably some 30 people had gone their separate ways. TC has existed during some six-seven years. During these years MoRe and other companies on the site got breathing space to further develop receiver competence and be able to absorb the released people's skills and laboratory equipment.

To conclude, the MoDo R&D-lab has been a springboard for knowledge intensive activities that have energized the local academic environment in Örnsköldsvik by taking on board PhD-projects that have business relevance nationally and beyond. Part of this competence pool is continuing in MoRe Research, part of it has been and will be located in the near future to M-real's business areas and production site.

3.3.7 Processum - a Technology Park developing into a bio refinery and an R&D-organisation related to the Swedish Innovation System

Convergence at a coffee-machine

By the beginning of 2000s it was obvious for executives at MoDo that the characteristics of the classical site and by that the whole eco-system in the community had changed dramatically. Not only was the MoDo name gone but also its classical Husum site with its big pulp and paper integrate was now remote-governed from Helsinki in Finland. 'The visionary', now head of M-real's TC, and two other actors "happened one day to converge at a coffee-machine"; they established the fact the "intellectual force and the technical drive that earlier had been the engine in the eco-system and 'putty' in networking, had been reduced significantly". Moreover, it was obvious that the university campus in Örnsköldsvik did not develop very well. The only comfort was "that the chimneys in the area were still smoking!" 'The visionary' and head of M-real's TC called people together for brainstorming. One idea to counteract the negative consequences of all shake-ups was to establish some kind of a technology park on the site that could communicate with the local university campus where

MoDo had launched some R&D-projects. The point of departure was the unique milieu of *process technology*, which had been built up during the last hundred years. Also, a park could make an inventory of ideas among the region's SMEs and support the development where companies could not afford to do so by themselves, and cooperate with the Örnköldsvik university campus. Another mission of a park was to strengthen the available competences, allocate resources for missing competences, and get hold of premises. At some of the biggest universities in Sweden there are a foundation called *Innovation Bridge*.⁸⁵ This Foundation is nationally commissioned to commercialize research and innovations together with relevant partners in industry and trade. Consequently, the idea of a technology park on the MoDo site was presented to the CEO of the Foundation.

A spider in the R&D-net and the struggle for financing

Occasionally, a sales director quitted MoDo and happened to be the new chairman of the Innovation Bridge. Besides, a former vice head of the MoDo-lab of 41, a woman born in Örnköldsvik and holding a research degree in chemistry, and during 2001 appointed a 'Research director' at the *Swedish Forest Industries Federation*,⁸⁶ was also a member of the board. She had for years been cooperating in many projects with the chemistry department at the university, and she was therefore promoted to Dr. hc. at the university in this time; we denote her simply 'the Dr. hc.' in the following. Among other things she was involved in a project called "Green material", which actually turned the Processum-perspective *from* process technology *into* bio refinery. Thus, three people with a strong MoDo-commitment were involved in the Foundation and working to establishing Processum.

Also, being a 'Research director' at *the Swedish Forest Industries Federation*, 'the Dr. hc.' was appointed chairperson of the board of VINNOVA, (*the Swedish Governmental Agency for Innovation Systems*), which is running the VINNVÄXT-campaign; This former vice head of the MoDo R&D-unit was chairing the board from 2001 and six years onwards. "I am a networker, you are not awarded networks; you are participating and you have to give something back as well". It is obvious that 'the Dr. hc.' is a central person in the research and innovation system in Sweden, and some kind a spider in the innovation network. Also, 'the

⁸⁵ Approximately corresponding the American OTT (Office of Technology Transfer); the Innovation Bridge in Umeå is a subsidiary to a national parent company with the same name. However, during 2008, the regional boards mentioned above were eliminated.

⁸⁶ The Swedish Forest Industries Federation is the trade and employers' organisation for the pulp, paper and wood mechanical industries in the country.

visionary', former M-real TC head, and initiator to MoRe, is playing different roles and showing up in different identities. As already mentioned, he is from 2006 positioned as head of research at Sekab, situated on the MoDo site, but was also from 2007 appointed a new chairman of the Innovation Bridge at Umeå University.

In 2003, twelve local SMEs, two bigger companies on the MoDo site, the municipality and the County Administration together with the Innovation Bridge established the Processum Technology Park AB. The Kempe Foundations "wanted to support and strengthen 'the local initiative', and entered therefore as a co-financier of special projects". Processum could now afford to hire a CEO; 'the visionary' was appointed chairman, and the third person converging at the coffee machine was appointed board member of the Park. Usually science parks are developed from deep science-based inventions and organised by universities in which the research has been flourishing. Processum is established the other way around; it is not established to fill up a closed down factory. However, the funding described above was just an initial solution; along with the chiselling out of the Processum-strategy, its CEO, now acting more as an institutional entrepreneur, was constantly piecing together financing from different sources: NUTEK - *the Swedish Agency for Economic and Regional Growth*, with mission to strengthen business throughout Sweden, financed a project but "the final solution was still missing". A second funding round was, however, implemented during late 2005 with contributions, again, preferably from the bigger companies on the MoDo site. The operating yearly budget increased by that from 20 000 €. to some 250 000 €.

Processum Bio Refinery Initiative and the VINNVÄXT-campaign

In the end of 2006 the Park changed its name to *Processum Bio Refinery Initiative AB*. The old name "had refined itself in a logical-strategic way into what is happening on the site". The name 'Bio Refinery' is simply the 'smallest denominator' for all involved companies on the site, and indicates further growth of the bio-industrial cluster.⁸⁷ Moreover, VINNOVA, the State authority that aims to promote growth and prosperity throughout Sweden, has run a programme (VINNVÄXT) that has taken form of a competition among regions. The aim has been to promote sustainable growth by developing internationally competitive research and innovation milieus.⁸⁸ In the spring of 2006, 85 local innovation systems were competing to

⁸⁷ Bio refinery is simply an analogical concept to oil refinery. In the 19th century paraffin oil was the main product extracted from oil. Today, 2000 products are extracted from oil.

⁸⁸ <http://www.vinnova.se/In-English/Activities/Strong-research-and-innovation-environments/VINNVAXT/>

receiving some 200 000 €. during mid 2006-08. VINNOVA selected five proposals, and one of them was Processum Bio Refinery Initiative. The Örnsköldsvik case is looked upon as a potential bio refinery of the future. The intention is to develop cellulose into different new product areas like chemicals, fuel and composites/plastics. After the second year, an assessment was to take place, and the two best innovation systems would receive additional money during the next eight years. However, VINNOVA selected *four* of the five proposals, and Processum was one of these now receiving some 400 000 €/y. during the eight year period up to 2016.

Processum – a node in the Swedish innovation and university system

Umeå University and MoDo has always been cooperating. Today, the university vice-chancellor regards the Processum site being “the Umeå University chemical wet laboratory”. This ‘laboratory’ is a biochemical cluster or a mega milieu, which for instance refines cellulose into high tech dissolving pulp and thickening means for paint; there is a pilot plant for producing ethanol, a pulp technology supplier, and a combined heat and power plant under construction. Moreover, *Swedish Energy Agency*,⁸⁹ subordinated to the Ministry of Industry and Trade, has invested a number of tens million €. on the site. This research infrastructure will be complemented by certain research-applied areas and education programmes to stimulate cooperation with the chemistry skills on the site.⁹⁰ To conclude, bottom-up initiatives, recombining of existing local resources and thereby organisational changes have obviously been important ingredients when fending off the consequences of globalisation’s all shake-ups. Further, one characteristic feature of this classical site is that ‘collaboration implies innovative learning’. In its seventh operating year, Processum is a well-established node in the Swedish innovation and university system. (See also Appendix 3).

3.4 The Örnsköldsvik eco-system: a combination of a dominant forest industrial company and a flora of family-owned businesses

In the forest industry, industrialization often happened to create one-corporation societies, and for long periods Örnsköldsvik was heavily dependent on the successful development of MoDo. However, the locality was complemented with another classic family-owned company, Hägglund & Sons, which developed to the largest mechanical engineering company

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⁸⁹ In Swedish: Energimyndigheten

⁹⁰ Kemivärlden Biotech med Kemisk Tidskrift; No 7/8, Aug. 2006.

in the north of Sweden in late 1950s. These two principle employers and the municipality have been living in symbiosis with each other during more than a century: what was good for the companies was good for the municipality, and vice versa. In this section we will make a well-presented depiction of “the state of health” in the municipality, described “as sort of a third mini-case”.

3.4.1 The rise and decline of a prosperous municipality

The area that gradually grew to what became the city of Örnsköldsvik developed close to a gulf with an emerging port and a neighbouring mounting chain, and became therefore a natural last outpost in the North to the real Sweden. It was established as a market place from early 18th century. Craftsmen, farmers, hunters, and laps from the whole northern wilderness produced goods, furs and other necessities, which were introduced on the market place. Linen was weaved at farms in neighbouring villages. These commodities were purchased by local farmers, who started profiling themselves as merchants, and transported it every springtime by horse and sleigh cades the whole way south to be traded in Uppsala and Stockholm. Through this several weeks lasting “south driving” to Sweden’s most dynamic areas people to return back with money, fine fabrics, silver articles, salt and other things that were needed at home. They captured new ideas, developed their business feelings, and by that vitalized their home ground. This developed a trade tradition in the locality, which simply became a melting pot hosting different personalities with dynamic capabilities. This is supposed to be an important determinant to this community’s well-recognized entrepreneurial characteristics. (Wichman, 1943).

At this time, saw milling operations were also established, and were further developed along with the emerging steam technology. Thus, the entrepreneurial feature and the creative atmosphere is supposed to be hereditary since centuries and the main explanation to why the region during long periods has been hosting a number of family businesses and been the most association dense municipality in Sweden. This is according to Robert D. Putnam (1993; 2000) evidence for an abundant social capital; with Putnam’s words: “The Örnsköldsvik-citizen does not bowl alone!”

Thus, Örnsköldsvik was for long periods heavily dependent on the successful development of MoDo. However, the locality was complemented with another classic family-owned company, Hägglund & Sons; the founder and eight sons developed the firm from joinery in

1899 to the biggest furniture producer in northern Sweden. Further, it specialised into the mechanical engineering sector and developed to the largest mechanical engineering company in the north of Sweden in late 1950s. The company grew considerably and met with a financial crisis in 1967, when it also partly was acquired by ASEA, the dominant root of ABB. The family business epoch came finally to an end when ASEA took over completely five years later (Hultman and Persson, 2004, p. 119). Along with the growth and development of the MoDo Group and Hägglund's, several family-owned enterprises were founded in the mechanical engineering and metal industries, acting as sub-contractors to the big companies. Today, the community hosts some 2500 companies, mainly however, in the forest-based and engineering businesses.

Consequently, the Örnköldsvik eco-system has been flourishing since the early 20th century, and has continuously been so up to the mid 1960s due to the dynamics related to the two big companies; the atmosphere is said to have been characterized by “believe in future and progress” by the time of establishing and expanding the MoDo plants in Örnköldsvik and Husum (Croon, 2005, p. 49). However, this prosperous development of one company and industry had also turned the municipality's political and governance system into a Sleeping Beauty, resulting in neglects of, for instance, the development of the community's range of education in order to service its industry, trade and citizens.

The 1970s started with the oil crisis years and became “the decade of industrial crises” in Sweden; MoDo, the principal driving force of the locality, was hit by a severe financial crisis. However, a devaluation of the Swedish currency and a seven year global boom resulted in a prosperous 1980s for the whole forest industry, not least for MoDo. In spite of a well-performing industry, the decade described a contracting employment (**table 1 and fig. 1**), a negative ‘moving in’ and decreasing community welfare. Moreover, the MoDo Group HQ was transferred to Stockholm in practice already 1985, which was taken as evidence that the locality was a pawn in the globalisation game.

A big devaluation of the Swedish currency in the beginning of the 1980s and a seven year global boom resulted in a prosperous decade for the whole forest industry, and not least for MoDo. Despite this prosperity, the decade still described a contracting employment in the community. The stagnating employment in combination with a significant increase in production, that is “jobless growth”, is a phenomenon that characterizes the end of the second

industrial revolution. The decreasing employment in Örnsköldsvik during the 1980s simply was an evidence of an increased global competition in an over-matured industry, and an indication of a new division of labour in the world. In other words, in the '80s we did experience the death of a technical-economic regime, which no longer was able to create new jobs even in a high growth. Some authors, for instance Chris Freemam, claim that the mass production paradigm was taken over by a new technical-economic paradigm, which got its break-through during the 1970s-80s. This new paradigm, built on the digital dimension, is called Information and Communication Technology (ICT) and is producing industrial related services. There is soon no reason to differentiate between "process industries" and other types of industry, according to these authors. This insight became obvious for the then leading politician in Örnsköldsvik.

This stagnation revealed some shortcomings in the municipality; big companies had problems to recruit key people as "the accompanying partner" could not get a relevant job. Also, it was obvious that the locality was situated far away from universities or higher education options and lacking supply of culture and amusement events, and not least for the young people. The name 'Örnsköldsvik' (hard to pronounce even for a Swede) is typically abbreviated as Övik⁹¹; young people simply renamed this dreary and boring area as "Dö-vik" (Dead-bay) in a funny pun. The only positive thing in the community was the ice-hockey team and its success in the country's first league.

3.4.2 Awakening Sleeping Beauty

The young people's pun "Dead-bay" made a deep impression on the then leading politician in the municipality. It absolutely was *the* signal that changed attitudes of politicians and started the renewal of the local eco-system. It became a social force that hit the responsible politicians ever more than the loss of job options. In the following we will describe a number of processes and events that have recovered the eco-system (see Appendix 1).

Process 1: Building the Arc Complex

In the second half of the 1980s, the then leading politician (a male social democrat) in the municipality commissioned an architect bureau to outline a plan for a huge sports centre with

⁹¹ Per Abraham Örnsköld worked as county governor in the year 1762-69. He had introduced the 'linen wowing', which had become the most important industry in the parish and was therefore honoured by giving name to the locality (Wichman, 1943). The last syllable in the city name 'vik' means 'bay'.

arenas for football and ice hockey, adventure facilities, hotel and restaurants. However, what had been outlined was so expensive, so it was not possible to implement the project.

The architect had visited Sofia Antipolis close to Nice in France, and been inspired of the way architects there “had integrated the living, work places, universities and leisure into an unbelievable beautiful whole”. Also, he knew quite well of the port and sea side area in Örnköldsvik that had been worn down to a dreary backyard. Therefore, he outlined what would become the Arc complex with glass walls facing the sea side, premises for service producing companies, a campus for universities, a sky walk connecting a library and museum, a restaurant and café, and tied the complex finally to the city centre. This visionary plan fitted the leading politician quite well for he had understood that the locality needed a new industry, “a third leg”, preferably private service job openings for women in addition to the forest and mechanical industries. The block was named The Arc⁹², symbolising the metaphor of the myth of the rebirth of life after Noah’s stranding on Mount Ararat. From 1991 and through expansions later on, this block hosts the municipality’s Conference, IT and Service Centre, a library and a museum, and also a regional campus for two universities. Through premises letting, it was soon filled with a flying company’s booking centre, consulting companies and restaurants.

Process 2 and 3: The establishment of the university campus

In the beginning of the 1960s the University of Umeå and ten years later a technological university in Luleå, were established. Yet another ten years later, “the Mid College” was established with a main campus in Sundsvall; this “network organisation” with two additional campuses, received formally university status in 2006, with the name Mid University.⁹³ In other words, students in the northern part of Sweden were given step-by-step dramatically better educational options. This early eagerness in Sweden to set up university level education very north of Stockholm and Uppsala is today supposed to be the most profitable regional venture in Sweden ever. However, these investments in new relevant educational programmes implied serious setbacks for other education programmes on medium levels.

⁹² In Swedish: Arken

⁹³ The name ‘Mid College’ indicates its situation in the middle of Sweden though belonging to, and being considered as a part of northern Sweden.

In Örnsköldsvik, this had serious consequences to the recruitment potentials. Consequently, the big employers, MoDo and Hägglund's, started discussions with Umeå University and Luleå University how to organise further education of upper secondary technical engineers to succeed the older management. To support this initiative, the municipality established an Education Centre to cooperate with industry and trade in their efforts to organise relevant education. In cooperation with the two universities, the two companies designed a 2-year education with a joint first year.

Parallel to the development described above, relevant education for the area from both Mid College and Umeå University had gradually been delivered on campus. Therefore, the Minister of Education was petitioned by a delegation in charge of the mentioned leading politician in the municipality, including the rector of the Mid College, MoDo's technical director and people from the Education Centre. The result of all this work was that Örnsköldsvik finally became the fourth campus in the Mid College, and thus received funding from the Ministry for education in production technology.⁹⁴

Process 4: "Industry and Trade and Municipality in Cooperation"

This headline refers to the fact that three organisations for private companies and the municipality's departments for 'Industry and Trade' and 'Higher Education' are sitting together in the same corridor in the Arc complex; this fact has been decisive for the successful industrial policy work. The sharing of lunch time and coffee breaks results in spontaneous meetings, which give unique possibilities to exchange information and to "process common issues", which results in un-bureaucratic solutions, and by that short decision channels. In this corridor the head of each organisation "functions as a relay" of his or her organisation. If for instance the head of the Industry group is asked to carry on the matter of "increasing the education of welders", he quickly forwards it to the municipality department. Of course the cooperation also functions the other way around. The politicians can experiment informally among these companies' spokespersons to find and anchor the right solution for instance in matters concerning industrial premises, before they take a formal decision. The company organisations function simply as a body, to which a proposed measure is referred for consideration, and for assistance in formulating the right arguments. This constellation of 'Industry and Trade and Municipality in Cooperation' is meeting the leading politician and

⁹⁴ The Swedish co-author of this chapter was lecturing on this campus in the spring of 1994 when also the Umeå University part was formally inaugurated by its vice-chancellor.

the one in opposition once a month to penetrate different matters, for instance concerning an approaching wage negotiation, the development on the university campus, in order to create “mental advance planning”.

Process 5: Launching the Cesam-project

In 1995, a daughter of a building contractor and owner of a real-estate company, and her family, returned home to Örnsköldsvik to arrange a turn of a generation. At that time, the tradesmen had registered a 25-year period of decreasing businesses; people were simply shopping in neighbouring cities. A negative spiral and a more and more depressed atmosphere characterized the community's tradesmen and landlords. This returning couple, well-educated and experienced in international companies as change agents started communicating with the leading politicians about the negative indicators. During a 2-year planning period, among other things an external consultant implemented a mapping up of problems, which resulted in the idea of the project Cesam.⁹⁵ “It was a time of consideration, anchoring, and commitments”. Gradually a budget was drawn up by 100 tradesmen (40 %), 40 real-estate owners (40 %), and the municipality (20 %), which financed a joint-stock company *Centre Improvement*. Different selling-themes were arranged and managed by working groups. The board is chaired by one of the home returnees and a steering committee, some kind of a shareholders meeting, is chaired by the head of the municipality's technical department. This dualistic governance, one chairperson from the political and capitalistic side in the community, is supposed to have made the processing and decision-making easier.

The home returning couple acquired a worn out block in the centre and restored it to an excellent mall. It is a common opinion that this couple took a qualified commercial risk, but also that their investment was a decisive contribution to the needed “make-over” of the centre for which the municipality won an informal award for having the best city centre in Sweden in 2001. During 2005-06 the shopping trends in the community turned around, and the figures are now positive; 40 nation wide business chains have established in the community.

Process 6 and 7: Building the Bothnia Coastal Railway

To the depressed business climate of the late 1980s, two genuine Örnsköldsvik-citizens arrived home after their international sojourns. The one was some 30 year old and returned

⁹⁵ Cesam is short for the project's Swedish name.

home to take care of the family firm. He had been working in big Swedish and American companies abroad. The other one was some 50 year old scion of the grounder family of MoDo. He returned home for the third time from executive assignments in the US, Canada and Brazil. He has a research degree and a solid forest industrial experience; he would soon become the head of the MoDo founding family. Accidentally, the younger one visited a seminar in Umeå on 'future labour markets'. The seminar mediated the opinion, that there were only 'five chimneys' in Sweden. These 'chimneys' were simply the five big university communities, including Umeå, which described an extraordinaire growth. This was rather chocking for a citizen from Örnsköldsvik with all the production capabilities there. Inspired of the academic milieu in Umeå, which mediated "growth and future possibilities", the young man called up the senior person above, who now was chairing the Chamber of Commerce in the region, to discuss how to take part of the positive development in Umeå. Also, the senior person had since some years been appointed a board member of Umeå University. These two Örnsköldsvik citizens, with international experiences and references, and striving for renewal the whole home region, started considering of some kind of "a new platform" to act from. As a result, the Umeå University vice-chancellor arranged "a group of independent people" to discuss this Bothnia region's future, and how to communicate its importance to the Swedish Parliament. The group named 'the Bothnia Academy' put forward proposals of different themes, and the very first one was a request to the Government to promptly start projecting the Bothnia railway. However, this idea was not new; in fact it was only a lengthening of the east costal railway built 1923-27 and had been discussed for decades. For instance at the very first meeting of the regional Chamber of Commerce, the Bothnia Railway was discussed, and a special 'Bothnia-group', financed by the municipality and complemented with politicians representing concerned municipalities along the coast, was outlined.

At that time, 1991-1994, Sweden had a right-wing Government, and a northern MP (from the Centre Party) had been appointed Minister of Labour Market. "He put the project on the agenda to which the social democrats also agreed on, and when the municipality's leading politician (a female social democrat) in 1994 returned home after her MP-session as a municipal commissioner, she started lobbying energetically in Stockholm to put this huge infrastructure investment into effect."⁹⁶ Different delegations, with the mentioned Minister of

⁹⁶ This lady is Örnsköldsvik's municipal commissioner and also a member of the Social Democratic Party's executive committee since 1997. She has been a member of the Swedish Parliament (Riksdagen) during 1991-1994.

Labour Market now appointed governor in the county under a new social democratic government, an effective lobbyist and respected in all political camps, and the municipal commissioner, and the Bothnia-group, mentioned above, was then petitioning the social democratic Minister of Industry and Trade. They not only managed to get the proposal sanctioned, but also to get the whole project started in Örnsköldsvik. The main purpose of the project was to connect the region's labour market closer to Umeå, "the capital of the North", a centre of education, medicine, finance and administration situated 120 km north. The lengthening of the 190 km railway is calculated to some 1,5 billion €, which is a huge amount in northern Sweden standards, and the biggest railway investment in Sweden in modern time.

Process 8: "the Shedding light-campaign; local cooperation for growth and renewal

The 1990s began with a severe crisis in the whole industrial Sweden. The Örnsköldsvik locality had lost 3500 jobs, and had also turned out to be an extremely closed system; only Gotland, an island in the South, was closer concerning torrents of moving in and out. Left- and right-wing politicians in the municipality showed up bad cooperation, and "some were even bloody to each other", and were sitting waiting that the big companies should fix everything". The boundary between the capitalistic and the political side was too strict, and there was no industry and trade organisation covering the entrepreneurial interest in the community. These discussions resulted in energetic initiatives for cooperation between industry, trade and municipality.

The first outcome of all this brainstorming was the establishment of a regional Chamber of Commerce, which the politicians appreciated. They had started talking to the politicians in Umeå to open up discussions for common lobbying for the Bothnia railway, and a future cooperation in labour markets. The creation model of this organisation was the same as of the Bothnia Academy described in process 6 and 7; the young home returnee was the driving force, and the other, senior home returnee was appointed chairman of the board.

Thus, the capitalistic sphere in Örnsköldsvik had been working on a renewal of the business climate during a number of years, when *the Center for Business and Policy Studies (SNS)*⁹⁷ in Stockholm, a politically independent organisation, however professing itself to market capitalism, was commissioned to operate a campaign called "Shedding light - Local

⁹⁷ In Swedish: Studieförbundet Näringsliv och Samhälle - SNS

cooperation for growth and renewal”. The SNS-organisation, with ‘local groups’ in a number of communities, was encouraging to “a national action for strong measures” in a handful of communities. The back ground was the fact that “Sweden had changed...in 25 years fallen from 3rd to 17th ranging in the welfare league...the unemployment was troublesome...people felt uncertain about their future”. Some 40 other nation wide organisations like employers’ federations and trade unions, took part in this national project, which was coordinated by *the Royal Swedish Academy of Engineering Sciences (IVA)*⁹⁸, and partly financed by *the Ministry of Industry and Trade*. The executive of the Chamber of Commerce in Örnsköldsvik “threw him into this option” and succeeded in getting his community as a case in the campaign.⁹⁹

Process 9: Launching the Vision of 2008

Thus, some 20 decision-makers in renowned companies and the leading politician and the principal one in opposition were called to a series of seminars to discussing cooperation for growth and renewal in their eco-system. These persons represented just themselves, not their companies, and constituted themselves as “a group of fiery spirits”. They concluded that “the municipality’s industry and trade policy had not failed; there was never ever a policy”; swift measures had to be taken to improve the region’s attractiveness, and therefore they decided to order an investigation of McKinsey-type. This work resulted in a joint strategy of cooperation between the industry and trade and the municipality. A package of measures was organised in a number of “developing themes” with a fiery spirit responsible for the outcome: one for ‘bio fuel’, ‘digital printing’, ‘employment and entrepreneurship’ etc. These real enthusiasts recruited more people and soon some 130 people were involved; during a first year 400 meetings had been registered. The “theme groups” put up developing budgets and applied for financing from the County Administration and Örnsköldsvik’s municipality. This work became an important part of the Administration’s ‘Growth program’.

So, in 1998 a *Vision 2008 document* was launched, covering a great number of activities. It was prepared in cooperation between representatives of the private-capitalistic and political-administrative spheres. The work was organised in three stages up to 2009 with a total fund of some 13 million €, which was 50/50-financed by EU’s Growth programme and Örnsköldsvik’s municipality. Today, this project is organised and monitored by a special

⁹⁸ In Swedish: Kungl. Ingenjörsvetenskapsakademien – IVA

⁹⁹ The Swedish name of this campaign was Ljusåret 1997, Lokal samverkan för tillväxt, utveckling och förnyelse.

group in the municipality. There is a common opinion that the no 8 process, the national “Shedding light-campaign” was decisive for the emergence of the *Vision of 2008 document*:

everything starts with the “Shedding light-campaign”; only ‘a wise after the event’ can claim that it was not decisive. It gave us a McKinsey-type report, which was financed commonly by the industry and trade and the municipality. We stayed one day and night at the MoDo conference centre 30 km outside the town. The campaign and its name was born there; ten years ahead (2008) was close enough, but also sufficient far away to be able to bring about results. We realised that the future was a common affaire, and that the vision concept had to be put into effect in the interface between the capitalistic and political sphere. If we don’t do anything now, it’s better to leave the town. We were all sitting in the same boat, Örnköldsvik is our children’s home town, it was a common affaire, and no one should sit on the grandstand. That’s the way *Vision 2008* emerged and became inspiration in everybody’s’ daily round. We simply became motivated to be a part of its context.

However, the underlying, principal driving force of the Vision of 2008 has been the Bothnia Coastal Railway; “the decision to build gave a kick, and we said to ourselves that now we must start rebuilding the town so it’s ready when the train comes”. Also the Cesam-project were carried on simultaneously, and developed into the Vision of 2008 campaign. However, without the “Shedding light- campaign”, the Vision of 2008 had been something different. The participating organisations from right to left legitimated the firm executives to be engaged, and in the process “there were eyes that regarded Örnköldsvik from outside” and described it in a kind of McKinsey report.

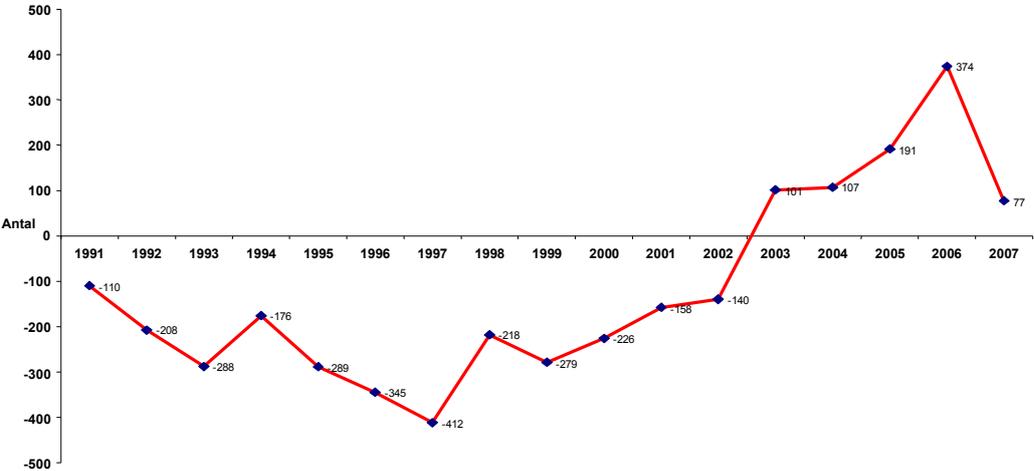
Process 10: Launching the Project World Class 2015

In 2004, the Örnköldsvik-region was (together with Gothenburg and Malmö) rewarded a distinction for being the fastest growing regions in Sweden, and during late years the municipality has been ranked among the four best and one year as number one in Sweden, when it comes to its citizen’s salary growth.¹⁰⁰ In the beginning of the 1990s, there were only a handful of electronic engineers employed at Hägglund’s, which was the largest mechanical

¹⁰⁰ Affärsvärlden (2005); *Trenden pekar norrut. (Translation: The trend points to the North)*

engineering company in the North. Along with the success of the company’s war vehicles, some 100 university engineers have been employed yearly. “A war vehicle is as electronic intensive as ever a war fighter”; the Örnsköldsvik-citizen is no longer bending sheet metal but is approaching real knowledge intensive businesses. Also, a spectacular seaside arena for sports, amusements and convention centre has been inaugurated and a hockey star has set up a golf centre. And young people’s popular name for Örnsköldsvik is not “Dö-vik” (Dead-bay) any longer; they are now talking of ”Glö-vik” (Red-hot-spicy-bay). So, the atmosphere in the eco-system is quite different compared to the one 10-20 years ago. For instance, from 2003 and onwards, the municipality is registering a positive net moving in (table below).

Figure 1. Number of ‘Moving in’ net into Örnsköldsvik; 59.434 inhabitants in 1990



In fact the objectives outlined for 2008 were reached already during 2005. Therefore a retake was implemented with a lot of new fiery spirits, activities and objectives resulting in launching the cocky *Project World Class 2015*. Like *Cesam*, which early became a trade mark, also *World class 2015* (like *Vision 2008*) has become a concept for rallying in support of the localities policy and attitude in general. Processing the vision creates space for penetrating attitudes and long-term issues; it makes people talking about a community in world class to live in, work in and visit.

4. Experimental uses of institutions in an experientially organizes economy

In this section, we will analyse the renewal of the classical MoDo site by using the concept of experimentally organized economy (EOE), which is deducted from Schumpeter’s creative destruction with its negative and positive events of shake-ups (Eliasson, 2007). The term EOE is emphasising that reallocation and growth has to be based on a particular organisation of the

economy that also embodies the right type of institutions that define entrepreneurial incentives, orient competition and breed the right attitudes in the economy. Leaving economies of scale for new types of knowledge-based economies needs openness and ability to change; the characteristics of local competence blocs and institutions are decisive for the resource allocation dynamics needed to transform an old industry into a New Economy, according to the author.

This approach goes in line with Richard Lester (2007), who is focusing how local communities can prosper in the rapidly changing and increasingly open economy. The author argues that local communities have fewer resources available; he claims, however, that building infrastructure, improving educational performance, strengthening cooperation between public and private institutions, which is needed to cope with the globalisation, is often better undertaken at the local level than by centralized directive. Lester is also discussing local universities as ‘engines of innovation’ as many businesses have been cutting back on in-house R&D and increasing their reliance on external sources of knowledge and technology as a way of reducing the costs and risks of research. In the following we will try to catch the MoDo site’s and the Örnköldsvik eco-system’s characteristics of competence, transformations and institutions on local, regional and national levels.

4.1 A competence bloc developing into a local innovation system

The most important element in this case is the competence built up at MoDo’s R&D-laboratory founded in 1941. It is a common opinion in the industry that this unit became the cradle of the Swedish chemical industry. In other words, there was a locally, broad-based excellence in an important industrial competence area. This competence had through innovations resulted in spin-offs (Appendix 2), and other actors in the bloc, which were functioning both as co-operators and customers. According to competence bloc theory, the ‘technical prerequisites’ for a sustainable bloc, besides relevant institutions, are (Eliasson, p. 225):

Table 2. Actors in the competence bloc

1. Competent and active *customers*
2. *Innovators* who integrate technologies in new ways
3. *Entrepreneurs* who identify profitable innovations
4. *Competent venture capitalists* who recognize and finance the entrepreneurs

5. *Exit markets* that facilitate ownership change
6. *Industrialists* who take successful innovations to industrial scale production

In Lester's study, the universities are the transforming engine and the success depends on the abilities of local firms to take up new technologies and knowledge more generally. His research sample contains 23 locations from both mature sectors and new fields. In the MoDo-site case the university is not primarily an engine for industrial transformation; rather, we are focusing on the cooperation and the building of network between the site and the surrounding innovation systems. (Lester, pp. 17-18).

Table 3. Industrial transformation processes

1. *Ingenious creation*: emergence of an industry that has no technical antecedent in the regional economy
2. *Transplantation from elsewhere*: development of an new industry in the region
3. *Diversification into technologically-related industries*: an existing industry goes into decline, but its core technologies are redeployed and provide the basis for the emergence of a related new industry
4. *Upgrading of existing industries*: infusion of new production technologies or introduction of product or service enhancements.

4.1.1 MoRe – representing the Chandlerian firm's transformation into a player in the New Economy

The key explanation to the fact that the skilled people in MoDo's unique competence bloc did not go their separate ways is that there was an industrial 'receiver competence' locally present to recycle the resources released. Therefore, we claim that MoRe is a typical example of "an experimentally organized economy" (EOE), and with that an archetypical contribution to an on-going reconfiguration of the Swedish business system. The site represented an old excellence in a natural-based industry with economies of scale in a mature industry. All other ingredients needed for revival of a competence bloc were more or less present (Table 2): first of all outstanding entrepreneurs, who could commercialize existing innovations due to profound understanding of customers' need. These entrepreneurs could organise "development coalitions" locally. What were missing were (competent) venture capitalists. Fortunately, that could be compensated to some extent by a private research foundation.

Lester stresses that the four types in his typology (Table 3) are idealized; in practice the distinctions between them are not always clear. The author discusses the problem to distinguish between the fourth category ‘upgrading’ and the third ‘diversification’. MoRe has on the original site moved along the industrial value chain and therefore it describes much of the diversification characteristics. However, it has also moved from mostly firm-internal service supply over to not only external but global markets; and this is done with a new set of analysing tools, in alliances and in a wider industrial context; the company is operating in a completely new business model. We categorize MoRe as belonging to the fourth of industrial transformation processes entailing ‘upgrading of existing industries’, through introduction of service enhancements. This service supplier has a good command of the whole pulp and paper value chain and has developed new tools for controlling the industry’s many and different processes. It is marketing this competence with special trade marks and is establishing strategic alliances with universities. This firm behaviour is not only a development of the original business concept; it is really an enhancement into a new business model.

To conclude, a number of skilled people and by that a local competence bloc, and its (links to) institutions, could be preserved; this has created a lot of dynamic mechanisms on the site and within its industrial context. Leaving economies of scale, we hypothesize that MoRe is a Swedish example of the new types of knowledge-based economies needed to transform an old industry into a New Economy.

4.1.2 Processum – a new bridging policy recycling a mill site’s released competence

The original idea with Processum was to create an organisation that could function as a complementarity between the old mill site and the local university campus and other parts in the Swedish innovation system. However, visions and missions grew through the mill site’s intrinsic competence in combination with entrepreneurial initiatives; the initial potential of the ‘receiver competence’ was all the time enlarged. Therefore, the reallocation of skills went through different trial-and-error-phases with openness and ability to change, which is typical for the experimentally organized economy with conversion of strategies, pronounced or tacit, and all the time trying to find relevant institutions. The strategy was constantly deliberated in search of a business idea that could cover the site’s potential. In this search process, Processum could by innovative networking with a close and prominent university and national agencies refine the business model. The process was characterized by a painful “shedding the skin” from the economies of scale to a knowledge-based economy of the third

industrial revolution. Finally, after piecing together financing, skilful networking, and the chiselling out of a deliberate strategy, the Technology Park was renamed to Processum Bio Refinery Initiative. The renaming was a strategic adaption to fit VINNOVA's programme VINNVÄXT¹⁰¹. From this programme Processum with its new, "green material business concept", was selected as a competitive player in Sweden's efforts to match the country's environmental requests, which are the most demanding in Europe. This eliminated its funding problem up to 2016.

In terms of Lester's transformation typology (Table 3), we categorize Processum as a 'diversification'. The original strategy was to transform the site's unique 'process competence' into new business concepts. However, the idea of 'process competence' "was not received with appreciation" even on the site itself. Lester is stressing the importance of establishing an identity for the transforming industry. This is done by key individuals generally acting as industry 'evangelists'. The DPC-project (3.3.3) with its academic programme on the local university campus is an example of building an identity of a transforming industry. In this case there are two strong industry 'evangelists': the university's vice-chancellor has appointed this site to the university's wet lab. Of course, it is an extraordinary event for identity-building when a key individual make such a statement. Furthermore, two professorships have been inaugurated and ambitious programmes (3.3.7) for industry-relevant education, student internship etc. are outlined on the site. The other 'evangelist' is the CEO at Sekab, who really is drawing attention to the existence of the local bio fuel competence concentration and painting a picture of future impact and growth potential. Thus, this site's core technologies have under Processum's modelling been redeployed and provide now the basis for the progress of a related new industry.

4.2 'Old, social, private money' compensating the lack of venture capital

We have described the Kempe Foundations with the purpose "that the income of the capital would be reinvested in the areas where the values once had been created." The Foundations' position developed, not least due to the described shifts in ownership, to a resource of nation-class to be counted on for investments in the North (Kempe, pp. 13-14). When describing the foundation process of MoRe it was obvious that venture capital was lacking. The initial business concept had a weak balance sheet and one too dominant owner. In order to

¹⁰¹ VINNVÄXT can be translated as "a winning-growing" (regional innovation system)

strengthen the equity, the Kempe Foundations entered into the game and consequently M-real's portion was reduced. Further, the head of the Kempe Foundations was appointed chairman of the board at MoRe, and by that, as also being deputy chairman of the board at Holmen, strengthened the independency further from its dominant owner. Also, the Kempe Foundations were a co-financier when the DPC-project was designed as an academic programme at the local university campus. It is obvious that a regional private research foundation, like the Kempe Foundations, is invaluable for the universities in the North, which happens to be situated in the counties in which the Foundations are operating and yearly is distributing some 8 million €. However, the Foundations' possibility to act as a venture capitalist is limited, and its regulations had to be reformulated to allow ownership of MoRe, which also was done. If the lack of venture capital is a severe problem in the Stockholm-area, what about peripheral areas like Örnsköldsvik in the North? That means that co-financing from private foundations, municipalities, and County Administrations, although only "lubricates", are very important to get started and hopefully surviving an entry phase, and by that being exposed to state authorities.

The head of the founder family of MoDo is acting in two different roles on the site: one as some kind of a venture capitalist and the other as an internationally experienced forest industrialist. Also, he is playing additional roles in other systems, as for instance chairperson in different organisations. Besides, he has a research background and is holding three honorary doctoral degrees, and has been a board member at Umeå University during ten years and its deputy chairman for some years. Moreover, he is deputy chairman of Holmen, the rest of the former MoDo Group and the third forest bloc in Sweden. He is now playing the fourth role as a "regional statesman" as the representative of a successful company, which once upon a time started as a family business (Stanworth and Curran, 1973). He and his family have returned home to Örnsköldsvik three times after international commissions, and soon turning to their 70s, he and his wife take an active interest in what happens in the region due to love of home town and social repaying. One can wonder, like a Financial Times journalist (Nov., 12, 2007) did in an interview with the scion and chairman of the number one Swedish financial dynasty, Jacob Wallenberg, what is striving them? "Why didn't he go off the rails, as some heirs do? Why did he think that was?" Mr. Wallenberg answered: "I think it's a matter of values: family values, pride in the family, understanding the history and asking yourself: are you proud of this? Is this something you'd like to try to further, or not?" We

hypothesize that this answer is common and valid for more or less all foundations established by financial dynasties.

4.3 Explaining Revival or “What woke Sleeping Beauty?”

The three “soft ware” processes (No 4: Cooperation, No 5: Cesam, and No 8: Shedding light), and the “hard ware” one (No 6/7: Railway) are looked upon as four different projects with their own points of departure. However, they are simultaneously processing in the same closer eco-system, and could also be looked upon as iterative processes. The Shedding light-campaign, with an underlying corporatist model supported by organisations from left to right, made it legitimate to a number of managers to take part in the discussions. Also, its timing was perfect. Decision-makers from industry and trade and municipality had common interests in managing the huge railway investment optimally and were getting together to sharpening arguments and penetrating the building. The four processes mentioned created a critical mass, which generated and maintained the driving force for renewal in the community. From all this working and struggling towards a common goal, *a magic symbiosis* emerged; this created the breeding ground for The Vision 2008, which developed into The World Class 2015 project with an “after the oil-perspective”.

However, to uncover the metaphorical expression of magic symbiosis on a more explicit conceptual level, four components need to be distinguished and used for explaining the revival of a torn down eco-system. The first one is the (simultaneous) accumulation of extremely competent people: On both the capitalistic and political side there are people that have acquired experience from exclusive assignments in multinational companies and having acted as CEOs at subsidiaries of foreign companies, in Swedish listed companies and in SMEs. The scope of experience covers various industries and functional specialises. The home returnees provided international experience and networks; and maybe most important of all; they returned home with benchmarks and visions from other countries, from small and big cities. There was a social, intellectual and experience-based capital available in Örnköldsvik for the mobilisations to be done. The second component is the creative and engaging atmosphere facilitated by the municipality’s leading politicians; that has not always been the case. There were times when, firstly, the boundary line was very sharp between the political and the capitalist side, and secondly, the municipal commissioner and the leading one in opposition were far from cooperating. Morgan and Kristensen (2006) argue that ‘institutional duality’ leads to conflicts that can be labelled as forms of ‘micro-politics’, that is tensions due

to interest conflicts or, as in this case, different social outlook on “the boundary line”. Fortunately, these politicians were followed by ‘a real horse of a pair’, which turned the climate towards collaborating across various dividing lines. The politician in charge has been able to institutionalise cooperation even across the public and private spheres of the community; as commented to us: “she is looking upon cooperation with the community’s companies as an aim as such”. The third component is the situational formation of needed coalitions, the input and usage of existing national institutions (IVA, SNS and its local group), and the creation and usage of new ones on regional and local levels: the Bothnia group and Academy, the Chamber of Commerce, and projects like Cooperation, Cesam, Vision of 2008). This is commanded by regional and local focal actors, who are making use of their personal networks and professional links. The fourth component of the magic symbiosis is simply the widely shared sense of crisis and urgency, related to the period when the real take off happened. According to Appendix 1, the process of arguing in favour of building the Arc complex in the second half of the 1980s. However, the “real take off” is registered from the mid 1990s and onwards, obviously due to the shifts in generations and the accumulation of extraordinary competent and committed people on both the capitalist and political side. The objectives outlined for 2008 were reached already during 2005. Thus, the time period from action to “retake” for World Class 2015 is more than 15 years. Restructuring processes and changes take time...

In “The Making of the Øresund Region” Per Olof Berg and Orvar Löfgren (2000, p. 21) are employing the concept of ‘invocation’ in purpose to come close to the very core of the imagined region and the “faith in the bridge,” that exists, but does not really exist - yet! Their definition of ‘invocation process’ is emphasising the proactive collective, communicative, and imaginative aspects of strategic change and the significance of collective excitation for creating commitment and action. We argue that the projects of Bothnia Railway and Processum (and its renaming to Bio Refinery) have much in common with the making of the Øresund region, and more superficially the *expected* “dynamic effects” of these projects. Moreover, we claim that this repeated strategy of invoking and instillations of problem consciousness and visions, and summoning meetings to discuss what to do?, created and enforced processes that functioned as preparations of the revival of the eco-system.

4.4 The dynamic logic of the changing Swedish business system

The purpose of this section is to make visible the new, emerging business model in a country, whose well-being has been built on natural resources and a number of brilliant innovations; these have developed to ‘competence concentrations’, around which national champions and world class engineering enterprises have been built. Thus, it was quite natural that the business system acquired a ‘big company-perspective’ orchestrated by the government and organised by big bank groups. In other words the activities and outcomes of this applied industrial policy were results of centralized measures as described in section 2. Further, from the second half of the 1960s, the state was running an “active industrial policy”. The government even launched special companies and independent investments funds to encourage and support new establishments around Sweden during a few decades; on a whole this concentration became a failure. In this Swedish case, we have described the demise of the old Swedish model and have depicted a case where completely new elements in the nation’s industrial progress have emerged.

4.4.1 Transformative dynamics, new focal actors and institutional experiments

The social democratic governments established a number of new university colleges from the 1970s onwards and were building up employees’ wage funds from the mid 1980s. These funds were dismantled ten years later by a bourgeoisie government and parts of its billions were transferred to universities and institutes, of which several were new centres of education and research and started playing regionally an important role. This resulted in a decentralisation and an unplanned huge restructuring of the innovation context with implications in the whole national business system. To conclude, the Swedish universities are now working with (by the side of teaching and researching) a ‘third task’, to cooperate with the surrounding milieu and many of them have in fact a ‘fourth task’, to act as an ‘innovative university’.

Due to the constantly increasing international competition, most of the competence concentrations and MNCs have met with severe shake-ups through mergers, acquisitions or ICT-bubble’ breaking. Related to the occurrence of all these shake-ups, hundreds and even thousands of individuals have been laid off. These individuals, with accumulated competences over their careers, are potential entrepreneurs with human and social capital, and power of identities that could be bridged to new businesses. The recycling of the human capital of Lab 41 into MoRe and Processum, is an illustrative case of such a phenomenon. As

described, the decentralisation of the university system resulted in regional centres of knowledge, which, together with the industrial competence concentrations, constitute principal ingredients in emerging local innovation systems. For that purpose, most universities have organized special offices or innovation bridges for technology transfers. This concept has become a policy by the turning of the millennium. Moreover, public agencies are supporting knowledge clusters with special policy tools: for instance, the supply in every county of “hands on services” and seed money for start-ups (this has been going on for decades), governmental growth programs (sometimes financed by EU sources) and campaigns for dynamic areas whereas local or regional innovation systems are invited (by VINNOVA) to compete for funding, and by that sharing the technical and commercial risks by a state agency; this is what we have seen in the case of Processum.

Thus, according to Eliasson’s EOE theory, a great part of the industrial restructuring needed will have to be realized through spilling over and recycling from MNCs. The author stresses (p. 226), however, that “for this to be a workable proposition, new forms of *social capital* embodied in the individuals, groups of people and society at large will have to be developed and also, most probably, dissembled from the harness of the public sector”. This is what has happened in this Swedish case. New focal actors have emerged and are in command. They are recombining experiences, resources and institutions from different sectors, and by those starting co-creating processes so dynamic that an old mill site has developed new modes for globalisation, and a stagnating mill town has revived. The new focal actors’ personal networks and professional links to national institutions and innovation systems, (regional) universities and research institutes have been significant in the strategy processing; it created a local/regional networking innovation system, linking together two different labour markets. And further, home-returnees’ engagements in the restoring of the business climate in the municipality, the situational creation of coalitions, institutional complementarities or platforms for launching and getting hold of projects and campaigns have been decisive elements in the decision-making. These initiatives are mostly taken locally and are therefore bottom-up processes. Further, these activities have been implemented by actors, who are extremely skilled, internationally experienced and powerful in their contexts and therefore capable of being proactive and to acquiring institutional support. They are for sure, not ‘any ones’ but rather belonging to Richards Florida’s (2001) creative class.

These new focal actors' engagement in social movement type initiatives is an interesting phenomenon due to their national and international reputation. They act as private citizens in multiple roles and spaces driven by an identity constituted by their work experience and cosmopolitan way of life but still tailoring their initiative to the needs of the local heritage and context. By this stakeholder participation, in some kind of a neo-corporatist tradition, they wiped out the boundaries between the political and capitalistic sides, which resulted in a force for renewal. Within this local community there is obviously a shared cultural context based on industry-specific practices and values. This concerns even sparsely populated areas due to long established mill society traditions. Some of the key persons were born there and had never left even when they have served customers globally in knowledge intensive project assignments; others had left and returned home. These people stress the value of free public service for caring and education, and "soft factors" like an equal society, a stimulating working life, competence development at firms, technological front-line, and easily available recreational milieus and clean environment. The "brain regain" of home returnees provides international experience and transnational networks; and maybe most important of all; they return home with benchmarks and visions from other industries, countries, and small and big cities.

In this Swedish case, decentralised (and sometimes also national) bodies of firm federations, trade unions, individual firm executives and politicians have been formed together in different campaigns and coalitions; there are a lot of situations when there have been "negotiations" between different stakeholders. It is obvious that the roles and interaction of every day work is very open and more ambiguous, and thus in line with Herrigel's (2007) analysis of the effects of vertical disintegration. This is contrary to experiences from other strong inter-linkages between various stakeholders that actually have caused inertia (Hall and Soskice, 2001). Dualistic governance and mini-corporatist settings have become a standard for collaborating across interest boundaries in the locality; and through all these collaborations, complementarities of organisational roles were institutionalised.

4.4.2 The power of identity and of social and human capital

This section is inspired of Eliasson's proposition for new forms of social capital needed when recycling human capital and the appearance of search network operations and home returnees, which obviously have been important elements in this case.

During the second industrial epoch it was typical to identify oneself with the company you were working for. This was even more obvious if you were working in a “mill society”, built around production on natural resources. Furthermore, if this place was positioned in the North, you probably also were working there the whole life through. The pulp and paper plant in Husum, a typical Swedish ‘mill society’ (brukssamhälle), had been a MoDo-plant more than 80 years when it was acquired and renamed to M-real. People have told us that it was impossible to start using the new name, when for instance presenting themselves in a phone call; the MoDo name had more or less become a “metabolic part” of their identities.

Manuel Castells (1997) argues that in the constantly changeable global world of today, the definition of ‘identity’ has obviously become more sophisticated and an important element in a person’s character. And the most important element of our identities in the New Economy era is not where we are working; it is rather a combination of where we are living and what we are doing. For instance the loyalty and commitment as ingredients of a civic virtue of the key creators of MoRe and Processum, were so strong that they started working to preserving the values and competence of this classical mill site. In fact, the sulphite mill had been threatened to be closed every fourth year or so during decades. The only possibility for the mill to stay in business was to be at the very forefront. Simply, all this joined the people and created “a bloody force to survive”. So finally, when the CEO in 1999 decided to close down the mill, some directors took over privately and prevented the closure. These examples are expressing a social attitude containing elements like links between individuals, fellowship, norms for reciprocity and reliability; that is a social network consistent with Robert Putnam’s (2000) definition of social capital, which is close to what could be called “civil virtue”. With Putnam, the social capital functions as some kind of putty within the group, in this case the power elite of the companies, the politicians and the civil servants.

In the traditional theory of regional growth, the geography is the decisive fundamental. Surely, this was true in ancient times, and particularly for Örnköldsvik, which became a natural last outpost to the real Sweden. Nowadays, and according to the theory of human capital, the fundamental is skilled people, who are the driving force in regional development. Consequently, advocates for this approach claim that it is very important to create abundant supply of high-educated and productive people; clusters of human capital are more important than clusters of companies. Florida (2001) goes a step further and argues that there is a special segment of the human capital, a creative class, who are the drivers of regional growth. One of

our four explanations of the revival of Örnsköldsvik's community concerns the simultaneous accumulation of extremely competent people. We argue that the abundant social and human capital, sharpened with home returnees, simply, a creative class, has been an excellent rejuvenating force in a stagnating eco-system stuck in culture and attitudes of bygone prosperous times.

Concerning local and global networks AnnaLee Saxenian (2002) has noticed that foreign-born entrepreneurs in Silicon Valley are becoming agents of global economic change. Also, they have maintained extensive professional ties to their native countries. A portion of them had returned home and others were considering doing so. Thus, the author establish the fact that nations' loss of skilled people ("brain drain") actually can be followed by "brain circulation" and a reversal of brain drain if the immigrants return permanently. Further, these protagonists' importance "to economic development lies not in the direct contribution of assets, but in the role of these networks in the design and construction of new institutions in the home countries" (Saxenian and Sabel, 2008, p. 383). As described in this Swedish case study we have noticed this brain circulation phenomenon.

4.4.3 Contra-productive and missing institutional elements limiting the progress towards innovative localities

One can wonder, however, if the Swedish institutions are sufficient enough to encourage the potential entrepreneurs brought up in MNCs to catch start-up options related to shake-ups and other crises? Why did not the key persons in the MoRe-case stake money of their own in a project they so obvious believed in? The principle explanation is that the Swedish tax system does not encourage high-salaried (well-educated) to start up firms. Simply, the alternative cost for a well-educated to give up a secure life as an employed is too high due to the progressive taxation, and the return on invested capital is therefore too low. On the contrary, for individuals with a weaker position on the labour market, self-employment can be a way to getting a 'livelihood job'.¹⁰² Thus, the focus in the industrial policy in Sweden has changed from big companies to how to improve the entrepreneurial milieu where the most decisive factors are the lack of venture capital and the contra-productivity in the tax system; these both factors concern the issue of risk-sharing in the society, but reforms and improving measures are still missing.

¹⁰² The Swedish Globalization Council, report no 12, 2008.

5. Towards experimenting, interacting and innovative

In contrast to the centralised mode of coordinated capitalism (CME), which characterised the old Swedish national business system, the described shake-ups have resulted in new experimental modes of governance and participatory organisational practices at a decentralised level and even sparsely populated area. Consequently, it has opened up new social spaces, as shown both in the municipality context and on the old mill site. These changes concern the municipality governance system, industrial relations system, national innovation system, the higher education system, the system of regional and local governance, and with that the regional and local welfare service system. The new social spaces have enabled actors to reconfigure their roles and identities and coalition bases, to make use of existing institutions, create new ones, and exploit resources granted by public actors at the local, national, and sometimes transnational level in order to reach their objectives. We hypothesize that such a constant negotiation, or rather interaction, between interest groups across different sectors, even on local levels of the society is simply a new form of stakeholderism in Sweden. These mechanisms create open innovation environments with short links to nation-wide and sometimes international competence concentrations. The “local and more available context” results in pragmatic approaches to policy-making and facilitates actors’ learning and socialisation into new identities and roles. Using terms from the old Swedish model, this can be interpreted as a new type of ‘bridging policy’. The bridging concerns the common life style values, the strive for equality, the specific mentality of compromise thinking and the consensus on labour markets, which still are fundamentals in the business system.

Further, all the clusters and sub-contracting systems of the Swedish MNCs are the humus from which new firms will be sprouting and give Sweden great opportunities to phasing out the economies of scale, and let these competence concentrations breed into new types of knowledge-based economies. Simply, continued experimenting in the organised economy and interaction with a decentralized innovative system constitutes the dynamics of the Swedish endogenous growth in the future. So, all the wide variety of flagship companies operating and having centres of excellence globally and that has brought up generations of international experienced management, which could be spilled over and recycled, will continue to be the back bone in the Swedish economy. In this case, we have found that Sweden still is a coordinated market economy, however decentralized and in command of new focal actors

driven by an excellent entrepreneurial spirit and cooperative imperatives. They are creating new mechanisms, complementarities, and coalitions for networking and use of institutional resources on different levels. They are sharing financial and technical risks by strategic interaction on national level and sharing know-how risks by exchanging information with universities and research institutes in order to survive in a borderless world. A country's well-being has always been created locally at workshops and mill plants; the Swedish well-being is now to a gradually larger extent planned and organised from a regional and local level as well.

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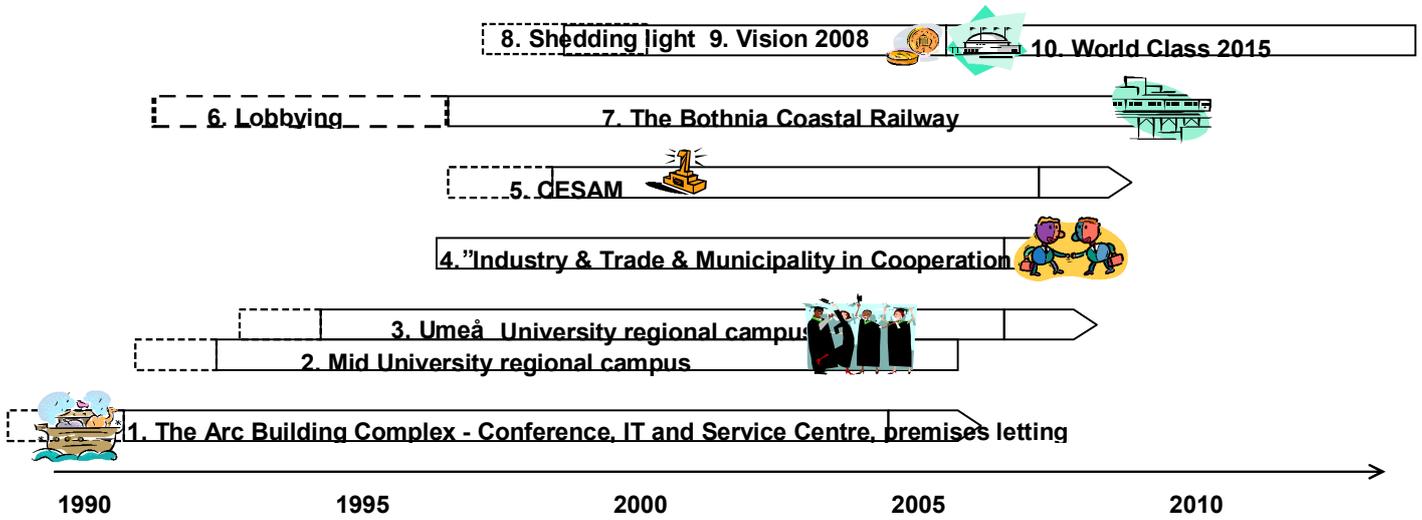
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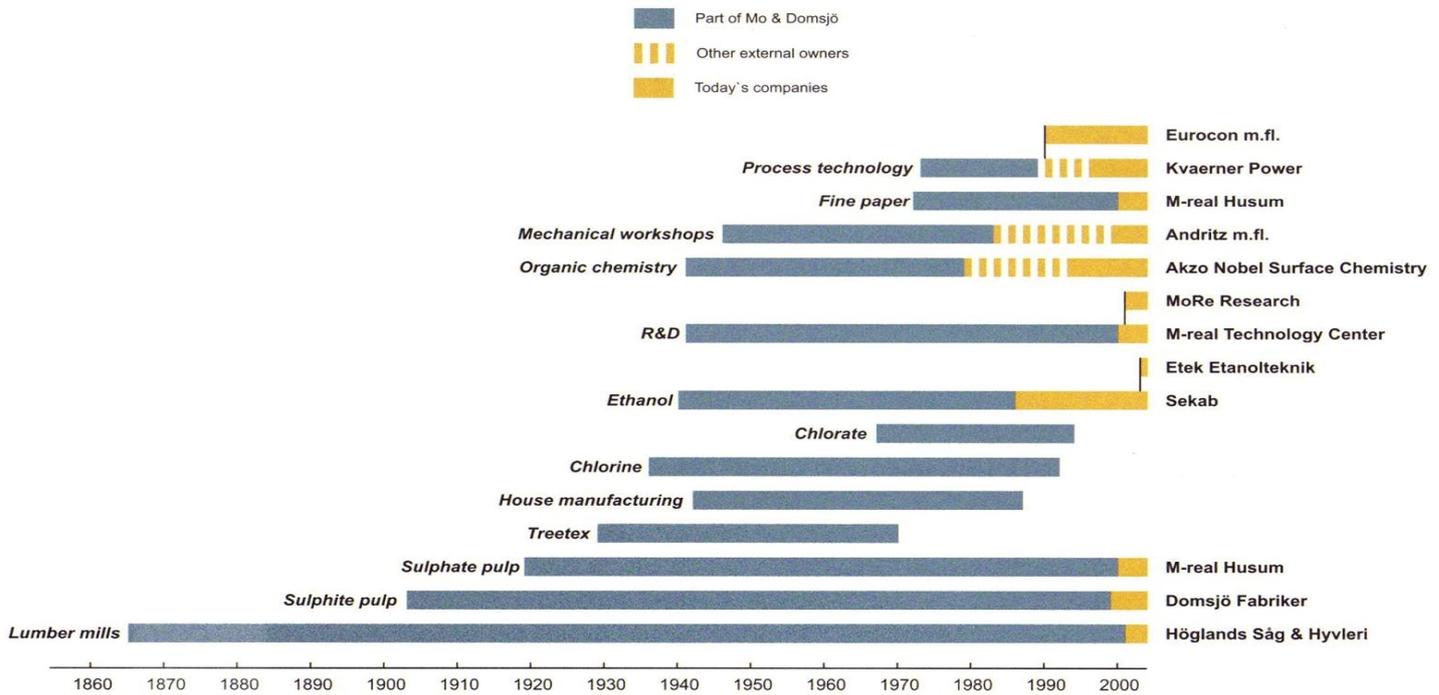
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Appendix 1

Decisive Processes and Events in the Örnsköldsvik Eco-system



Appendix 2



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Appendix 3



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Chapter 6

Slovenian Evolutionary Business System Dynamics

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Introduction: Dynamics of the Slovenian business system

- Field research was conducted in six companies. Detailed cases and descriptions of findings are integrated in the text. In order to facilitate better understanding and smoother, uninterrupted reading we are outlining some key points with regard to each case:
- **Kolektor:** Established in 1963 in a remote valley of Idrija to offer employment for local people as the world's second largest mercury mine was ceasing its operation. Company started commutator production and in 1968 entered into a joint venture with then leading European producer of commutators – German Kautt&Bux. Investing heavily in its own R&D Kolektor technologically surpassed its German partner in late 1980's and after a wave of M&As emerged as strongest global brand and global technological leader with subsidiaries in China, Korea, Brazil USA and Bosnia.
- **Danfoss Trata and Lek Sandoz** were included into our research as previously independent Slovenian industrial gems that are now successful parts of larger foreign multinationals. While Trata, a specialist in district heating technologies, was rescued by Danfoss in early 1990's as it lost its key Yugoslavian market, Lek, a generic drug producer was sold in 1998 in top shape to Sandoz which would leverage Lek's further development. Today both companies have established themselves as excellence centres within their respective multinationals and both are recognised by their flexibility.
- Apart from Kolektor, Danfoss Trata and Lek Sandoz we also present the case of **Gorenje**, Slovenian home appliances manufacturer that boasts long tradition of global market reach.
- **Parsek**, an IT company that today operates in the fields of Internet applications was founded in 1999 by four young students at the Faculty of Economics in Ljubljana. The founding of the company is an excellent example how various institutions within the Slovenian business system could be used to facilitate student entrepreneurship. Parsek developed a sister company Httpool which deals with Internet advertising. While parsek itself has remained a predominantly local-regional player, Httpool has developed into a global operation.

Recently Parsek's founders have engaged into another global joint-venture (Noovo) and Parsek, with its stable business and renowned brand can be seen as their risk-hedge.

- Companies **Goap, Systec and Instrumentation Technologies** were all founded after 1990 and have soon achieved global reach. **Goap and Systec** are sister engineering companies **founded by Mr. Grapulin**. Goap, founded in 1990 achieved rapid growth as global provider of heating-cooling-ventilation controller systems for major cruise ships. Systec, founded in 1993 on the other hand works with Italian strategic partner Danielli, providing engineers working in the field of equipping still mills. **Instrumentation Technologies** is global leader in the field of laser beam technologies for particle accelerators. It was **established by Mr. Uršič** in 1998. He quit his international career as researcher to return home and found his own company in Slovenia. Mr. Uršič believed that as an entrepreneur in Slovenia he can have better control over his company's business than it would be the case in the Silicon Valley where he worked.
- Mrs. Grapulin and Uršič have been cooperating as promoters of regional development programme for the Goriška region where their companies are located. They have managed to attract to it much larger and older companies like Kolektor which were beforehand much closed. They are good examples of strong dynamics that new global companies generate within Slovenian business system.

Traditional Slovenian subsistence-oriented risk-sharing business system

Historical roots and development

Kristensen and Jaklič (1998) describe Slovenia as consisting of localities with internal social co-operation between native social groups and local enterprises. Localities featuring strong internal social cohesion are rooted in a distant past because Slovenia's continuous geo-political situation has been structured primarily by the Alps. In such societies, locality is more than an administrative abstraction as it gives social space a physical place. Slovenian valley community can be understood as a Slovenian equivalent of a Jutland railway town, however functioning upon a substantially different logic.

Slovenian traditional business system started to get its current shape in the second half of the 19th century when feudalism was abolished in the Austro-Hungarian Empire. At that time Slovenian farmers were stuck with small farms, which they bought from previous landowners. They were heavily taxed by the Empire and in addition, the hereditary rule stated that the heir had to pay a fair share of the inheritance to his brothers and sisters in money, or the farm was divided in equal parts.

Because of that, and because of the rough farming conditions of the mountainous terrain, small farmers were prevented from accumulation of wealth and discouraged to embark on any entrepreneurial activity that would enable them to improve their farming conditions (Kristensen, Jaklič, 1998). Apart from hard work as peasants or early industrial workers people started to develop local mutualism, i.e. shadow economy and family help as means of improving their standard of living through untaxed exchange of services. Finally a passive, subsistence-oriented business system was created where unofficial institutions, i.e. moonlighting and family assistance were subsidising official institutions, i.e. system of small farms, primarily foreign or church owned forests, mining, saw mills and emerging manufacturing industry.

Slovenian traditional business system has thus been fundamentally defensively or subsistence-oriented. Hard work within the formal economy, e.g. in a factory, has held the central role. It has been assisted and accompanied by three other institutions: locality, which provided social space for moonlighting, family which assisted the hard-working individual with different services e.g. care for the elderly and finally there was the state. The latter played a highly important role as a key economic player, controller and generator of institutional dynamics. After WW II state extended and upgraded its central role as it started to provide universalistic social security and welfare. Thus apart from subsistence a general feature of the system was also elaborated risk-sharing as all the stated institutions – companies, state, family and locality were used by an individual to share and hedge risks.

An interesting portrait of the development of the Slovenian traditional business system can be seen in the example of the Idrija valley, a locality we will draw on extensively in the following chapter. On one hand highly characteristic yet at the same time also untypical valley community, that narrow, gorge-like locality in western Slovenia today counts some 12.000 people and two key Slovenian multinationals, Kolektor and Hidria, the former featuring as a central case study within our research. The economic history of the community began in 1490 when organic mercury was found in the local river. Within 20 years a mine was opened in Idrija and since then and until the 1970's local economy was based on the mine that had been world's second biggest of its kind throughout its operational era (Groff Ferjančič, 2000).

What made Idrija the most characteristic valley community was its remoteness and closeness, which resulted in strong ties of interdependence between the people and the mine (later the two companies). The fact is that the whole valley had for centuries depended on the mine as the only significant business in town which gave workers everything from money to food, vine, clothes, schooling and medical treatment. Thus there was no market left for development of private initiative. Miners had been well aware of their dependence and had developed high working culture in exchange for social safety the mine had been giving them (Groff Ferjančič, 2000).

Although importantly different, Idrija also displayed local mutualism and risk-sharing that was so typical of Slovenian business system, only it took some special form there. In order to top-up their incomes, miners, with usually their whole families helping, were allowed to work in the mine during non-working days for their own account, meaning that they sold the ore they mined to the mine (Groff Ferjančič, 2000). Interestingly, that pattern has continued within the modern Idrija's multinationals where some workers and their families use their free-time to additionally work for the company via their own account.

Yet on the other hand its economy was far from typically Slovenian. First, contrary to the case of other parts of the country, Idrija's key businesses have always competed on the international market. This has been the fact since the 15th century as mercury price was set on an international market and Idrija mine had to adjust to it. While the majority of other industries in Slovenia had been locally oriented or had not exported outside the Habsburg Empire, Idrija had always functioned and lived in sync with international market. The same story continued during the socialist era. While the majority of other businesses were oriented to the Yugoslav market and enjoyed protectionist measures, Idrija's fortunes continued to be earned on the international market (Groff Ferjančič, 2000), first by the mine and then by successful export activity of its companies. Thus, it is not surprising that today both companies from the Idrija valley are multinationals. Knowledge of doing business on international scale has had a long tradition in Idrija.

Second, people of Idrija have for centuries been workers rather than peasants as it was the case in other parts of Slovenia. Local inhabitants have based their living on industrial work rather than on agriculture for which their valley with steep walls and cold climate was in any case ill-suited.

Third, a considerable pool of engineering knowledge has been created and a culture of engineering achievements has become established. In 1728 a technical and geodetic school was opened to train miners and engineers. Strong linkage between education and industry has continued until today as both multinationals have been investing actively in their employees.

Traditional business system and its development

Like the locality of Idrija is a miniature picture of Slovenia, Idrija's primer multinational Kolektor is at the same time a characteristic but also in a way untypical example of Slovenian traditional business system functioning at the corporate level.

Kolektor's founding in 1963 was, in line with the socialist practice at that time and in line with an activist government approach typical for Slovenian traditional business system, a political decision by the central Slovenian government which wanted to provide jobs in a town where the mine was closing. In a few years time however it became clear that domestic technology in the field of commutators was out of date and that that a foreign strategic partner was needed to bring more advanced technological knowledge. Thus in 1968 German Kautt&Bux (K&B), then European market leader became a strategic partner and 51% owner. Although cases of foreign strategic partnerships were few at that time, Kolektor signals a general feature of traditional Slovenian business system: its openness and strong ties to western-central Europe stemming from centuries of development within the Habsburg Empire. These western ties were never severed and can be seen as a crucial contributor to Slovenian socio-economic development.

Similarly, development of Kolektor, although in team with the German K&B, was in many ways characteristic of Slovenian industry between 1960's and 1980's. As many other Slovenian companies Kolektor built upon foreign technology and set upon a path of incremental innovation which was well-suited to the concept of stable life-long employment and fordist work organisation followed by the majority of (large) Slovenian industrial players.

In line with their work organisation, Slovenian companies have followed the German innovation pattern (Soskice, 2004), focusing on the known technological trajectories and specialising in incremental innovation. Innovation process has been cumulative and employees have consequently developed firm-specific knowledge and skills. In such circumstances innovations are best implemented by long-term employment and in-house training rather than hiring and training new

workers (OECD, 2006). Kolektor has been and partially remains an almost perfect example of the Chandlerian approach to innovation characteristic of the “old”, i.e. ex-socialist large Slovenian companies.

As we show later on, this closed approach to innovation has inhibited the ability of large old players to adapt to modern open innovation approach needed in a globalised environment. Furthermore, the closed Chandlerian approach to R&D and ensuing firm-specific knowledge have inhibited the labour market mobility of employees.

At the same time the majority of Slovenian companies could be described as diversified niche players. While each company covered its own core business niche it hedged the risk of being dependent on one product or sector by venturing into a handful of other businesses. Thus companies developed technological focus on the level of departments or business units, while being diversified on the corporate level. To this extent Kolektor, at least until the last decade, was an exception. Being strategically controlled by K&B until 1990's it was forced to remain entirely focused on commutators.

Overall, old Slovenian manufacturers present an interesting contrast to the Danish firms. While both environments seem to have been better suited to support incremental innovation than radical one, Danish firms have implemented it with a dynamic workforce and by championing product networks of small, specialised firms. Slovenian companies on the other hand have opted for stable workforces and instead of building alliances with other firms they diversified internally. It is easy to see that traditional Danish model could easily adapt to the network and open-innovation reality of the modern global economy while old Slovenian companies have struggled to grasp it, as we show later on. Furthermore, traditional Danish labour force mobility coupled with a strong life-long learning turned out as a welcome tool for knowledge transfer and innovation boosting. Slovenian life-long employment and highly firm-specific knowledge on the other hand deprived workers of greater mobility and companies of innovative and networking potential.

Another area where Kolektor differed importantly from the majority of Slovenian companies was its business philosophy. In line with its Idrija's heritage of technological excellence, Kolektor invested heavily in its own R&D. It was so persistent in learning from K&B and developing its own

solutions and committed to excellence that by early 1980's its technological level surpassed the level of its German "mother". This way Kolektor established itself as strategically able company that could compete with any global producer in its industry. This strategic ability gained primarily through its own R&D later launched Kolektor as a global market leader.

Majority of Slovenian companies, while they did invest in R&D and technological development, they did not go that far as Kolektor did, i.e. to establish themselves as international technological leaders, rather they focused on cosy Yugoslavian market and competed internationally on the low-cost, low-price basis.

This is logical if we know the background story. After the WW II victorious partisans who took over the rule, acted in line with Slovenian valley community reality and undertook an entrepreneurial role. "Partisan managers", i.e. people who were trusted members of the Communist party, often due to their role in WW II guerrilla fighting started establishing industry i.e. factories that would give people work and an income that, together with the proceedings from small farms could enable people to live a decent life. Partisan managers were assessed from two sides, i.e. from their locality and from the Party, with the former being the key constituency. Namely, the partisan manager being a local himself was the "primus inter pares" and was assessed by his fellow locals by the level of economic prosperity his factory was creating for the valley community. The Party, at the top, was primarily interested in the public sentiment since they considered their legitimacy coming from their ability to provide for public prosperity (Jaklič, 1998).

Partisan managers formed a tightly-knit network that functioned on the basis of mutualism and reciprocity, meaning that they helped each other develop their businesses and overcome difficulties. At the same time they were tightly connected to their localities which expected them to provide jobs and income. Local companies in fact became the economic engine of the valley communities providing jobs and wages to the employees, scholarships to the employees' children and cheap loans to the employees who were building their own houses. Overall, industry was designed and functioned to support the traditional Slovenian business system and not to change it (Ibid, 1998).

Although companies were organised in a mass-producer, Fordist way they employed a lot of skilled craftsmen. They were willing to bow to a rather dull repetitive work in exchange for social safety

that the company gave them. Further, they could more than express their abilities in the afternoon when, as moonlighters, they helped their fellow locals build their houses. At the same time companies were also tightly linked to moonlighting. Particularly middle managers were in charge of covert transactions that benefitted the community rather than the company itself and companies were seen as a mean of accessing resources that were otherwise beyond the locality's reach.

Another peculiarity in the functioning of the companies was the lack of hard budget constraint, a feature that was all-encompassing and the result of lax monetary policy used as the ultimate risk-sharing tool since it prevented any company from going bankrupt. As a consequence Yugoslavian dinar was not convertible and country was chronically in need of foreign exchange. Companies were therefore stimulated to export and generate hard currency inflows even if it meant selling abroad with a loss. That eventual loss could be made up by selling with profit at the well protected home market.

Although Kolektor was no different from other Slovenian companies in all the terms of its importance as a local economic engine, it did due to its joint-venture status avoid described dubious business practices, focusing instead on core competences which later enabled the company to emerge as a global market leader.

Slovenian business system logic: risk-sharing, cautious incremental experimentation and evolutionary socio-economic development

In order to understand the development and functioning of the Slovenian traditional business system it is necessary to tackle its core logic i.e risk sharing that has facilitated cautious incremental experimentation which has in turn led to steady or "gradualist" evolutionary socio-economic development.

The fact that social, economic and political development in Slovenia is rather gradual and evolutionary was best seen during the transition in 1990's. As Slovenia entered and advanced through the transition period it was regularly described and criticised as a standard-bearer of the gradualist approach towards socio-economic change (Mencinger, Jauregui 2004). While Slovenia did in fact take a very gradualist approach to economic transition, that was, first, not something that would have been imposed on the country by the governments of the time or their economic advisers

but rather a continuation of a long legacy, and second, gradualism did not mean standing still, but a cautious progress.

After the 1848 March revolution Slovenia has lived through a number of deep-impact political and economic changes and challenging times. Yet the changes and challenges, ranging from the abolition of feudalism in 1848, communist revolution in 1945 and finally restoration of market economy in 1991, left the fundamental logic of traditional Slovenian business system intact. No revolution dismantled the system, rather each ruling elite adopted and used it to achieve its own goals. The 19th century capitalists used the established elements of Slovenian subsistence-oriented peasant business system to effectively subsidise the production. Neither did communists, after the takeover in 1945 challenge the essence of the traditional business system. Rather they legitimised their rule by leaving valley communities and tailoring industrialisation to their needs, in a stark contrast to some other communist countries where economic policy would dictate the fate of localities.

While the building blocks of the traditional business system remained in place despite the changes, their actual functioning always adapted to the changing circumstances. During socialist period shadow economy, for example, adapted to the fact that factories were socially owned and were part of the local society. Soon the ties between official and shadow sectors were strengthened as socialist soft budget environment allowed for localities to extract extra benefits from companies. At the end of 1980's functioning of the traditional business system changed again, this time into the "transition mode". Now it was localities that helped their companies by accepting wage freezes and longer working hours. Job in the official economy has remained the cornerstone of the risk-sharing system but as it has at the same time ceased to be guaranteed, other risk-sharing institutions were assigned different tasks to help an individual keep its workplace, e.g. family assistance relatively increased or an individual stepped-up his or her moonlighting activity to offset falling real incomes from the official sector caught in transition crisis.

Thus traditional Slovenian business system has allowed for significant flexibility in terms of dynamic complementarities it has been able to support. Changes in the functioning of the business system have been facilitated by its risk-sharing nature which provided backups in case an experiment failed. Yet as the system's core has remained fundamentally stable, the changes in

dynamic complementarities have been the result of incremental experimentation rather than revolutionary breaks.

Incremental experimentation has been the driver of evolutionary changes in the functioning of the business system and has been a permanent feature of all the business system building blocks. Due to its past position of the central economic player, most visible and important experiments were undertaken by the state: from socialist introduction of workers' self-management and recurring oscillations between market and planning to modern activist industrial policies in order to first save Slovenian economy at the beginning of the transition to influencing its faster development later on. Perhaps the best example of Slovenian incremental experimentation has been the evolution of the welfare system in the past two decades when its predominantly continental features have been supplemented by anglo-saxon and Nordic approaches in order to save money and increase its efficiency.

Firms have been experimenting as well. During socialist era they spread their bets between foreign and domestic markets, to earn profits on the latter and hard currency in the former. Several companies established strategic partnerships with foreign corporations or established businesses in developing non-aligned countries. Transition forced companies into experimenting to cut costs and increase their flexibility by measures ranging from early retirements and social pacts to unpaid overtime and the use of student workforce. Today, best companies are trying to jump on the innovation-driven competitiveness bandwagon by experimenting with open innovation systems, investing in venture capital funds, building networks and the like.

Individuals have also had their ways of experimenting. Primarily it has always meant combining a formal job and afternoon moonlighting. In 1960's and 1970's people took advantage of the possibility to work abroad as guest workers for a few years, coming back later and building houses for their families from savings. Others saw their opportunity in free educational system or in establishing their own business since the beginning of 1990's.

Modern dynamics of the Slovenian business system

If there was an experimentalist dynamics in the past that enabled Slovenia to develop according to the challenges of the moment, can the same be argued about the current period? The challenge Slovenia has been facing in the new millennium has been the need to progress from investment-driven to innovation-driven competitiveness. Are there corresponding dynamics within Slovenian business system?

We believe that important examples of such dynamism can be found in Slovenia. In order to best understand them, we first present a short overview of general business system dynamics during the transition period. Next we shift our focus to the present moment and present the dynamics through typological analysis of Slovenian firms.

Transition

The combination of Yugoslavian socialism and Slovenian traditional business system distracted companies from true market competition and efficiency. However, that became a priority with the break-up of Yugoslavia in 1991 when Yugoslavian market was largely lost for Slovenian companies due to war in Croatia and Bosnia and economic sanctions to Serbia. As Slovenian market alone was too small to suffice for survival and Yugoslavian was gone, companies were forced to seek survival in exports to Western markets. This time, however there was no room for selling at loss.

As the majority of companies were not in position to compete on the basis of brand or technological leadership, their only hope was price competition. This in turn meant cost competition. In order to survive, those Fordist-like manufacturing companies that were at the time economic engine of Slovenia had to cut costs and improve their productivity within the existing work organisation paradigm. There was simply no time to build their competitiveness on improved or new products of higher value-added level. What is more, in order to cut costs, many companies cannibalised their R&D departments.

In order to survive, two general solutions were found at the corporate level within the traditional business system framework: intensification of work and alternative use of institutions. Both were

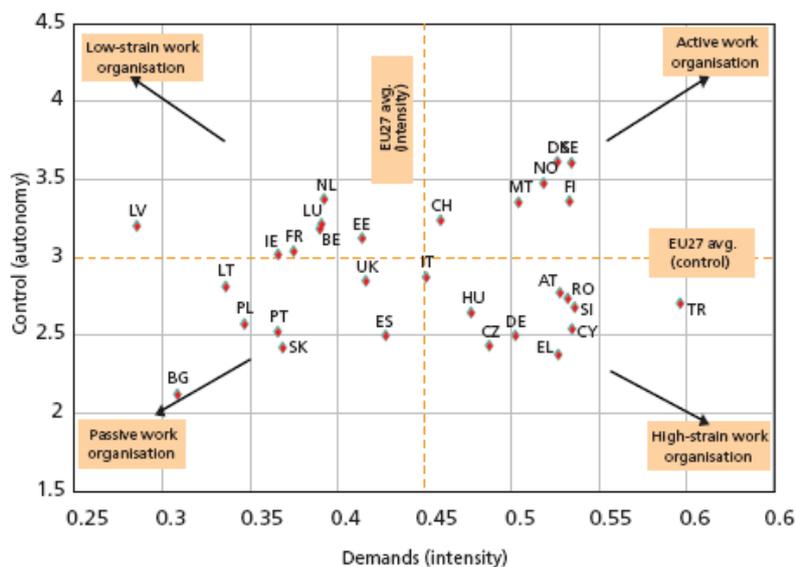
basically aimed at rising productivity and cutting costs and the two solutions were often used in combination.

Transitional intensification and flexibilization of the traditional business system

Practice of building competitiveness on Fordist effectiveness rather than innovation was early on legitimised and sealed by agreement between trade unions and employers. In exchange for safe and stable jobs trade unions acceded to intensification of work and wage moderation (Stanojević, 2004). This risk-sharing agreement, forged in a need to survive, has continued functioning until nowadays and it has been the case particularly in companies that are old local or regional players. European-wide research has showed that even in the 200-2005 period Slovenian workers reported the largest increase in perceived work intensity in the EU (ECwcs, 2007). Combination of high work intensity and Fordist work organisation led Slovenia in the direction opposite to the much admired Scandinavian peers where effort may be just as high but workplace autonomy is far greater (Figure 3). This lack of autonomy in turn radically changes the nature of the workplace strain in turn leading to high dissatisfaction at work as we show later on.

Figure 3: work intensity and autonomy

Figure 6.12: Job demands and control, by country



Source: ECwcs, 2007

In hand with intensification of work another measure was added: flexibilisation. This implied a development of a dualistic labour market (Stanojević, 2004) where one part of the workforce is highly flexible and low-cost, employed either as student workers, “borrowed” workers from employment agencies or employees on short-term contracts and the second part features higher-cost core workforce, employed on more rigid and better protected permanent contracts. Young people that enter the workforce generally make up the flexible group of employees, working on temporary contracts, enjoying fewer benefits and being under constant threat of being fired if orders drop. The stable, permanently employed core workforce takes care of the core business, and young employees from the unprivileged group are let into the core group only after some years after proving themselves and under the condition that economics, i.e. business allows it. Share of temporary contracts rose continuously throughout the transition and continued so even afterwards. In the 200-2005 period the share of temporary contracts increased from 13,7% to 17,4% of all contracts, putting Slovenia among EU countries with the highest share of temporary workers (Pajnkihar, 2007; Eurostat 2005 Yearbook), only Spain, Portugal and Poland ahead of us. At the same time Sweden and Finland barely fare better than Slovenia (approx. 16,0% and 16,5% respectively), while Denmark differs radically, with a very low figure of just 10%. The reason for the difference seems to be in the amount of hire and fire regulation, which is very light in Denmark and much stricter in Slovenia, Sweden and Finland.

Flexibilisation and cost-cutting imperative led to the appearance of an extreme phenomenon: costless output flexibility in the form of unpaid overtime. Overtime was needed to boost output flexibility but as alternative jobs were scarce, employees lacked the bargaining power to demand fair and complete payment. European Commission panel research estimated that in 2001 more than 58% of all Slovenian workers who worked extra hours received no payment (EC, 2004, p. 157).

Alternative use of institutions: subsistence-oriented or productive tool?

Alternative use of institutions has also been extensively employed in transition and post-transition Slovenia, primarily in order to cut costs and increase output flexibility. Here we are talking about using existing institutions in ways that were not originally planned by their creators. However, our research showed that institutions can be alternatively used well beyond the mere subsistence purpose, as entrepreneurial or business development facilitators.

Best example of alternative use of institutions is student work, a facility originally created as a social corrective. Employers like it since it is free of obstacles to hire and fire and since it is only lightly taxed. Students can be hired quickly through a widespread network of student work agencies and fired in the very moment they are not needed anymore, with any financial consequences for the employer. Cost of student work for an employer is a mere 112% of student's actual net salary. In case of a permanent or temporary contract the corresponding percentage is close to 200¹⁰³.

The 2007 Eurostudent research project showed that 65% of all Slovenian students work, on average 17 hours per week. This amounts to an equivalent of almost 49.000 full-time jobs or approximately 6% of all Slovenian full-time jobs. Youngest students that work dedicate on average 9 hours a week for their job and earn 150 € per month while the oldest students work on average 39 hours per week and earn over 800 € per month (Eurostudent 2007). Among 1st-year students only 41% are working, 92% of their oldest student colleagues have a student job (Eurostudent 2005). Further, among working students some 50% find jobs linked to their field of studies and future profession while a half does not. This clearly shows that while for younger students student work represents a means of earning some extra money, final-year and older students are basically employed full-time only not under a normal permanent or temporary contract.

Student workforce has brought lots of flexibility into the system not only because the terms of their contracting have been so flexible but also due to their abundance. Before the transition, e.g. in 1990, the number of university-level students in Slovenia was 34.000. Ten years later there were already 81.000 students and in 2006 the number reached 100.000 (Slovenian Statistic Yearbook 2007).

Beyond simple subsistence-oriented cost cutting and flexibilisation achieved by employing on the basis of student work contracts instead of regular contracts, student work has proved to be an enabling institution beneficial to both employers and students. This is best demonstrated in our field research case of a small IT company named Parsek.

Parsek was founded in 1999 by four final-year student colleagues who met each other while working on a project in a student research lab under the auspices of the head of Entrepreneurship department at the Faculty of Economics in Ljubljana. The research lab was on one hand in fact just a tiny room equipped with modern and powerful IT equipment but on the other hand it served a

¹⁰³ Calculation of the authors

much larger purpose. Its true but hidden mission was to function as an entrepreneurial incubator. It had to be officially a research unit in order to be given a room and funding at the Faculty that had little understanding for any “entrepreneurial incubator” attempts.

In line with the lab’s mission the young team enjoyed a great freedom of action beyond their obligation of finishing their research project work. As they discovered a mutual entrepreneurial interest they used the lab and its equipment to pursue their first venture – compilation of student yearbook. The revenues were used as a start-up capital needed to go for real. They founded Parsek. Company started its business in three areas: First they innovated in the field of indoor advertising and which brought them a welcome cash flow. In the field of publishing they used their student experiences of preparing a faculty student yearbook and sold their knowledge to five other faculties. Soon after starting their business in the fields of advertising, publishing and web development, they decided to focus entirely on the opportunities that Internet was offering as a media. Since they lacked the resources to fund an IT business they found a business angel who gave them the equipment and finance in exchange for their service of addressing one business opportunity in the internet market. They succeeded, secured the financial basis and acquired broad knowledge and skills. Then they truly started the business of web development service for blue-chip clients. After one year of operations they realised 100.000 € of revenue and a small net profit.

At that early stage company needed flexibility and low overhead. They succeeded by heavy use of student work. Everyone, including the founders worked under the student work status which implied low taxation and great flexibility to hire and fire.

While low costs were one of the prerequisites to succeed, it was not enough. What really made the difference was technological level. Parsek managed to develop unique client web content management software which placed the firm as industry leader in the country and region. All that combined opened them the doors to signing contracts with some key Slovenian blue chips.

As the four founders reckon today, they have always wanted to be their own bosses, however they were also able to find institutional support for their student entrepreneurial ventures. They combined all the institutional facilitators within their reach: they could allow experimenting with a venture as they enjoyed full social security as students. Further, as students they had an ample

amount of free time, student work status as a source of earning start-up capital, gaining flexibility and cost-cutting measure. At the same time Slovenian market was hungry for hi-quality web-related IT services.

After just a bit more than a year into functioning Parsek was spotted by a British venture capital fund and founders agreed to sell 75% in exchange for funds for growth. Indeed, company expanded to Japan and to entire ex-Yugoslavia, hired experienced staff, grew its business and strengthened its brand. However, in 2005 Parsek agreed an MBO with which it became independent again as venture capital fund and the company realised their strategic priorities started to divert.

Parsek's growth in that period was, although rapid, primarily cautious. Company continued to function on the student work basis, thus retaining output flexibility and minimising costs. If needed, work was additionally outsourced to external freelancers or even own employees in order to avoid expensive overtime. Yet Parsek established itself as one of the hottest employers in web-related IT industry, despite demanding work, rather long hours and wages that were not the highest in the industry. Parsek was hiring mostly right from the university, employing final-year students and they have anyhow managed to attract the best brains. This was possible as the company created a strong brand with the reputation of innovativeness, technological excellence and dynamic work with intensive learning. In fact Parsek succeeded in establishing a virtuous circle. By initial drive and high technological standards it first created strong product brand and innovative working environment which in turn attracted best brains, creating conditions for further strengthening of initiated business model.

All the time Parsek has continued as the leader on Slovenian and important player on the regional market and it has done that by being local technological leader. This has not implied blue sky research but rather being best at implementing relevant global technological developments on the local level. To achieve that Parsek has practiced a very open-minded approach, with focus on hiring on the basis of knowledge and interests rather than formal diplomas and employees have been encouraged to build and maintain strong intra-industry network in order to foster innovativeness and technological excellence. Consequently, Parsek's employees are highly valued by other firms in the sector and have no difficulties finding another job.

Since 2005 Parsek has, however, changed from a very “student” company to a much more mature organisation. Although student workforce continues to be the main measure of achieving output flexibility and testing new employees, the core employees now work under permanent contracts. The need to provide continuity and service reliability to established clients has become stronger than the full-fledged flexibility.

The example of Parsek shows that although student labour was used to achieve lower costs and higher output flexibility, the effects do not stop there. Alternative use of a welfare-state institution was, in the case of Parsek, employed as an enabler for entrepreneurship on one hand, while students working for the entrepreneurs gained abundant work experience and skills which made them highly employable.

From this point of view, student work facility could be a good lever for the development of (student) entrepreneurship, particularly since in case of students there are other risk-sharing mechanisms in place that enable them to take on the entrepreneurial gamble. Students as entrepreneurs run little risk since their social security is covered by the state, their costs are subsidised by the state as well and they usually live with their parents and the alternative income they have to forgo is relatively low. On the other hand students as employees need work experience to increase their competitiveness on the job market when they have finished their studies.

There is another important point to be drawn from the Parsek case. It shows that the alternative use of student work was not employed in a way to protect and prolong the subsistence orientation of the firm, but was rather a tool that enabled the firm to grow beyond subsistence orientation.

The same productive or “offensive” approach was spotted at other companies, like Danfoss Trata, Kolektor or Lek-Sandoz. All mentioned companies can only make limited use of student work to help output flexibility since their production processes are generally too complex to be mastered in a summer holidays’ time. Rather they employ students in order to get to know them and introduce them to the business before employing them full-time.

Traditional role and transition dynamics of family and locality

Slovenian family has always been an important supporting institution in the context of traditional subsistence-oriented business system. It enters into various risk-sharing arrangements with other

institutions or sometimes functions as a shock absorber on its own. Yet it has never been a generator of entrepreneurial or economic activity in general like it has been the case in Italy or Greece. Rather, it has always supported the official and shadow sectors in different ways.

First, the family has been an important mechanism for improving the quality of living through different transfers in kind. One example is childcare: although Slovenia displays an effective childcare system (as described later on), approximately 25% of all babies are looked after by grandparents and 45% are taken to and picked up from kindergarten by their grandparents. (Černigoj-Sadar, 2004). Here, family on its own or in combination with the welfare state enables parents to keep up with the double burden of family and long working week.

Second, family has helped lower costs of living which has been an important element in the subsistence-oriented business environment. For example, during the socialist period it was common that larger houses with two flats were built. That way parents and one of the children with his or her own family could live in the same house, which was also financed by both parties, thus reducing the financial burden for each of them.

Sometimes the institutions of family and shadow economy melted together and family took a role of top-up income earner. We have mentioned one example – Idrija's families that helped their fathers work in mine for their own account on weekends. This practice can still be found in Slovenia: especially in mid-1990's plenty of Kolektor's workers and their families used their free time to work as company's co-operators which helped the family to increase its disposable income while it gave welcome output flexibility to the company.

Strong involvement of family in the risk-sharing between subsistence-oriented official economy, welfare state and shadow sector is not surprising taking into account that it continues as a central Slovenian value (Inglehart, 2001; Toš, 2005) with 89% of population considering it as very important. Further, the fact of 60% of people spending whole life within the same community they were born into (Filipovič, 2004) helps to understand why family and intergenerational ties within it can be so strong and important in Slovenia – family members simply stay geographically very close to each other.

The importance of the family has increased throughout the transition, a fact that in line with a rather traditional/catholic cultural background of Slovenia is largely explained as a consequence of increased insecurity of the transitional times (Filipovič, 2004) and which can be understood if we take into account just the increased demands of the companies for increased efficiency and working week length.

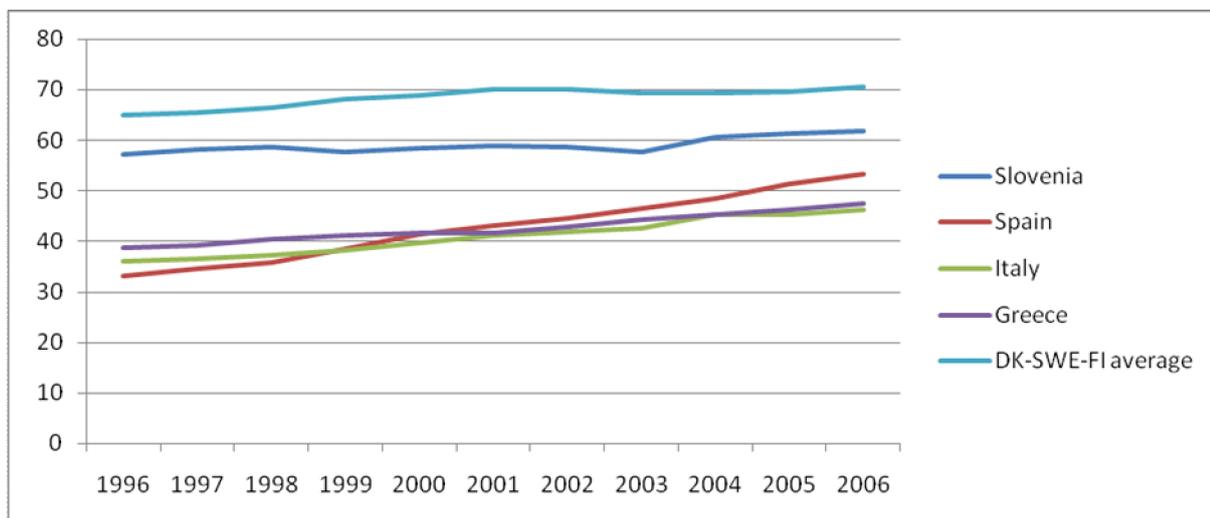
The increased role of the family can be best seen in the case of young people gaining economic independence. As the jobs became much harder to come by at the beginning of economic transition a lot of young people prolonged their studies and enrolled to the university. Although university education is financed by the government and thus free and although the government provides subsidized meals and transportation to students, as well as housing and student work facility, students in continue to partially depend economically on their parents. And even beyond their studies over 60 % of young people expect their parents to help them find a job, 90 % expect parents' assistance in resolving housing problems and in the field of childcare (among them 50 % expect their parents to be highly helpful in both cases), while 75% of students expect their parents would help them financially (Filipovič, 2004).

Family's assistance in the field of housing is another important aspect which importance grew during transition. A recent research by Cirman (2006) showed that among people that had either built a house or renovated a flat 24% got some financial assistance from the family while 44% got either a plot of housing land or an existing building/flat to renovate or upgrade. The latter type of assistance was most common on the countryside where it applied to approx. 50% of cases. Cirman (2006) further stresses that since 1991, due to rapidly rising housing prices and lack of favourable institutional financing options the relative importance of family financial and in-kind assistance rose sharply. Thus 36,5% of all purchases of housing between 1998 and 2005 were financially backed by families and in 54,6% of cases there was assistance in terms of building land or an existing building/flat that was renovated. This is, respectively, some 50% and 25% more than between 1972 and 1990.

Although Slovenian family plays an important role in the life of its members, it cannot be labelled as a "Mediterranean" type family. The strongest evidence is consistently high rate of women inclusion in economic activity which has consistently surpassed the levels seen in Spain, Italy or

Greece. Although data before 1996 are not available, patterns are clear: economic activity of women in Slovenia has resembled the Nordic pattern, while Mediterranean countries have been catching up.

Figure 2: Economic activity of women: employed women as % of women aged 15-64



Source: Eurostat(w.e.), 2008

Apart from higher rate of women involvement in economic activity, Slovenian family functions quite distinctly from e.g. Italian one. Intra-family help and assistance concerns just the relationship between the nuclear family and its grandparents rather than an extended family in the sense of aunts, uncles, cousins, etc. Further, family entrepreneurship is relatively rare in Slovenia. Family enterprises after 2000 comprise between 40 and 50% of all Slovenian enterprises, while the corresponding figures for Italy, Spain and Greece are 93%, 75% and 80% respectively (Duh, Tominc, Rebernik, 2007; IFERA 2003).

Localities, i.e. tightly-knit valley communities performed a double role during bumpy transition period. On one hand they helped the official economy, i.e. their factories to survive. On the other hand they hosted an increase of the shadow economic activity which helped people to share the increased economic risk and burden of the period.

Due to the fact that local companies were the engines of valley community economies and central to an individual's economic well-being, it was crucial for any locality that its factory overcomes transitional recession. Localities' economic dependence from their factories and the fact that there

was no time and no money to change from the established Fordist work organisation in fact facilitated intensification of the working process.

We will again use the case of Kolektor as a highly characteristic but not typical example.

What is not typical about Kolektor is the fact that the company did not suffer a large-scale business crisis during transition, primarily due to its international competitive position which made it practically independent of Slovenian or ex-Yugoslavian market. When other Slovenian companies were fighting for survival, Kolektor was in top shape acquiring its long-time German mother K&B, US Kirkwood and Korean Sinyung. Around 1995 Kolektor was an undisputed global market leader in terms of costs and technology.

However, a few years later, Kolektor did face a challenge that pushed the company in substantial intensification of its production process. At the end of 1990's Kolektor realised that their Far East competitors were closing in fast with price and, even worse, with quality. Management feared that their competitive position would soon be eroded beyond repair. Company decided to respond by strengthening its technology development, improving the quality of its products, i.e. radically decreasing the number of mistakes per million of produced pieces and cut production costs.

Management communicated the delicate competitive position to the employees and presented the solutions, a move that was far from typical for Slovenian companies during transition. The response of the employees, i.e. of the Idrija locality was highly characteristic of a Slovenian locality helping its factory to overcome difficulties. They acceded to important increase in productivity, in longer working hours and increased flexibility. They also cooperated intensively in efforts to improve quality levels. In a few years time Kolektor managed to significantly cut costs and improve quality. Thus it asserted its position as a global technology leader while the cost leadership, accompanied with significantly lower quality levels went to China. Nowadays management admits that the dedication and responsiveness of their employees were crucial for the company being able to successfully overcome difficulties.

Moonlighting was the other phenomenon facilitated by valley communities that helped people share the burden of transitional economic crisis. As an important risk-sharing institution within the traditional business system shadow economy in Slovenia shoot up at the beginning of the transition

crisis but even after the worst was over Slovenian shadow sector remained rather extensive: in 1992 Schneider (2000) estimated the size of shadow economy in Slovenia at 28,6% GDP while ten years later, in 2002, his estimate was even higher, 29,4% GDP (Schneider, 2000; Schneider, 2004).

This dynamics can be understood as a subsidy effect of the shadow sector towards the formal within the traditional business system mode of functioning. Just like in the late 19th century Slovenian shadow economy subsidised the official sector by topping-up workers' incomes and allowing companies to pay rather meagre wages which were necessary for the companies to stay internationally price competitive.

Considering shadow economy from a broader perspective of a traditional business system, it fits perfectly with the underlying paradigm of "hard work being the true work", which continues to be very central and present in the Slovenian society (Toš, 2005). This "hard work" paradigm is primarily about working "more" rather than "smarter". And moonlighting is definitely about working more rather than smarter. In order to stay below the tax authority radar shadow economy is largely limited to one-man undertakings providing traditional, low value-added services and products.

In relation to the shadow economy Idrija again proves to be untypical Slovenian locality since shadow economy seems not to be particularly developed there, however the "work more" paradigm is very present though. As already mentioned, Kolektor initially outsourced part of its simple manual production to the local people. Consequently the latter could top up their income by "working more", i.e. in the afternoon without moving into the shadow sector. Kolektor on the other hand benefited from lower costs as it paid contractors per piece and improved output flexibility.

State: active player within traditional Slovenian business system

Throughout the period of traditional business system, i.e. between mid-19th century and the end of economic transition in about 2000, state acted as the single most important player from the view of economic and welfare policy-making.

On the side of economic policy, during Austro-Hungarian period it developed bureaucracy, taxes, judiciary system and built railways. After WW II the socialism gave the state a position no less important, although Slovenian partisan-managers were quite successful in creating shortcuts and

redirecting power from the hands of state to the local level. Throughout the socialist era, (Slovenian) government practiced a lot of incremental experimentation, e.g. self-management, a number of market-oriented economic reforms and strengthening the economic ties with the West. At the beginning of transition Slovenian government was forced to continue in the central position, that time as economic lifeguard. Apart from implementation of macroeconomic stabilisation it had to bail out major banks, take under its custody almost all major companies and start privatisation and de-nationalisation processes.

When the first transitional shock was over the state took over an active developmental role as it initiated different microeconomic stimulus programmes aimed at increase in innovation and entrepreneurship. Incremental experimentation continued as the government introduced and sponsored the concepts like clusters, technology networks and platforms, entrepreneurship agency, entrepreneurial incubators and technology parks, etc. Here the state mimicked the Finnish approach and tried to “transplant” several of its crucial institutions.

The results of the government’s intervention have been mixed. While macroeconomic stabilisation was a success best confirmed by Slovenian early adoption of the Euro in 2006, microeconomic stimulation has not produced significant results. Clusters, networks, platforms and agencies have been there but in terms of innovativeness and entrepreneurship Slovenia has continued to lag behind the EU-15.

On the welfare side, Slovenia developed an extensive continental-type social welfare system encompassing employment policy, social transfers, healthcare, education and pension system during its socialist period. At the beginning of the transition period, about 1990, state as a guardian of the social welfare system was faced with rising difficulties running the system. At the same time public sentiment demanded that economic restructuring must not mean a destruction of the welfare system (Toš, 2004).

Since 1990, that system has been stretched between unfavourable demographic trends, i.e. rising number of pensioners, a large increase in the number of unemployed at the beginning of 1990s and rising demands resulting from ever more developed healthcare on one hand and general pressure

towards a more efficient welfare system that does not undermine public finances and motivates people to work and be active.

In order to keep the system sustainable several reforms were introduced, particularly in the fields of pensions and healthcare that mostly went towards shrinking the rights and introducing additional payments. However reforms were largely incremental and aimed at preserving social equality that has been highly regarded within the Slovenian society (Toš, 2004). With regard to this, Slovenia ranks very close to Scandinavian countries since both are ranked among the top 20 according to the GINI coefficient, displaying more egalitarian societies (in terms of income distribution) compared to other western economies, namely the US.

Table 1: GINI coefficient country value and rankings in 2005

Denmark	Sweden	Norway	Finland	Slovenia
24.7 (1 st)	25.0 (3 rd)	25.8 (6 th)	26.9 (10 th)	28.4 (15 th)

Source: UNDP, 2005.

Although reformed in several aspects, the system has been preserved. Social researchers agree that it managed to survive the transition without significant cuts (Črnak-Meglič, 2005; Filipović, Mandič, Boškić, 2005). This is supported by comparison of the overall social protection expenditure as a percentage of GDP.

Table 4: Social protection expenditure as % of GDP

	1999	2000	2001	2002	2003	2004
Slovenia	25,0	25,2	25,5	25,3	24,6	24,3
<i>EU-25</i>	-	-	-	27,0	27,4	27,3
Sweden	32,9	32,3	31,3	32,3	33,3	32,9
Denmark	29,4	28,8	29,5	29,7	30,7	30,7
Finland	26,7	25,2	25,8	25,6	26,5	26,7
Germany	29,6	29,5	29,8	29,9	30,2	29,5
Czech Rep.	-	-	-	20,2	20,2	19,6

Source: STAT.SI, 2007

Economic activity of the population shows that Slovenia fares relatively well in terms of total economic activity of the population, employment of women and relatively low figures for youth unemployment. However, it scores low on economic activity of people over the age of 55 and long-term unemployed, which comprise more than a half of all unemployed.

Table 1: Selected indicators of population's economic activity (2006)

Country	Economic activity: employment rate (%)			Unemployment (%)	
	<i>Total</i>	<i>55-64 years of age</i>	<i>Women</i>	<i>Under -25 unemployment</i>	<i>Long-term unemployed</i>
Slo	66,6	33,6	61,8	14,5	53,1
Denmark	77,4	60,9	73,4	7,6	20,4
Sweden	73,1	69,5	70,7	26,8	14,2
Finland	69,3	54,2	67,3	26,0	21,4
Czech Republic	65,3	45,4	56,8	17,0	56,2

Source: SORSeu, 2008; Eurostat 2008

Similarly, Slovenia has maintained a favourable position regarding education system expenditure. Expenditure on education in 2006 accounted for 12,8% of total public expenditure, while Sweden, Denmark and Finland spent 13,0%; 15,2% and 12,8% respectively. Czech Republic, as another post-transition economy spent considerably less, only 9,6% (SORSeu, 2008).

Educational system has in fact been an important institution that has in the past decades continuously functioned as a social corrective and has enabled upward mobility in Slovenia. As such, this institution has held the closest resemblance to the Scandinavian universalistic welfare model. While the first two educational levels are fairly all-inclusive, the tertiary education requires some individual top-up effort in order to be fully accessible or made use of.

In the first place the welfare state does a fair amount of effort as far as tertiary education and related areas are concerned. Like other educational levels, university in Slovenia has always been free, i.e. state-funded. Further, government provides some 17% of students with a place in a subsidised dorm (SORSSTD, 2007), gives out subsidies for students that have to rent a private flat, subsidizes student meals and covers their healthcare insurance. However, Slovenian social welfare system does not go the full Scandinavian way, i.e. that it would cover all the costs related to studying. But there

are other institutions that can be used by an individual. Most important is the student work described under the labour market section. It was in fact designed by the government as a social corrective for students. Students can relatively easily find a student job and thus help fund their studies. Additionally, parents step in with some financial support that usually comes from their current earnings and not lifetime savings as it is common in the Anglo-American business system.

Slovenian welfare state also boasts a relatively developed childcare system however; it does not go all the way there either. The state provides kindergarten place for some 60% of all eligible children, which in practice means that there are relatively few kids who can not get a place in kindergarten if their parents only want to. However, although heavily subsidised, childcare is not free and some parents with long working hours may have troubles bringing children to and picking them up from kindergarten. Here the family assistance kicks in with 25% of all the children being cared for by grandparents and 45% of kindergarten children being brought to and picked up by grandparents.

During the transition period the active labour market policy has developed considerably, evolving from a largely passive unemployment-registry service into an active system that helps the unemployed find the work and equips them with necessary skills and knowledge in order to improve their position on the labour market and prevent long-term unemployment. In this sense, ALMP has developed a range of schemes that follow the Scandinavian approach of combining active job-searching and continuous education (MDDSZ, 2007).

However, Slovenian ALMP at the same time fares well short of Scandinavian standards, e.g. Danish for example and features strong elements of Anglo-American approach towards labour market.

First, the duration of unemployment benefits is relatively short. Anyone that has been employed for less than five years before commencing of unemployment receives unemployment benefits for 3 months. Persons previously in employment from 5 to 15 years are entitled to 6 months of unemployment benefits, while the unemployed with over 15 years of work status are entitled to receiving unemployment benefits for 9 months. In Denmark maximum benefit period is four years (OECDdk, 2004).

Next, under the provisions of Slovenian employment policy an individual is not entitled to any unemployment benefit or any money whatsoever if he terminated his employment voluntarily. There is also no option of (a paid) “sabbatical”. Consequently, labour market features less inter-job mobility as the system not only bars voluntary moves that would result in temporary unemployment, but also gives limited support in the cases of involuntary unemployment. Employees thus rather opt for uncomfortable obedience at work or resort to sickness leave.

In contrast to the highly decentralised Scandinavian approach, e.g. Danish, Slovenian welfare system is largely centralised in a sense that the same measures apply to all the country, with few exceptions applied to special cases where the state gets more actively involved and special welfare programmes are tailored, e.g. in the case of exceptionally high local unemployment.

Finally, social assistance in case of long-term unemployment provides only for minimal subsistence as it hands out social benefits equal to only 25% of average monthly wage and is means tested. This amount of social assistance is purposefully defined to provide for mere subsistence and is conditional upon that individual being actively involved in job-search schemes (MDDSZmin, 2008).

Towards productive risk-sharing

In this part we are leaving the transition and are discussing latest business system dynamics...

Limits of intensification of the traditional business system

Throughout the socialist period and well into the transition Slovenian economic development was investment-driven and its international competitiveness depended on efficiency. Yet by the end of transition Slovenia was starting to feel that its economy has largely come to an end of investment-driven growth and that focus has to be changed from mere efficiency to innovativeness if economic growth is to be continued.

Due to its relatively high developmental level Slovenia faced a much reduced price competitiveness. Considering the hourly labour costs in 2005 Slovenia was placed 11th among 25 EU countries with a 51% of EU-15 average (Eurostat-LC, 2006). Slightly worse, in the productivity

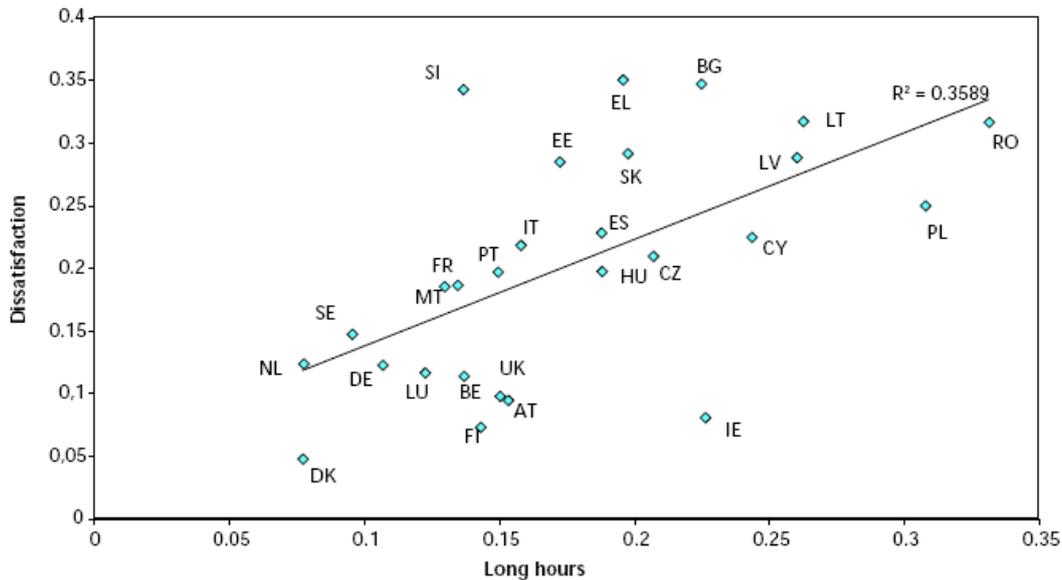
comparison, Slovenia ended up as 17 among 22 compared countries with 67% of EU-15 2004 average (Eurostat-PROD, 2006). In both cases Slovenia outperformed other new ex-socialist EU entrants, yet the gap has been closing. That has been especially true in the productivity field where Slovenian improvement was of 9% in the 2001-2004 period while other ex-socialist EU members recorded growth averaging above 10%. Also in relation to the EU-15 average, Slovenia lost some competitiveness in the mentioned period as labour costs grew faster than did productivity (Eurostat-LC, Eurostat-PROD, 2006).

Therefore Slovenia was losing the low cost basis necessary for price competitiveness while it did not turn actively enough towards innovativeness. Rebernik et al. (2005) found very unfavourable figures concerning comparison of value added per employee between Slovenian and EU-15 companies. While in EU-15 the level of value added per employee up to 2004 was positively correlated with firm's size, in Slovenia this was true only in absolute terms. In relative terms, Slovenian micro companies with up to 9 employees achieved 50% of their EU-15 counterparts average, while large firms fell 1:4 behind their EU-15 counterparts (Rebernik et. al., 2005).

To some an idea might occur that Slovenia could maintain on the traditional business system "hard work" path and still improve its relative competitiveness by working even harder, i.e. extending the working hours and improving the efficiency. Data show that this would hardly be possible as Slovenian working week is already longer than the EU-15 and EU-25 average and Slovenians found themselves on the 5th place in the EU with regard to the working week length as of 2005 (Eurostat WH, 2006). Further, it seems that Slovenian employees are already stretched to their limits as they express the strongest sensation of sharp increase in the intensity of their work during the 2000-2005 period among all new EU member states. As we have already shown in the subsection explaining the transitional intensification of work (Figure XYZ), Slovenian employees have already reached highest levels of work intensity. Finally, Slovenian employees appear to be among the most dissatisfied workers within the EU. European-wide panels in 2004 and 2007 have shown that 37% and 29% of employees respectively feel predominantly negative about their work. However, the 2004 research showed that workplace dissatisfaction of Slovenian workers does not come from long working hours but rather from high strain working environment (Figure 7). Finally, Slovenian employees also feature one of the highest sickness leave figures as research reports from both 2004

and 2007 have shown (EC, 2004; EFILWC, 2007) and high perceptions of negative impact of work on health (EFILWC, 2007).

Figure 7: Dissatisfaction at work and long working hours (2004)



Source: EC, 2004, p. 166

It is thus obvious that Slovenian companies and employees face the limit of working the old way. There is no more room left for continued competition on the basis of price, i.e. the competition companies have been used to and organised for in the past.

European comparisons show that Scandinavian countries and their companies are among the most competitive globally. At the same time their employees are among most satisfied or least dissatisfied (EC, 2004; EFILWC, 2007). While their official working weeks are not shorter than Slovenian and employees' perceived work intensity is about the same, their employees find their workplaces to be much more autonomous, customer-oriented and creative. While almost 80% of Nordic employees' work is determined by interaction with customers and only 10% of work is dictated by the machine, Slovenian work organisation profile fits firmly within the transition countries group: customers' demands account for approx. 63% of all work determinants and the speed of machine for about 23% (EFILWC, 2007). Similar is the picture with regard to importance of a direct control by superior. In Slovenia demands of a superior determine the employee's work in over 33% of the cases, while Nordic countries exhibit a figure of around 20% (EFILWC, 2007).

The need for Slovenian economy to move towards the concept of innovation-driven development is clear. A crucial question this research has to answer is: can such dynamics be found in Slovenia or is Slovenia bound to stick to its traditional business system, stagnate and be finally left behind? If Slovenian traditional business system was able to adapt to different challenges in the past, is it now able to produce an answer to the challenges of moving onto a higher developmental level?

We believe that Slovenia continues as a dynamic society and economy and attempt to prove this by delving into the results of our field research, i.e. by taking a microeconomic look at the post-transitional dynamics in different business sectors.

Typology of Slovenian Business System

Table 4-3: Typology of Slovenian firms

	REGIONAL	GLOBAL
OLD (ex-socialist)	<ul style="list-style-type: none"> • Large companies in manufacturing and services • Technological followers • Slovenia's economic engine during transition • Developed into (strong) regional players • Slowest in abandoning subsistence-oriented approach • Political and managerial alliances 	<ul style="list-style-type: none"> • Large companies in manufacturing sector • Top technology, strong R&D • Gradually abandoning subsistence approach due to innovation-based market competition • Re-focusing on product/technological innovation • Either global players or parts of MNCs • Experimenting to move from Chandlerian innovation to implement open innovation approach <p><i>(Kolektor, Danfoss Trata, Lek-Sandoz)</i></p>
NEW (post-socialist)	<ul style="list-style-type: none"> • Small-to-medium size firms • Strong dynamism, lots of new firms (IT, finance) • Quickly developed strong regional presence • Importing global technological development, tailoring to local needs • Abandoned subsistence-oriented approach • High public profile – developing entrepreneurial environment <p><i>(Parsek)</i></p>	<ul style="list-style-type: none"> • Most dynamic sector • SMEs • Success based on world-level technological innovation in technological niches • Abandoned subsistence-oriented approach • High public profile – developing entrepreneurial environment • Searching for alliances to place their products and further boost R&D <p><i>(Instrumentation Tech., Httpool, Noovo, Systec)</i></p>

Source: own analysis

Slovenian Business System Dynamics by typological sectors

Old local-regional players

Before and at the beginning of transition this group was the economic engine of Slovenia. These were large socialist companies, majority of them in the manufacturing sector, but it included players from other sectors like retailers and two Slovenian largest banks. Those companies employed from several hundred to a few thousand people each. Manufacturing companies were mostly based on imported technology and Fordist work organisation. Their approach to development and innovation was Chandlerian and focused on incremental innovation in technology and processes. Many of them were active exporters to western markets, although, as we explained, not always following the profit motive. Service firms, like retailers and banks, were limited to the domestic market and since they faced no real, i.e. foreign competition, their performance was rather uncompetitive by western standards. What is more, especially banks were run more by political than business rules.

Due to their dependence on the Yugoslavian market or the markets of other non-aligned countries, a large chunk of the group ended in bankruptcy as Yugoslavia disintegrated while others were severely downsized. The two major banks were found to be insolvent. Only a handful of companies managed without slashing its workforce.

To protect the economic foundations of the country, government quickly moved in to help wounded giants. After it became clear that simple financial assistance will not be enough, government implemented several initiatives. It established the Slovenian Development Corporation which took control of the companies that were worst hit and helped them to either restructure or at least save the sound parts of their businesses. Next, government allowed companies to offload workers into early retirement, thus taking the burden off them and socialising it. At the same time it bailed out the banking sector.

Firms that survived did so by successfully diverting its sales to the West, competing essentially by price. Technological competitiveness was at least temporarily cast aside and not a few companies cannibalised their R&D departments to cut costs. Later on as the Yugoslavian market re-established in mid-1990's companies started aggressively to re-establish themselves as regional market leaders, building upon their brand names that enjoyed high standing with the people since Yugoslavian times. However, best among them were aware that while their locally known brand names were

beneficial they were not enough for successful competition. Therefore companies started to look beyond cost-cutting to keep or increase their competitiveness regionally and on the European scale. Today, the best among the old companies have established themselves as strong regional players and brand names. Such examples are Mercator and Merkur, a supermarket and home appliances retailer, respectively. Both companies have managed to expand to ex-Yugoslavian market not just on the basis of their old brand names, but primarily since they have been competitive in comparison with relevant local and foreign competitors.

Less successful group members have developed into primarily Slovenian local players and have transformed into conglomerates involved in fields as diverse as chemical industry, food processing, media, finance and tourism. Expanding abroad they were either outcompeted or have never really tried to expand, yet they all managed to obtain strong Slovenian market share due to the lack of domestic or foreign competition – they bought the former, while the latter never came to Slovenia due to its small market size.

Finally, there are a few companies that largely failed to secure strong market share even on domestic market, due to the combination of lagging competitiveness and strong competition. The prime example has been the textile industry which has largely failed to move to higher value-added products and has got stuck between stagnant prices and increasing labour costs, with the future highly uncertain.

Overall, old local-regional players have by rule resorted heavily to intensification of the production process and have been taking advantage of the dualist labour market throughout the transition and have continued the exercise until now. Yet the examples described above show that majority of these companies have also started to prioritise innovation and technological development to find ways that would enable them to exit pure price-taker position. Successfully expanding to the SE Europe region at least some of them have proved they can compete successfully on international scale.

Old global players

Old global players are, by their number, the tiniest company group in Slovenia. Apart from Lek-Sandoz, Danfoss Trata and Kolektor which we describe in our cases there are another

pharmaceutical company called Krka, Kolektor's Idrijan neighbour Hidria and the household appliances maker Gorenje.

Today, these companies are either strong independent players – multinationals on their own (Krka, Kolektor, Hidria and Gorenje) or strong subsidiaries of foreign MNCs (Lek, Trata). They never fully used the subsistence-oriented mechanisms of the Slovenian traditional business system and are reducing their use further as they have recognised that they can only survive and advance by technological leadership rather than on the basis of low price.

These global players have also been very active in searching new ways of keeping and sharpening their international competitiveness.

Let us first take a look at Kolektor. After initial handling of the challenge of Far East competitors in mid-1990's by intensification of production, quality improvements and increased flexibility as described earlier, i.e. the traditional "work harder" way, Kolektor embarked on a more demanding restructuring of its business that is to give the company long-term sustainability beyond exclusive dependence on commutators – a product that is expected to become obsolete by 2020. Restructuring could be divided in two parts. On one hand Kolektor undertook steps to ensure long-run sustainability of its commutator business. On the other hand Kolektor started to diversify itself out of commutators.

In order to make the commutator business long-term sustainable and profitable Kolektor optimised it from the cost side and developed it from the work organisation side. Simple production requiring lots of manual work was moved out of Idrija to Bosnia, Brazil and China in order to cut costs. In Idrija the production that was left is either technologically advanced to the extent that it needs a qualified workforce or can be highly automated. In the recent years Kolektor started intensive management training for divisional managers and middle managers on sub-divisional levels.

In order to diversify out of commutators Kolektor has been experimenting in a number of ways. On the global level it is preparing to establish a global network of R&D centres linked to their existing foreign operations. On the local level it launched an internal incubator that has been focused on developing new products based on company's core technological competencies. It founded an

external entrepreneurship incubator where entrepreneurial ideas from outside are welcome and are given money and company know-how to develop. Further, the company has, in alliance with other players and academia set-up a research institute covering the fields of nanomaterials and composites. It has acquired a producer of ferrites and electromagnets and acquired and merged several small companies in the field of process automatization. It has acquired a local producer with strong competencies in polymer processing and has helped it to grow in terms of product and technology innovations and improvements. The company has also established a joint marketing and R&D institute aimed at pursuing the strategy of following the customer with meeting its demands, the strategy similar to the one seen in the case of Danish Unimerco.

Kolektor has acknowledged the need to move from closed innovation paradigm it has perfected until now towards open innovation. In line with that the company has started to cooperate with different small, innovative companies including the Instrumentation Technologies which we describe later on, on different projects and has become an active partner in a venture capital fund, primarily in order to get in touch with fresh ideas and technologies.

The mentioned venture capital fund is an excellent example of combining strengths from old and new Slovenian companies in the search for innovation and technology-driven business development. The fund was established by former state secretary for economy who has later served as vice president of Slovenian Chamber of Commerce. It is run by a team of young financial and business administration experts, while the funding comes predominantly from Slovenian oldest and largest companies that wish to connect to new entrepreneurial talents and business opportunities. Apart from Kolektor, other Slovenian old global corporations and even some old regional players invested in the fund as well.

Kolektor and Idrija display another important dynamic feature within Slovenian business system: increased mobility of workforce and weakening interdependence between the company and locality. On one hand Kolektor's growing business forced the company to expand beyond Idrija and search for cadres from outside the Idrija valley. On the other hand the increased mobility and the increasing number of young people going to pursue studies in Ljubljana caused that a large and growing percentage of young locals find employment outside Idrija. All that has been primarily beneficial for Kolektor as it has forced the firm to become a better employer in order to attract high

quality people from the outside. Other companies, e.g. Gorenje, that are located outside major urban centres have experienced similar pressures.

Another old global company, the home appliances maker Gorenje shows similar dynamics toward higher value-added and innovation-driven competitiveness. In an effort to reposition its brand out of pure price-based competition Gorenje has in the last years focused heavily on design, integration of new technologies and holistic approaches towards design of integrated systems like kitchens. In doing that they have teamed up with names like Pininfarina, Ora Ito and Swarovski. It has also undertaken some acquisitions of local producers in East and Central Europe, giving them room for market expansion. However, just like Kolektor, Gorenje remained essentially a local company that is very much attached to its valley community, living with it in a similar symbiosis like Kolektor does. This has given Gorenje the benefit of dedicated, hard working employees that are ready to invest not only their physical and mental but also emotional energy into the business, a prerequisite for an innovation-driven development.

Another story are Danfoss Trata and Lek Sandoz, two Slovenian industrial gems and once independent companies that now make subsidiaries of much larger foreign MNCs.

Before being acquired Trata was a highly successful engineering firm specialised in district heating controls and air conditioning. Lek, on the other hand was perhaps the top Slovenian blue chip and one of most successful regional generic drug makers. Both companies were acquired by top MNCs in their respective industries: Danfoss as one of the leading engineering firms in mechanics and electric and electronics and Novartis-Sandoz as one of the world's largest pharmaceutical and generic-pharmaceuticals makers.

Both companies ended up as MNC subsidiaries because they were promising due to their accumulated knowledge, product portfolio and future growth prospects. While Trata was in fact rescued by Danfoss in face of threatening collapse after the loss of Yugoslavian market in early 1990s, Lek was sold to Novartis-Sandoz at top shape in 1998. Trata was bought to strengthen Danfoss's product portfolio in district heating business and to assist its entrance to new ex-socialist markets. Lek on the other hand was sold to Sandoz as top regional generic drug maker. Sandoz saw it as welcome expansion of its product base and R&D force, while Lek saw in Sandoz a guarantee

of long-term survival as it was feared that Lek was too small to stay on its own on a long run, particularly from the viewpoint of generic pharmaceutical industry consolidation.

Since their acquisition both Slovenian subsidiaries have managed to achieve a successful strategic position within their respective MNCs. Both have become excellence and experimental centres – Trata within District Heating Business Area and Lek within Sandoz's generics business. Both companies have successfully integrated positioned their employees within MNCs' hierarchies. They have proved that as a Slovenian company, employing people raised and trained in Slovenia they can be at par with any other foreign business entity.

Apart from their strong engineering/technological knowledge, quality and innovativeness, both companies excel within their MNCs due to their flexibility. Lek, for example has become an excellence and experimental centre for Sandoz. It is the only subsidiary within Sandoz that has retained all business functions and at the same time it is small enough to be flexible. Thus, for example, as Sandoz has decided to adopt the SAP package, Lek has been the first to implement it and its employees would later on be sent around entire Sandoz to help others learn. Trata has similarly achieved great level of flexibility and has become able to respond to changing demand by organising its production, HR and supply chain in a flexible way.

What both companies see as their competitive advantage is the ability to experiment and improvise. This has been possible due to our cultural background which is more used to improvise (since it seems to be less methodical!) than German or Scandinavian and due to the smaller size of both organisations.

Lek Sandoz and Danfoss Trata serve us as efficient reminders that traditional subsistence-oriented approach is no real solution to achieve true competitiveness. In contrast to some of researched cases and in contrast to the majority of Slovenian economy both Lek and Danfoss Trata have consistently shown a business model and approach to work organisation that have been rather distanced from the ways of Slovenian traditional business system functioning. Yet both companies have been consistent outperformers with regard to the rest of Slovenian economy, be it in the "best employer" category, profitability, innovativeness, average wage, etc...

This is not to say that traditional business system institutions cannot be reformed in a way to support true competitiveness, nor that Trata and Lek do avoid their use completely. Trata does use labour agency workforce to meet surges in demand, however this is used as a pure top-up of existent capacities. Furthermore, Trata insists on being given the same workers each and every time and finally hires from that pool as new needs arise. Similarly, Lek has outsourced all its supporting services – gardening, food service, laundry and clothing maintenance. However, these outsourced businesses are 100% owned by Lek and compete on the market, allowing them to develop beyond the usual subsistence orientation of in-house supporting services.

Not only do Lek and Trata not need to resort to subsistence-oriented approaches that would help them cut costs, in fact any such attempt would have adverse effects regarding productivity and innovativeness. What makes both researched companies differ most from the majority is their strong innovativeness and satisfied employees. With regard to that Danfoss Trata and Lek are similar to a handful of Slovenian new global players that excel globally due to their ingenious products and can boast motivated, proud, and well-paid employees. There is however an important difference between these two groups of companies. Trata and Lek are 1000+ employee companies, corporations with strong track record and established systems that help re-generate the virtuous circle process. Small new global players are still young and crucially propelled by their innovative founders.

New (local)-regional players

While the majority of new local players are those companies that die soon after they are born or that only have very humble missions, we want to focus on new local players that reach higher, but cannot however be qualified as global, due to their focus on domestic or at best regional market. Parsek, the IT company that we already presented and which was part of our research is an example of such company however, there are many other similar companies in Slovenia, particularly in the financial services – brokerage and asset management, i.e. services that could not exist under socialist social ownership concept.

Their product and production concepts, e.g. IT services or asset management, are imported and follow global industry standards. These companies are mostly technology followers and they copy and implement locally or regionally what gets invented within their respective industry's global

cluster spots. What has been common to those companies is that they have tended to overcome the narrow local presence and have tried to expand regionally, particularly in the Balkans. Yet they are not global players and most likely they will never be, as they operate in industries where barriers to entry are low, competition fierce and players are either global (e.g. big investment banks, IT support service providers) or small to medium local/regional players.

Considering new Slovenian regional players in financial services we should first realise that it was not even necessary they would develop in the first place and then develop to their current regional player status. Instead of them there could only be foreign regional players, mostly Austrian and Italian. Yet some entrepreneurial spirits have made good use of domestic institutional opportunities, particularly the privatisation model that was chosen in Slovenia. Namely, dispersed ownership model that was chosen in Slovenia made virtually all people into shareholders. That was undoubtedly a fertile ground for establishment of brokerage and asset-management companies, however, if Slovenia completely lacked knowledge, such companies would either not get established or would soon fail.

Next, these companies have grown well while steering mostly clear from traditional Slovenian subsistence approach if not from the very beginning, then later on when the company overcomes fight for survival and becomes established on the market. There are at least two reasons for not using the subsistence approach. First is the foreign best-practice that sets tested business model standards. And since these are knowledge-intensive industries, companies realise they can only grow by attracting best brains and brains must be rewarded accordingly. Appropriate remunerating is necessary since due to common global technological and product platform employees are highly mobile. Therefore radical subsistence attempts would radically undermine the companies' performance through driving off their best minds.

Parsek is a clear example of a company that changed its modus operandi from subsistence-oriented to one driven by long-term innovation-based competitiveness. As we described, Parsek initially built on student work which helped it to cut costs and achieve high flexibility. Yet after the starting period, i.e. around 2004, when Parsek's business stabilised, firm became a rather normal employer with the majority of workforce on permanent contracts.

Overall, there is a strong segment of new Slovenian companies that are product and technology followers, but live up to their respective global industry standards. Most important, they have grown over local Slovenian market and established strong regional presence in the whole Balkans where they compete successfully with larger and older foreign (particularly Austrian) competitors.

Parsek has even higher aspirations. After establishing itself as a recognized player on the Balkans and tapping into the western markets through collaboration with local partner companies, its management wants to reach a global level. Teaming up with international partners and investors, Parsek is in the process of establishing an international venture based in the Silicon Valley.

As far as their position of technology and product followers is concerned they are similar to ex-socialist manufacturing giants or today's old local players. The crucial difference is however that new regional players do not base their competitive advantage on low costs, secured through subsistence-oriented production policies, like old local players do. Instead, new Slovenian regional players follow global industry standards and make knowledge the basis of their business model. Their established brand names and operations networks are a guarantee that even if they are taken over by a larger foreign competitor, it would be at a premium and the acquirer would be motivated to further develop their business rather to simply shut it down.

New global players

New global players represent the most active and innovative section of the Slovenian economy. What is particularly inspiring about them is the fact that they build from the very beginning on technological innovation, i.e. they employ a radically different pattern than either old regional players or new regional players – two groups that have both been technology followers.

New global players are small firms, specialised in their specific technological niches and they are often global technology leaders. We have visited two entrepreneurs-CEOs: Mr. Radovan Grapulin and Mr. Rok Uršič.

Mr. Radovan Grapulin established in 1990 company Goap that focused on building controllers and controller systems for complex heating, ventilation and air conditioning systems (HVAC).

Soon after establishing Goap, Grapulin founded another company, Systec that specialised on process automation. In search for business, Grapulin started to cooperate with Danieli, a large

Italian MNC specialised in steel processing machinery. Mr. Grapulin remembers that in less than two weeks time he and his engineers were already working for Danieli in Iran.

Gaining international experience and reputation by working for Danieli, Mr. Grapulin was in 1996 offered the challenge of equipping the largest passenger cruise ship at that time, The Grand Princess, with system for controlling HVAC system. Today he admits that they were completely new to the business of such size and complexity. Their reference was HVAC controller for T-84, a Yugoslavian version of a Russian T-72 tank. Grand Princess, the cruise ship they were to equip was something much bigger and complex. However, they won the international tender beating GE, Siemens and Honeywell by promising a much shorter delivery time. The project was successfully completed and further orders followed. In 2001 Goap, then a company of 18 engineers, signed strategic partnership agreement with Finnish company Halton.

Mr. Grapulin reckons flexibility was their crucial advantage. He and his employee engineers shared the level of knowledge equivalent to any western counterpart, however they were used to learn quickly and improvise, which is not possible if you work for a large company where decision-making is necessarily more bureaucratic.

Later on Goap's ship equipment business was spun-off as a company founded in Denmark and was sold to the Japanese. Nowadays Mr. Grapulin only remains active manager of Systec which has in the meantime grown to over 200 engineers and is headquartered in Slovenia and Croatia. It continues to work with Danieli. Its engineering teams work around the globe, on networking principles teaming up with other companies and feel like part of global engineering community.

In 1998, when Mr. Grapulin was already an established and successful entrepreneur, Mr. Uršič, an engineer as well, returned home after working abroad for several years, at the Trieste Linear Accelerator in Italy and Stanford Linear Accelerator in the USA. His speciality had been engineering related to laser technologies employed in linear accelerators. Back home he founded Instrumentation that started developing technological solutions for stabilisation of laser beam in linear accelerators. Soon they were at the forefront of global technological development in that tiny niche. Already in 2003 they launched their star product that has since then been used by all major users. Nowadays (as of late 2007) Instrumentation Technologies has 36 employees, all highly

educated and coming from all over Slovenia. The company has a global network of industry partners and buyers and plans of different joint ventures are being drafted with some of them. Mr. Uršič has been developing daring plans of establishing an international expert nucleus community in Nova Gorica. Recently IT has started to attract top foreign scientists to join its ranks and to facilitate it he employed a recognised Italian-English scientist to work as a director of scientific liaison, bringing brains from around the world together to develop solutions. The fact is that not all the »smart« guys can be bought and brought to Slovenia, neither could IT use all of them all the time. Therefore virtual collaboration is preferable. The idea of Mr. Uršič is alliance-based organisation, i.e. an interaction between producer and buyers who are at the same time actively involved in the development of solution that would best suit them. IT does not see innovations to be limited to technology, but believes they can be found everywhere, especially in organisation.

Mr. Uršič returned to Slovenia to start his own company despite having worked in a much more entrepreneurially developed environment, especially during his tenure at Stanford. What he sees as an important advantage of Slovenia with regard to entrepreneurial start-ups is the extent of control an entrepreneur can have over its company. In the USA where hi-tech companies are started big, financed with large chunks of risk capital, supervised by risk-capital managers and with a rather large number of employees right from the start, entrepreneur is not only put under a much larger strain but also has less say in how his or her company should develop. Slovenia, on the contrary, gives an entrepreneur the possibility to go step by step and keep exclusive control over his or her start-up.

These two entrepreneurs and their companies, as well as other Slovenian innovative new global companies have always steered absolutely clear from any subsistence-like management approaches. Not that they do not need to keep costs down, but they clearly recognise that as technology leaders their competitive advantage is in innovation rather than low price. Furthermore, their key employees are absolutely internationally mobile experts.

Due to their technological leadership these companies went global soon after it was clear that their technology in fact works. Their development is perhaps best explained by the famous quotation of “make better mousetraps and people will beat a path to your door”. At their very beginnings these companies relied completely on their genius founders-innovators. As they have been growing they

have also been expanding their R&D, thus becoming a bit less dependent on one crucial man. However almost without exception it is still the case that their founders continue as driving forces and their companies are still far from the point of becoming true corporations, i.e. business entities that are not directly and absolutely dependent on any single person.

Mr. Uršič and Mr. Grapulin, both established their companies in Nova Gorica and have since then importantly dynamised the surrounding Goriška region by launching an initiative for regional development programme. Old and new companies of the region like Kolektor, Hidria, IT and Grapulin's engineering company Goap have found numerous fields where their cooperation would be mutually beneficial. The key importance of this cooperation between old and new companies is in the fact that such cooperation is first serious attempt of the old, Chandlerian-oriented companies to embrace modern open innovation system. At the same time the risk that comes with this experiment is shared through the regional development programme financed by the state and the EU.

Another important feature of the new global players is their high public profile. Majority of those young, successful entrepreneurs are actively engaged in economic policy-making be it as members of work groups or as public opinion-makers. They all share the belief that entrepreneurship should be popularised in Slovenia and they feel they have a duty to contribute to that.

Slovenia: Towards an enabling welfare state?

Enabling of employees

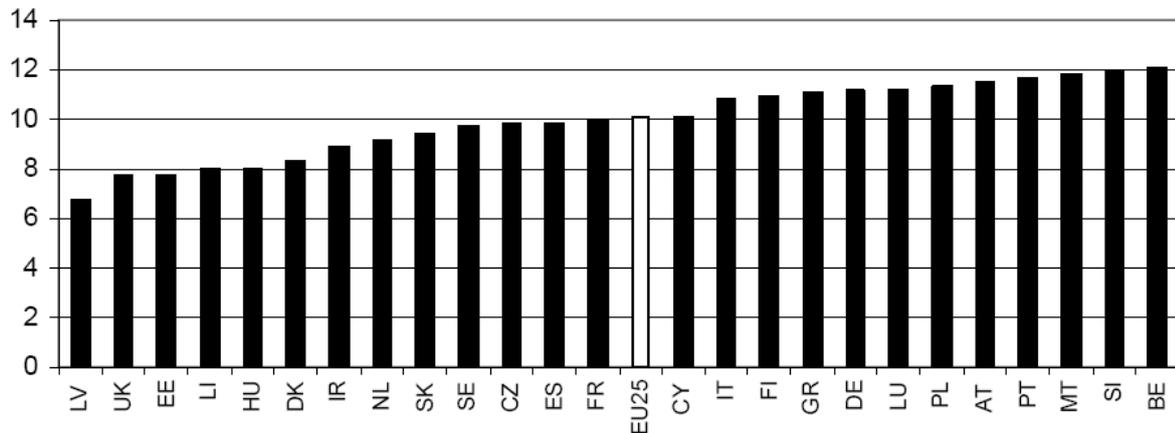
Labour market and ALMP

Functioning of the labour market marks most probably the biggest difference between Slovenia and Scandinavian countries. While the latter are ranked as having the highest labour mobility in the EU, Slovenia is on the opposite side, showing one of the least mobile labour forces.

EU Mobility profile (Coppin, Vandenbrande, 2006) shows several interesting comparisons.

First, Slovenia is among the countries with the highest current job tenure (i.e. how long have employees been holding their current job), while Scandinavian countries show shorter tenures.

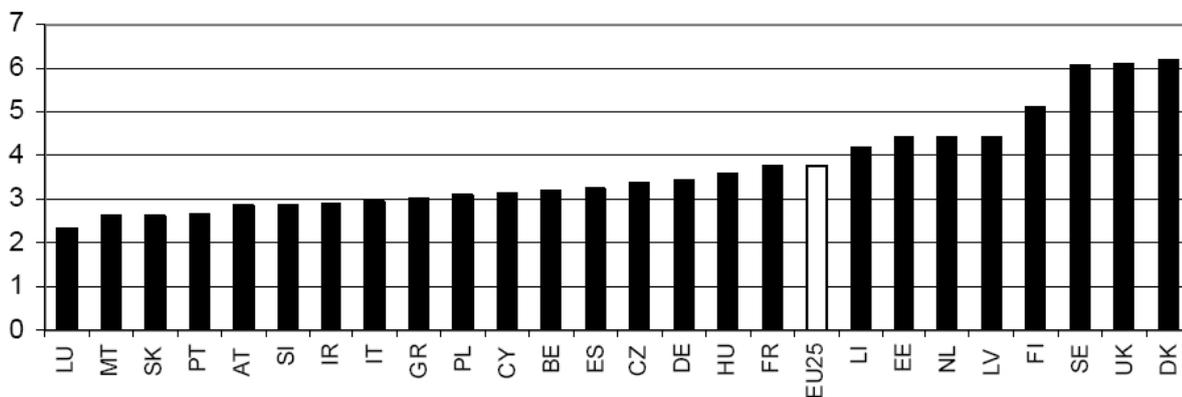
Figure 1: Average job tenure in the current job, by country:



Source: Coppin, Vandenbrande, 2006, p. 3.

In line with that is the comparison of the number of jobs changed by the now retired people. Denmark, Sweden and Finland take the lead with 5 or more different jobs while Slovenia shows an average of less than 3 different jobs per retired employee.

Figure 2: Number of jobs in the entire career (50+, not active anymore) by country:



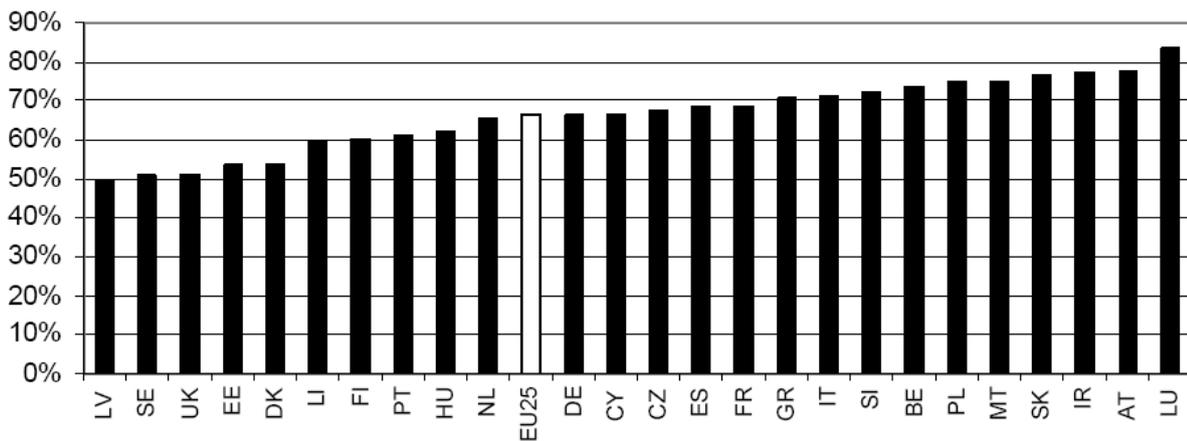
Source: Coppin, Vandenbrande, 2006, p. 12.

Another comparison shows that together with Belgium and Poland, Slovenia has the highest percentage (48%) of workers with a job tenure of 10 years or more, while the percentage of employees with a job tenure of up to 2 years is exactly half smaller, i.e. 24%. Denmark, on the other hand shows a completely different picture: only 33% of all current employees have a job tenure of over 10 years and 35% of all current employees have job tenure of less than 2 years (Ibid, p. 6).

Denmark appears to be the country with the highest labour mobility in the whole EU. 70% of Danish employees expect not to work for the same employer in a five-year time. Sweden is second with 64%, EU average is about 42% and Slovenia scores 38% (Ibid, p. 9).

Scandinavian countries also show relatively low sector homogeneity of employees' careers, meaning that their by now retired employees stuck least to the same occupational sector. That means that Scandinavian countries display not only the highest job mobility within sectors, but also between them. Retired Slovenian employees show on average a homogeneity some 40% higher than it is in the case of Denmark or Sweden.

Figure 3: Sector homogeneity (50+, not working anymore) by country



Source: Coppin, Vandenbrande, 2006, p. 18.

There are several reasons for the presented differences.

As we have shown previously, Slovenia has featured an incremental innovation system where an employee gains value by longer job tenure. At the same time active labour market policy has only been established in Slovenia for a decade. And still there is a lack of official safety net, e.g. unemployment insurance that would reduce the risk of an individual in case of unemployment. Unemployment benefits have been rather radically cut and anyone with less than five years in employment is only entitled to three months of receiving 60% of his previous wage, while those with 5-15 years of employment record are entitled to 6 months of benefits.

As we have discussed the functioning of the Slovenian labour market in previous chapters it is likely that Slovenia will start displaying higher mobility. However, if Slovenia continues on the current labour market model, that increase in mobility will not be Scandinavian-like but UK-like.

It can be seen for the comparison that UK also scores in line with Denmark and Sweden as one of the most labour-mobile country. However, the levers of Scandinavian and UK mobility are significantly different. Both UK and Scandinavian feature globally highly competitive economies

that offer their citizens numerous career opportunities. Yet Scandinavian mobility is propelled by a combination of relative labour market deregulation, active labour market policy and social safety net that enables an individual to “experiment” in terms of job changes. UK mobility, on the other-hand is primarily a consequence of highly flexible labour market and relative absence of active labour market policies (Ibid, p. 2).

Life-long learning

Table 7: percentage of population between ages of 25 and 64 participating in educational process

	2000	2001	2002	2003 ¹⁰⁴	2004	2005	2006
Slovenija	7,2	7,6	9,1	15,1	15,3	15,1	15,0
EU-25	-	7,9	8,0	9,0	9,9	10,2	10,1
DK	20,8	17,8	18,4	18,9	25,6	27,4	29,2
S	21,6	17,5	18,4	34,2	32,1	32,1	-
FIN	19,6	19,3	18,9	17,6	22,8	22,5	23,1
NL	15,6	16,3	16,4	16,5	16,4	15,9	15,6
CZ	-	-	5,9	5,4	5,8	5,6	5,6
D	5,2	5,2	5,8	6,0	7,4	7,7	7,5

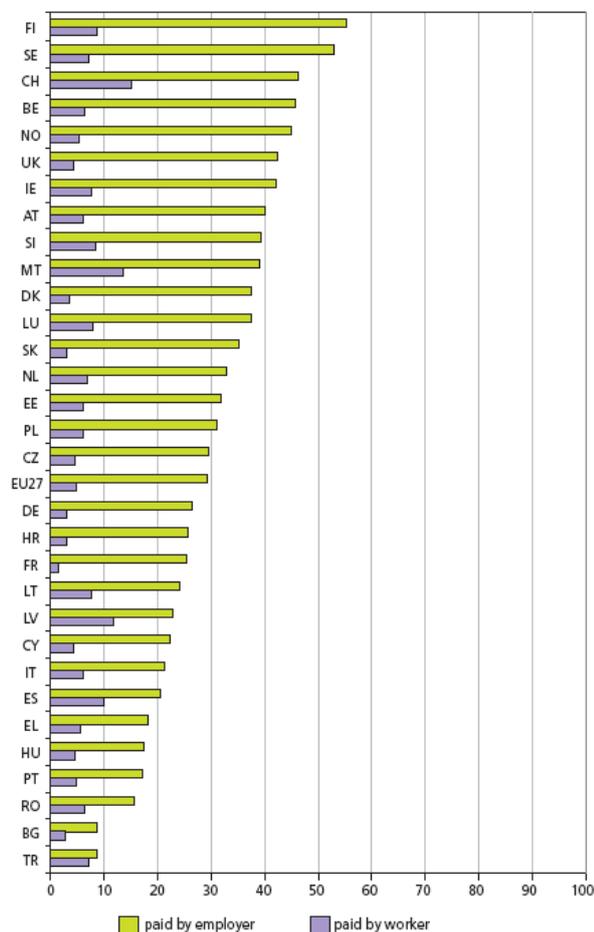
Source: STAT.SI

In the last half decade Slovenia has also placed itself within the top quarter of EU 25 on employee training provided by employer. Same ranking also applies to employee training paid by the workers themselves.

¹⁰⁴ Methodology change

Figure 5: Employee training (2005-2006):

Figure 5.14: Percentage of employees who received training, by country (%)



Source: EC, 2007

Trade unions

Scandinavian countries clearly show how important and beneficial the proactive role of trade unions can be in terms of supporting socio-economic development. As we already mentioned, Slovenian trade unions facilitated soft transition by agreeing to wage moderation and productivity increase in exchange for stable employment. However, the end of transition marks a time when Slovenian trade unions should reconsider and change their role within Slovenian socio-economic system.

It could be argued that Slovenian trade unions got stuck in a vicious circle of continued action under the Fordist industrial system paradigm. Namely, since the start of transition the policy and mission of Slovenian trade unions have not changed significantly. Like during the transition period trade

unions can today only be found in large old firms, their membership is declining as well as is unionisation rate which can be estimated at slightly below 40%. Union membership is increasingly limited to the unskilled workers and their mission has remained unchanged: fight for workers' rights and wages.

Research done in trade union covering Slovenian chemical, rubber and non-metal industry showed that members primarily expect their trade union to fight for better wages and working conditions (71,5%) and for life-long employment (43,3%). Assistance with education was considered relatively unimportant as only 4,5% opted for it (Soklič, 2004). This shows that Slovenian trade unions perhaps entered a position where they do not need to modernise since their members pertain to a very static group of employees that primarily want better wages and job safety, rather than thinking in terms of career development and employability.

This dynamics has been right contrary to the Scandinavian development. Swedish trade unions, for example, had a unionisation rate of 80% in 2000, with white collars being the major membership group. The opposite structural development in Slovenian trade unions can be best presented by the following two tables:

Table 1: Trade union membership structure by workplace

Employment category	Unionisation level (%)		
	<i>1989</i>	<i>1995</i>	<i>1998</i>
<i>High management</i>	77,0	17,1	10,8
<i>Middle management</i>	84,6	54,2	37,0
<i>Non management</i>	/	68,6	50,8
<i>Supervisors</i>	74,1	59,1	53,0

Source: (Toš, 1989, 1995, 1998)

Table 2: Trade union membership structure by education

Education	Unionisation level (%)		
	<i>1989</i>	<i>1995</i>	<i>1998</i>
<i>Primary school</i>	72,7	68,3	51,9
<i>Vocational school</i>	70,6	58,6	51,0
<i>High school</i>	76,5	47,4	27,8
<i>University</i>	81,3	46,6	42,1

Source: (Toš, 1989, 1995, 1998)

Stanojević (2000) stresses that Slovenian trade unions have become blue-collar or even subordinates' trade unions. With regard to the Swedish trends that have been right contrary, we believe the is due to the fact that Swedish trade unions are most valuable for their activities beyond the classic role of trade unions that is most relevant to blue-collars .

Thus in comparison to their Scandinavian counterparts Slovenian trade unions are rather opponents than protagonists of institutional change and this status seems to hurt both themselves and their members. The policy of trade unions only prolongs the continuation of the Fordist approach to production in two ways. First, it does nothing to lift the workers from their lack of skills and make them more employable and productive since trade unions only offer education on “the big” themes like profit-sharing, workers' co-management, privatisation, collective bargaining (Kumar, 2007), but nothing that would be useful for the common shop floor worker. Neither do Slovenian trade unions offer unemployment insurance to facilitate mobility on the labour market. Second, trade unions' policy focus on workers' rights and wages, i.e. the partition of the value-added between workers and capitalists only feeds the illusion of the (unskilled) workers that it is primarily the system that is to blame for their misery. It can be straightforwardly seen that such policy is rather counter-productive for both the employees and trade unions themselves.

Enabling of families

Social services for families (kindergarten, care of the elderly)

Table 1 shows that Nordic countries are clearly superior to the EU-15 average regarding other in-kind social benefits. Denmark, Sweden, Norway and Finland spend 2,7 times more per inhabitant in

terms of other in-kind social benefits as it is the average of EU-15 and more than 7 times more than it is the case in Slovenia.

As far as the sum of in-cash social benefits and health-care expenditure are concerned, Nordic countries spend 6% more than it is the EU-15 average while Slovenia reaches 62% of the Nordic and 66% of the EU-15 level.

Table 1: Expenditure on chosen benefits in PPS per inhabitant, 2005

	Category / Country	SI	DK	SE	FI	NOR	A	EU-15	EU-27	SI vs. NORDIC	SI vs. EU 15	NO RDI C vs. EU-15
1	Paid sick leave	194	265	485	302	940	301	227	197	55%	85%	154%
	In-patient care	444	990	610	592	1301	900	937	810	61%	47%	78%
	Out-patient care	729	449	873	806	689	775	725	631	103%	101%	98%
2	Disability pension	177	503	700	523	1020	410	287	255	31%	62%	200%
	Accomodation	32	169	154	27	15	49	67	57	27%	48%	174%
	Home help	0	101	217	50	69	5	22	19	0%	0%	558%
3	Old age pension	1255	2055	2256	1787	1991	2318	2404	2096	62%	52%	85%
	Anticipated old age pension	496	529	198	147	52	262	100	98	170%	496%	291%
	Accomodation	9	34	473	103	380	84	60	51	4%	15%	339%
	Assistance with daily tasks	0	455	191	71	261	21	38	32	0%	0%	629%
4	Survivors pension	69	0	179	233	109	103	287	245	50%	24%	48%
5	Maternity allowance	41	152	181	113	195	29	40	35	28%	103%	372%
	Parental leave benefit	68	-	-	58	60	1	17	16	117%	400%	341%
	Family or child	163	273	214	232	294	627	306	263	68%	53%	78%

	allowance											
	Child day care	106	440	241	240	309	105	73	63	35%	145%	421%
	Accommodation	4	139	83	52	60	33	18	15	4%	22%	507%
6	Unemployment benefit	52	371	330	393	205	217	254	215	14%	20%	144%
	Early retirement for LM reasons	38	-	0	112	8	17	25	22	68%	152%	224%
	Vocational training	7	-	36	39	6	34	19	16	19%	37%	197%
7	Rent benefits	3	199	147	69	15	28	147	127	2%	2%	94%
8	Income support	99	178	86	71	114	14	41	37	89%	241%	272%
	TOTAL	3986	7302	7654	6020	8093	6333	6094	5300	55%	65%	119%
	TOTAL other benefits in kind	158	1338	1395	582	1100	331	297	253	14%	53%	372%
	TOTAL in-cash benefits + health care	3828	5964	6259	5438	6993	6002	5797	5047	62%	66%	106%

Source: Eurostat, 2008; own calculations

Legend: -other benefits in kind

General enablers:

General welfare system expenditure

Slovenian expenditure on social protection as a share of GDP went from 24,6% in 2000 to 23,4% in 2005 (Eurostat, 2008, p. 3). This shrinking can be explained as a result of the falling unemployment rate which descended from 7,2% in 2000 to 5,8% in 2005 (SURS, 2006 and 2007) and brought to a decline in unemployment benefits.

Eurostat report shows that Finland, Norway, Greece, Italy and UK spend similar share GDP for social protection as Slovenia. However, as Table 2 shows, apart from Italy, Slovenia has the lowest share of social protection expenditure in the form of other in-kind benefits.

Table 2: Social protection as share of GDP and share of other in-kind benefits within it

Country	Social protection as % of GDP (2000-2005)	Share of other in-kind benefits
Slovenia	24,6 – 23,4	4
Italy	24,7 – 26,4	3
Greece	23,5 – 24,2	11
UK	26,9 – 26,8	12
Denmark	28,9 – 30,1	21
Sweden	30,7 – 32,0	23
Norway	24,4 – 23,9	18
Finland	25,1 – 26,7	16
EU-15	27,0 – 27,8	9

Source: Eurostat, 2008, p. 3 and 6

Comparing the structure of social benefits, two things can be noticed. First, Nordic countries generally spend a smaller share on pensions and healthcare, but spend more on other cash benefits and other in-kind benefits. Second, focusing on in-kind benefits only, an interesting pattern can be seen: Nordic countries tend to spend a lower share on healthcare and a higher one on other in-kind services. Other countries go the opposite way round.

This second pattern could mean two mutually excluding things. One explanation could be a simple different treatment of certain expenses in Nordic countries which would underestimate the healthcare expenditure and overestimate other in-kind benefits. Another, and possibly a more plausible explanation would however be that Nordic countries have in fact taken an “enabling” approach to social protection resulting in replacing hospital care with domestic care and assistance. Data from Table 1 support this reasoning. While expenditure for in- and out- patient care in Nordic countries is below the EU-15 average for 22% and 2% respectively, Nordic countries spend 74% more on accommodation and 458% more on home help to disabled persons, 239% more for accommodation and 529% more on assistance with daily tasks for old people than the EU-15 average.

Table 3: Structure of social benefits for selected countries (%)

Country	Cash-pensions	Cash-others	Kind: Healthcare	Kind: Others
Slovenia	47	21	28	4
Italy	59	13	25	3
Greece	50	13	26	11

UK	42	17	29	12
Denmark	38	23	18	21
Sweden	41	18	18	23
Norway	34	25	23	18
Finland	43	20	21	16
EU-15	47	20	24	9

Source: Eurostat, 2008, p. 6

Comparison of statistical indicators of social protection shows that Nordic countries have developed a more “enabling” mix of social protection benefits for their citizens than other EU countries. Nordic countries give out a lower share of social benefits in form of pensions and healthcare while giving more in terms of other cash benefits (unemployment benefit, maternity leave benefit...) and other in-kind benefits (vocational training, accommodation and daily assistance for disabled and old people...). In comparison to the EU-15 average Slovenia spends a higher share on healthcare while being short with other in-kind benefits, i.e. the group of benefits – services that serve as strong enablers.

Conclusion

Pending...

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Chapter 7

Conclusion: Developing Comprehensive, Enabling Welfare States for Offensive Experimentalist Business Practises

Peer Hull Kristensen

Deriving the Core Lesson of the Nordic Welfare States

Whereas the emergence of the new economy – the global, networked, projective economy – has been problematic for a number of countries belonging both to the liberal market economies/welfare states and to coordinated market economies/conservative welfare states, its merger with the Nordic welfare states/coordinated market economies has been surprisingly successful – at least for a period.

While the US and France have seen the coming of the new economy as associated with a widening gap between the included and the excluded, between the mobile elite of the financial-, managerial-, research- and cultural-communities and the immobile unskilled and traditional sectors and occupations, the Nordic countries have managed to carve out spaces for and transform the identities of a much broader spectre of the population within this new economy. In effect differences between the situation of the lowest and the highest strata of the population are small, unemployment is low, activity is high, trade-balances positive, public- and private debt negligible and investments in infrastructures, on which the shaping of the future depends, offensive.

There seems to be a co-variance between these outcomes and the proportion of the population that gets a higher secondary education. Free education in most continental countries makes it possible to achieve levels around 80% of new cohorts, seemingly equipped with the basic abilities that it takes to live with the new economy, shift or renew occupation, move among jobs and shifting project assignments. Many conservative welfare states share these characteristics, but the difference is that in the Nordic welfare states, high levels of education co-vary with social services (child- and eldercare, care for disabled, etc.) in ways that enable the family to engage adult members of a household in the unpredictable working life of the new economy and yet overcome reproductive duties, while simultaneously – though to a highly varying extent among the Nordic countries - also

including young and elderly in the labour market. In e.g. Slovenia – as we have seen – the family is, on the contrary, an important source, providing the social services so that some family members may become active in the new economy. For instance early retirement schemes makes it possible for some to retire early so that they can be part of the support that makes it possible for e.g. university students to be active on a low paid but probably highly dynamic section of the labour market that introduces them to the new economy – as we shall see below.

Public services enable both males and females to be active in the new economy. As employees they must be able to make swift role shifts, engage in learning while performing a job, be away from home for weeks to attend further training or participating in projects in different locations or even abroad. The family must be able to live with members that engage in an unpredictable working life both in terms of content, place, and timing. The working life may involve periods of great transitions, such as change from an already achieved profession to a new quasi-profession or navigate from jobs in low to high-esteemed and -demanding projects and networks. Today working careers seldom follow the hierarchical path of a bureaucracy; they are often horizontal, crossing many organizational boundaries, social strata, professional divides, etc. Persons moving in such ways are often insecure, feeling disabled and being stressful. Obviously, other things being equal, such a job market is much easier to handle for rich families that can hire a number of private servants to compensate for the reduced time adults may allocate to children, parents and partners. For that reason primarily rich families in countries such as France and the US are able to participate to the fullest in the new economy, often serviced by immigrant labour, paid substantially less than the families they serve. In the Nordic countries families may engage in working life in a similar way, thanks to public services. Esping-Andersen (2000, p 16) therefore sees the provision of social services for families to be

.... the single most effective policy for combating poverty and welfare dependency, while it is also an investment in human resources. In short, family services should be regarded not only as mere “passive consumption”, but also as investments that yield return in the long run.

He argues that social services increase women’s participation rate on the labour market which has proven to be one of the best ways of combating child poverty, which again is playing a major role in determining the educational level of a country. Thus public services, the participation rate of the

population on the labour market, educational level and the ability to master the new economy seem to generate a virtuous circle, which the Nordic Welfare states seems to have engineered more or less unintended. Compared to most South- or East European countries, the participation rate of women is high in Slovenia despite social services being low and close to Italian levels (where the female participation rate is low). This indicates that the larger family in Slovenia seems to have played an important role in transitional processes, while the opposite goes for Italy.

The co-variance between types of welfare states and forms of organization (as demonstrated in Chapter 1) suggests that social services have consistently provided the ground for creating business- and public organizations in the Nordic countries of a significantly different type than in most other countries. These organizational forms, heuristically labelled “learning organizations”, are characterized by combining high-labour autonomy with high efficiency, the exploration of employees own ideas and learning at work, networking among organizations directly by employee-levels probably explaining the performance of the Nordic countries in terms of innovativeness. The Nordic countries all score high in terms of worker satisfaction. The contrast to Slovenia is quite systematic. Here increases in work intensity have been extensive, and carried out to make Slovenia low on costs and managerially controlled organizations. The Slovenian population seems dissatisfied with their jobs, but the ties among family, house, factory, and region make it difficult to change the social contract between employee and employer at the micro-level in the traditional sectors of the economy. Both Slovenia and the Nordic countries have made use of basic institutions to find novel comparative advantages in tandem with globalization – and these comparative advantages are very different at the moment.

In the Nordic countries, the experimental development of so-called “learning organizations” has made it possible for firms and public institutions to gain a very substantial degree of manoeuvrability, as our case-studies show. Firms may pursue a “service-the-sophisticated-costumer-strategy” (**sesoco-strategy**), the customer often being other firms or public institutions making customer-driven-innovations a general feature in many of the cases we have studied. Perhaps the most surprising finding is that in all the Nordic countries, firms or organizations may take departure in a product, but then they will move this product very close to customers and start to increase the importance of it either by solving more and more complicated problems for existing customers and/or move in such a way that they come to work for increasingly sophisticated and

demanding customers. In most of our cases, Nordic firms seem ready to accept the risks involved in moving with the tides of customers with whom they are involved, and the internal flexibility makes it possible to re-arrange roles and routines internally as customer relations change. In this way they create a dense network to other firms and suppliers which enables them to play the role of spider in a network combining a set of suppliers with a set of customers. This network does not constitute a stable and well-defined global value chain, but is rather an open innovative system, where impulses and capabilities for development are abundant – provided that the firms accept the risks involved. Our cases show that firms and organizations can move in these directions both from being R&D organizations (in Sweden), from being artisan or manufacturing firms (in Denmark and Finland) and from being state-owned (Norway). Many of the firms we studied did not simply supply customers with goods, but used goods as components in a larger set of services that aimed at continuous improvement of core-processes in the customer organization. Where formerly internal staffs had taken care of improvements, Nordic firms now provided these. And by doing this across a number of customer organizations they accumulate an extensive knowledge of practises that can be combined into new approaches. They so to speak increase their assets by bringing them into play. To us this is a break away from strategies of either scale or scope that characterized past corporate strategies and that currently is used to explain the global organization of value chains. But it is also a system in which the best way to learn comes from participating in the continuous response to new challenges emerging in networks, both at the level of firms and of employees. Therefore it causes employees troubles to maintain their working competence and professionalism if they are absent for longer periods, e.g. on parental leave, and it may be very important that the young generation very early, in parallel with their education, enter the job-market and learn to participate. In this respect the Nordic countries reveal a number of differences that may be important to assess in detail.

By tying up in this way internationally, firms and employees gain access to the very *root causes* of reflexivity and become entangled in the world of Reflexive Modernization (Beck, Giddens and Lash (1994). As Lash states (Ibid, p 120):

What indeed underpins reflexivity is ... an articulated web of global and local networks of *information and communication structures*. One might best understand this new context in contrast to industrial capitalism, in which ‘life chances’ and class inequality depend on an agent’s place in and access to the mode of production. In

reflexive modernity, life chances – the outcome of who are to be the reflexivity winners and who the reflexivity losers – depend instead on place in the ‘mode of information’. Life chances in reflexive modernity are a question of access not to productive capital or production structures but instead of access to and place in the new information and communication structures.

The cases we have studied have consistently elevated firms and employees in the Nordic countries to strengthened places in such information and communication structures. No wonder then that popular support for globalization has been high. Pursuing sesoco-strategies by the mentioned forms of learning organizations constitutes in itself a dynamic complementarity for a novel template of business development, where firms become deeply enmeshed in global processes and by being there, the world reveals an abundance of new opportunities and challenges. However, such opportunities are only exploitable if employees, owners, firms and organizations dare take steps out in an uncertain terrain, where they gradually will succeed and/or fail dependent on how they create capabilities that meet opportunities and challenges. Put in another way, firms and employees are continually engaging in projects that are beyond their professional boundaries, transcending existing routines that are uncertain and fundamentally unpredictable. They can only move in such ways by taking incalculable risks and accepting to be temporarily disabled. In our view, firms and employees dare take these shaky moves, where institutions share risks with them and/or compensate for being disabled.

Where institutional risk sharing takes place and institutions enable disabled that is, in our view, where and how learning organizations and sesoco-strategies evolved in the first place and where and how they continuously evolve in the Nordic countries. Thus the emergence and extension of the Nordic business template is dependent on firms taking the risks associated with these steps into the unknown, and this again is dependent on where and how firms and employees share risks with the larger society and the welfare state. Thus the evolutionary dynamic of each of the Nordic business systems is distinct because risk sharing and enabling institutions are working in different ways and are socially constructed to meet situational challenges in each their distinct way in each of these countries.

Varieties of risk sharing in Nordic Welfare states and Slovenia

Most traditional views of the Welfare state see its central obligation as provider of social insurance (Esping-Andersen, Ibid; Iversen and Cusack, 1998), a risk sharing system directed towards accidents, unemployment, diseases; and often to have evolved from the self-help movements of a multiplicity of occupational groups, each creating their distinct set of risk sharing institutions (Marsden, 1063) directed towards damage repair for predictable situations of misfortune. Thus some have seen the expansion of the welfare state to be connected with the international trade liberalization (Cameron, 1978; Katzenstein, 1985) or with the abrupt change to a service economy through a period of sudden de-industrialization (Iversen and Cusack, 1998), which both implied radical changes that increased the vulnerability of traditional – agricultural and industrial – occupational groups, and the need for elaborate social security systems. In this view, the welfare state simply, in a *defensive* way, shares the risk of misfortune with its population, typically by providing unemployment benefits, social security and early retirement schemes, etc. The state compensates the citizens for the evils of capitalism.

But growth in welfare expenses may have, and should maybe be seen as having, *offensive* outcomes co-evolving with a distinct form of capitalism. In our case-studies, thus, we have observed a set of different risk sharing systems that offensively stimulate individuals, firms and regions to explore new opportunities beyond the boundaries of current practises, where both uncertainties and opportunities are unknown, and where risks are incalculable. In global and open innovation system, firms collaborate on projects where the outcome is unknown, individual firms make investments, the return on which is incalculable and employee cultivates and acquire skills, the usefulness of which are unproven. Entrepreneurial activity so to speak penetrates the system at all levels.

Generally, it has been argued that welfare states, by lessening the exposure to and reducing the entrepreneurial gains from the market, make firms and citizens risk-averse, thereby slowing down growth in the long run. Recent research, however, has found theoretical ground for arguing to the opposite, that redistribution leads to real benefits by stimulating risk taking (Sinn, 1995, 1996) and empirical tests made on scattered data “is consistent with (but does not prove) the argument that the welfare state, by insuring incomes, induces risk taking” (Bird, 2001).

In our view, this risk taking characteristics are not so much attributable to the traditional core characteristics of welfare states (income redistribution, social insurance, pensions, etc.) as they are to some co-evolving institutions or some of the reforms that have been made to make the risk sharing institutions translate into enabling risk taking and which compensate for disabilities among firms, citizens and regions. In our case-studies we have found such systems in each of the studied Nordic countries, but they differ among cases and hence the dynamic of exploration and search for new opportunities differ among the countries.

Rodrik (2004) has argued that in order for developing countries to discover new dynamic comparative advantages, the state should experimentally subsidize entrepreneurs in new and hitherto untried business areas so that they can explore whether the country in question holds comparative advantages in new specific, emerging areas. In his view this was why and how e.g. Taiwan discovered its advantages in consumer electronics and other branches.

Diversification of the productive structure requires “discovery” of an economy’s cost structure – i.e. discovery of which new activities can be produced at low enough cost to be profitable. Entrepreneurs must experiment with new product lines. They must tinker with technologies from established producers abroad and adapt them to local conditions. This is the process ... called “self-discovery” (ibid p 9).

The process of self-discovery for a national economy cannot alone be dependent on the functioning of normal market processes:

When we put ourselves in the shoes of an entrepreneur in cost discovery, we immediately see the key problem: this is an activity that has great social value and yet is very poorly remunerated. If the entrepreneur fails in his venture, he bears the full cost of his failure. If he is successful, he has to share the value of his discovery with other producers who can follow his example and flock into the new activity. In the limit, with free entry, entrepreneurship of this kind produces private costs and social gains. It is no great surprise that low-income countries are not teeming with entrepreneurs engaged in self-discovery (Ibid).

Active and timely self-discovery, making it possible to continuously redefine roles, positions and opportunities for firms in the new global economy on a national scale is a complicated aim that involves a new synthesis between politics and business, but also a change in how the national and international relates. For Unger (2007) the important thing for a country is to have businesses that are tied up internationally with other firms that are engaged in pursuing “revolutionary routines” (Sabel 2005) that leads to continuous improvement by employing managerial techniques such as root-cause analysis, appreciative enquiry, simultaneous engineering, heuristic design. But to achieve such a position, national firms must themselves break out from current routines and move beyond the boundaries of normal businesses. To make such a move – and break out of the catch22 situation - on an extended scale, firms and their employees need to take risks continuously and the probability of that failures increase unless the state through institutions shares the risks with business firms and employees. As our case-studies reveal, the Nordic countries show a whole palette of different ways of meeting this challenge

Risk sharing in the Finnish Innovation System and Welfare state

Finland used to have one of the most elaborated forms of offensive risk sharing systems of any Western country in the aftermath of WWII, enabling paper and pulp mills to move continuously beyond existing best practises. When paper and pulp industries were preparing for the enormous investments in new generations of mills, banks would, in coordination with state-level initiatives and local communities, provide patient financial capital, created by “forced” private savings, so that the population shared risks with banks, banks with mill-companies, while the state would moderate the risks of all by managing the currency-value in accordance with global supply and demand for pulp and paper on the world market (Lilja et al. 1996). This way of organizing risk sharing in many ways served to make Finland the most technologically elaborate producer of high-quality paper, which again triggered a need for engineers and carved out a privileged social space for technological professions in the Finish society. Moen and Lilja (2005) have shown how this risk sharing system was remodelled to put Nokia on the track towards consumer-electronics, simultaneously creating new and updating old R&D institutions and expanding the education of engineers to enable the rapid growth of clusters of electronic firms. As Ornston (undated) has documented, this change was a deliberate attempt by the Finns to copy the Swedish innovation system by a radical investment in more R&D, by establishing new top level coordinating institutions with corporatist linkages. One of them was the Science and Technology Council,

headed by the prime minister. Though this coordinating body quick decisions could be made to increase public expenditures to R&D in the 1990s. In many ways this effort was simultaneously undermining some of the elements of the old risk sharing and coordinating systems as it allowed Nokia and a number of other successful firms to engage directly with the risk sharing that takes place in advanced financial systems, primarily orchestrated by Wall Street and the City of London.

In Sabel's and Saxenian's (2008) detailed longitudinal study of Finland's industrial heritage it becomes very clear that the co-evolution of Nokia with a competitive telecommunication system, public regulatory bodies, R&D institutions and standard-setting collaboration among Nordic countries created a unique adventure making it possible for Finland to gain an extraordinary role in cell-phones globally. It is indeed a simultaneous co-creation process that takes place among actors, bringing a new generation of a technology into life. The "enablers" outside Nokia itself were numerous in terms of complementary technology, the creation of infrastructures that could simultaneously underpin a coming market and create demand for cell-phones, etc., R&D and an elaborate National Innovation System was only the last element in creating enabling conditions for Nokia to become a strong player. The history of Nokia resembles aspects of the emergence of the wind-mill industry in Denmark, but in Denmark this new industry came out of a craft based industry of agricultural machinery, and became only much later – after it had gained high market shares internationally - based on systematic efforts in science and engineering technology. In Denmark, the creation of a market and prices for wind-based electricity, the mode of creating cooperatively owned "wind-mill guilds", tax rules, etc., created a similar interplay between the public and the private sectors in which self-discovery could take place without leaving entrepreneurs with all the risk taking. Other similar examples in Denmark are hearing aid devices, medical measurement systems, medicaments, etc., that is, products which serve advanced demands in the public sector. In all the Nordic countries it is indeed possible to study how the welfare state constitutes a market that is able to appreciate and interact with producers of elaborate technology and engage in co-creation of new products and businesses. Perhaps the best example is the weapons industry in Sweden.

But in Finland, this evolution took a new turn by the coordinated effort to create a large national innovation system focally organized around Nokia, and often financing a large proportion of Nokia's R&D costs in the 1980s and 1990s. This innovation system plays a major role, too, in the

cases that we have studied. The groupings within the studied Finnish subsidiaries that dare take offensive actions are neither workers and sales-people, nor the managerial staff. Engineers from the R&D- and production staff are holding offensive agency and take risky steps, partly by connecting with engineering staff in customer firms, in such a way that they redefine mandates of subsidiaries and their roles within acquiring multinationals. Seemingly it is no longer risk sharing by a system of patient financial capital that is in focus, but rather the existence of a distinct human capital that is at the core of the way in which risk taking takes place. Firms and employees agglomerate around the engineering profession to be part of this risk sharing system. Thus we observe that the subsidiary in Varkaus decides to relocate to a neighbouring city, which embed institutions and other firms that employ and educate engineers, rather than engaging in rejuvenating its host locality.

Together research institutions, educational institutions and engineering-intensive firms constitute a risk sharing system that makes it attractive for youths to be educated in engineering, for engineers to move to places where engineers agglomerate, and for firms to allocate their facilities there. Risk sharing takes place at many levels. Co-allocation create a labour market, where it is easy for engineers to be re-employed if fired, for firms to search for solutions to engineering problems that are beyond their own capability and for the public to trust that investments in R&D and education will pay off in terms of innovation and increasing employment. More direct tight connections among engineers in firms and public institutions create the strings by which R&D-applications can be made so they look attractive to the financing bodies (Academy of Finland, TEKES, SITRA, etc.) of the state.

Effects have been non-negligible. The transformation to a high-tech industry in Finland has been fast, but more noticeable – as in Sweden – a much higher proportion of the youth finalize university education within technical areas and natural science (close to 30%), whereas the OECD average is less than 20% (Økonomi- og Erhvervsministeriet, 2006: 88). Both Norway and Denmark are in these areas below the OECD average.

Focused in this way the normal pattern of welfare provisions may seem of secondary importance, and yet they allow firms to be organized in accordance with the templates of high performance work organization, making it possible for employees to adapt to a rapidly changing context, spouses to move with their family risking temporary unemployment before becoming equally active, and to

cultivate a culture of living in accordance with a professional life in an innovative business environment.

However, the Finish system of risk sharing only work to the extent that this engineering risk sharing system is able to generate exploration to the extent that it creates employment for other groupings, too. High unemployment figures, the most unequal regional distribution of economic opportunities of the Nordic countries, and an overrepresentation of the ICT-sector as proportion of the Finish economy are signals of the limitation of the Finish system of risk sharing. In many ways Finland could be said to be too dependent on this risk sharing dynamic and leaves many social groupings and regions without institutions enabling them to act if they do not happen to be dragged into the core dynamic. In this way many of the institutions of the welfare state are left to their traditional role of passive social insurance and passive risk sharing. General entrepreneurship outside the pockets of engineering and higher education may be low. Finland has to a lesser extent compensated for loss in agricultural and manufacturing occupations by expanding public and private services than have the rest of the Nordic countries (Iversen and Cusack, 1998). Entrance into the labour market happens later for young people in Finland than in the other Nordic countries, and retirement takes place at an earlier date. Women are absent on the labour market for a longer period after having given birth to children than in the other Nordic countries. In an experimentalist, projective economy organized around “learning organizations” this could lead to a system, where the engineering profession is pulling with them a core of polyvalent employees, which are given opportunities to enter the brave new world of “revolutionary routines” helped by firm financed continuous training, whereas many young, women and elderly workers with low education become increasingly peripheral and only temporarily engaged in the new learning dynamism. Yet, it is obvious from the cases studied that Finish firms by becoming subsidiaries are dragged into the new dynamic and that this is present in the Finish economy also outside such core firms as Nokia, but it is indeed difficult to assess whether this dynamic may be diffused to the larger system, which in many ways may suffer from being a centrally, rather than locally coordinated market economy. Outside the dynamic core it seems difficult to create novel actors and strategies, which the Varkaus case demonstrates.

Sabel and Saxenian (2008) see another risk emerging from the way the Finnish system enables self-discovery and risk sharing. Firms and institutions may become so focused on the attractiveness of

forming national R&D-partnerships that they neglect to develop search-relations to the wider international landscape of R&D-frontiers. In a world of open and decentralized innovation system, their argument goes, R&D-frontiers are exploding and numerous, and for that reason none can ever more foresee from where exactly new innovations will emerge. In such a global system a large, yet bounded and limited national innovation system that stimulates different actors to create primarily national ties, may undermine the possibility of creating the multiplicity of international ties that capture new promising research and innovation frontiers of the future.

Risk sharing in the Danish Flexicurity and Welfare state

Comparing the Finnish and Danish routes to reforms, Ornston (undated) did not identify a deliberate master plan guiding action and transformations in Denmark in the 1990s, as in the case of Finland. Rather swarms of seemingly unconnected tiny changes in existing institutions and novel use of existing schemes were re-combined to respond to novel situations. Focus was on bringing down the level of structural unemployment without causing inflationary pressures, and attempts to rejuvenate the innovation system were scattered if not absent. What in particular came into play was a reformed use of continuous training and life-long learning by activating and extending the use of the Technical Schools and the “Specialized Workers Schools”. In the 1960s both institutions were seen as instrumental in preparing the population for the Fordist mode of production, but both groupings used these institutions in a rivalry over skills, creating high-discretion jobs and class-transcending working careers.

By local experiments in the 1980s, elevated by granting workers universal rights to yearly periods of further training negotiated among unions and employer’ association in the early 1990s and by using the training system extensively from the mid-1990s to activate unemployed, the vocational training system extended its reach during the 1990s. By 1990 24% of the resources devoted to active labour market policies were used for occupational training, by 1999 the proportion had reached 56%¹⁰⁵ of a rapidly expanding budget. First, workers and unemployed would flock to schools to get highly elaborated courses in ICT and CNC technologies, they would attend courses in novel ways of organizing factories and work and, as we saw in the Danish case-studies, a new

symbiosis between work organization reforms and local labour market situations would be mediated by creating social innovations in the local use of vocational training institutions in an unrecognized abundance.

By compensating firms for both the costs of courses and most of the salary of the participants, the Danish state shared the risk of exploring new competencies and experimentally developing novel working roles. In turn, employees with identities under continuous redefinition shared the risks with employers that experimentally searched for novel ways to organize high performance work systems, creating a distinct mode of self-discovery. And when these searches resulted in increasing demand for novel types of skills, the vocational training system up-scaled, codified new professional identities, such as industrial- and process operators, team-leaders, coaches, etc. Our case-studies show that the experimental search for novel forms of work organization and novel professional identities may engage employees, firms and vocational training institutions in close interaction, during which their mutual tasks become identified through a very intensive learning process. However, by focusing state intervention on the training of employees instead of the redefinition of firms from the outset, employees often became the triggers of introducing novel technologies or novel forms of organization. In this way the risks of exploration that leads to self-discovery are not left to a few entrepreneurs that share it with the state. Rather the general population is participating in this exploration sharing the risk in a way mediated by the state. The high mobility on the labour market tends to allocate the most competent and skilled workers in dynamic firms, while firms sticking to traditional ways of operating will be left with workers that are much less engaged in the risk taking of carving out for themselves a continuously changing role.

While in the Finnish system we would expect engineers to tie a firm into the global web of innovative interaction among firms, if they are not orienting themselves to the abundance of resources in the Finnish innovation system, and by doing so involve a polyvalent core of workers in experimental search for novel forms of organizing work; in Denmark the mobilizing agents are much more widespread and operate through the general labour market, to a certain extent also involving the unemployed, creating a pressure on firms for reforms. In this way firms meet an employee driven pressure to search for challenges that may meet the aspirations that the most skilled and risk taking on the labour markets develop. In other words risk taking employees pressurize firms to take risks by searching for customers that offer challenges beyond the current

state of art, and where customers will eventually share the risks involved in co-creating novel products or services.

Compared to the Finnish model, the Danish is much less science driven, and ties to university labs, etc., seem modest. The Danish system seems much less capable of creating radical innovations, and is rather geared towards a constant redefinition of roles, gradually moving firms in the direction of sophistication and toward becoming consultancies for customer firms, even when their legacy is in manufacturing. In our assessment, Danish firms, for the reasons mentioned above, are quite quick in applying novel technologies and combining them with their existing skill-base, but seem to lack the risk sharing systems that break the ground for entirely new types of businesses. Though, as mentioned above, it was possible to develop the Danish wind-mill industry in a way similar to that by which the Finns developed Nokia, Denmark did not make a jump from traditional to high technology. Technological quantum leaps seem alien to the Danish mode, while responsive co-evolution with international customers, suppliers and frequent use of global sources of technology is the path taken.

In this way the dynamic of the entire system could be highly dependent on and restricted by the ability of the further training system to constantly renew itself and carve out novel skills and competencies that set in motion the labour markets and firm clusters. For that reason it may prove highly destructive that since 2000 the state has tried reduce budgets for vocational training. And yet, it is interesting to see that the last general labour market agreement - to reduce potential wage increases - gave rise to new schemes in which funds will be accumulated for employees to finance participation in continuous training after their own choice. In a similar way the conservative-liberal government has made an agreement with unions about modernization and innovation in public services, where emphasis is on skill-upgrading among public employees. Together these two reforms could bring about a novel quantum leap in competencies, comparable to the 1990s, enabling firms to take on even more demanding roles in international value chains. But at the moment the situation is dubious as it could move in two, very opposite directions.

Denmark is also experimenting with ways to strengthen interaction between research- and educational institutions and private firms, primarily SMEs. Currently this is organized through 13 regional technology centres and 12 high-technology networks, which work along a mixture of

measures: stimulating bridge-building, identifying new needs for competencies, and regular collaborative innovation projects. These attempts are very scattered, and the economy of each initiative is limited in terms of public subsidies, probably reflecting the difficult conditions for making such initiatives in a highly diversified economy as the Danish. In 2007 a total of 2,415 firms participated in such activities out of which 1,570 were SMEs with less than 50 employees. Many of these networks are not only directed towards Danish firms, but do also involve foreign firms and institutions (Forsknings- og Innovationsstyrelsen 2007). Probably these innovation networks are important for extending the search-networks through which individual firms operate but less so for producing distinct new products and processes. They could be seen as providing new meeting spaces for emerging quasi professions, where novel skills can be contested to assess Danish comparative advantages.

Compared to the Finnish system, where neo-corporatist bodies are formed centrally and coordinate in a hierarchical way, corporatist bodies in Denmark seem rather to be formed locally, regionally, and occasionally. For instance the Regionale Arbejdsmarkeds Råd (RAR) (Regional Labour Market Councils) played an important role in activation policies of the 1990s in enabling corporatist bodies at vocational training centres, to collaborate regionally within the RARs in search of novel institutional innovations that could solve situational problems locally (as reported in Chapter 3)). Central allocations to activation policy could locally be translated into schemes for developing local labour markets to fit local aspirations and revolve problems among involved partners. In a similar way, bodies of participants from public institutions, municipalities and firms typically constitute the regional innovation centres thus facilitating the processing of new initiatives directly among the involved stakeholders. The variety of stakeholders represented in these bodies is large and membership seems to be dependent on who wants to hold a stake and commit to developing the institution in question. Corporatism thus is becoming a system of fluctuating membership, with less representation by formal interest groups and more involvement from shifting groups with a distinct interest, representing in many ways the heterodox interests that evolve in a diversified society where demarcations among employees, employers, and different professions become blurred. And yet it makes it possible to get together and collaborate about setting up collaborative projects that make possible enabling concrete forms of risk sharing.

Risk Sharing in the Norwegian Oil- and Welfare State

After WW II the Norwegian State was not only sharing but taking on the major risks in industrialization. Huge plants for processing raw-materials were set up co-jointly with electrical power-plants, often owned by the state, to produce iron, steel, aluminium, fertilizers, etc. Tied to raw materials and energy-sources, as they were, the development took place in many small communities, close to energy and raw-material resources as the general infrastructure, basically dependent on shipping, did not allow for a more centralized development, distributing enterprises and institutions regionally. In these mill-communities life-long employment focussed on highly specialized production processes and specialized skills were cultivated to high levels. After WWII the state installed public financed R&D and technology-transfer institutions to facilitate a technology-led industrialization. Whereas Norway in this way created institutions that benefitted from collaborative ties within NATO, Sweden compensated for its neutrality by setting up nationally large scale technology programs that copied many of the traits of the military-industrial complex of the US. When oil was discovered around 1970 the Norwegian state was able to coordinate in a similar way the evolution of a highly advanced off-shore oil-industry in collaboration with Norwegian shipyards and machine-industries.

The Norwegian system was governed by macro-economic planning of a Keynesian type, but in many respects went further by optimizing on technical coefficients of input-output matrices, as did Commissariat du Plan in France. Within this frame, the Norwegian state constructed company towns in rural areas, given the vast and difficult geographic setting of the Norwegian landscape. Whereas private businesses in Southern Norway could flourish on private initiative in connection with a large shipping industry, the interdependencies between infrastructure and plants in Northern Norway demanded a much more interventionist state, able to coordinate investments and carrying the burden of risk-taking. Obviously, highly specialized towns, dominated by a single enterprise are much more difficult to restructure in face of dramatic global change than are the more heterodox, industrial district types of regions in Denmark.

The Norwegian case-studies analyse a number of firms and a town struggling for survival during a period, when the traditional Norwegian system is being dismantled, partly inspired by the neo-liberal turn in macro-economic ideologies and under the guise of de-regulation within the EU, which Norway basically follows, though it is not a member-country. Compared to Finland, Norway

has rather than developing an offensive Innovation System, rolled it back. Compared to Denmark it has basically tied vocational further training to existing businesses and core employees missing the opportunity to create a dynamic, diverse and skill based labour market more broadly. The proportion of occupational training in active labour market policies went down from 36% in 1990 to only 6% by 1999 (see note 1). Norway in this way seems to replicate the Continental and Southern European pattern of employment protection for core workers gaining polyvalent skills, while an increasing grouping works as unskilled on temporary contracts.

At the surface it seems as if Norway has simply dismantled former risk-sharing schemes and triggered firms to invest in rationalizing existing production, based primarily on processing of raw materials. Running close to full employment and with earnings from oil, making Norway extremely rich, such a strategy seems rational in the short to middle term perspective, but could be dangerous in the longer run. It could mean that Norway simply closes off to the experimentalist dynamic of global ties of innovation.

Ironically, however, the firms and town studied by us seem to compensate for these potential dangers. We see this happening within the core, oil-business of the Norwegian economy and within the privatized weapon industry and in the attempts made by regions to modernize when old plants are closed and the locality is looking for new opportunities.

The shift away from a system within the oil-sector in which the oil-company in great detail designed and ordered parts for off-shore oil rigs to a system, where this is done through co-designing processes with suppliers, has carved out a space for privatized, former publicly financed companies as well as a large number of start-ups to design, standardize and coordinate production of rigs, subsea production systems and subsea equipment that simultaneously make them powerful players in the global off-shore business, able to influence even multinational owners to run business after their newly found templates. Obviously, the State through Statoil plays an important role in this risk-taking system, but by doing as described and by suppliers being able to use these options to make ties with the global industry, important nodes for learning is being established, enabling Norwegian players to engage with a much more open, decentralized and dynamic innovation system. Unfortunately, our cases only cover firms at the upper echelon of the value chain, but the new dynamic might be able to pull a larger proportion of mechanical engineering suppliers into the

practices and dynamics of the global experimentalist economy (some examples show that this is actually happening).

In a similar way a former, publicly owned weapon producer designated to develop new products based on research in the state's research institutes after being privatized and sold out in bits and pieces has been able to survive by carving out new roles. There is no doubt that these roles were highly dependent on the reputation gained during the period in which it was state-financed, but on the other hand the successor companies and business units would probably never have been able to make use of established links in the increasing dynamic of the international weapon-industry and other industrial sectors when it was top-down run by the state. The lesson could be that in R&D and innovation policy, states should follow a stop and go cycle by first creating publicly financed R&D institutions and forge links with companies, and then, when their performance and international reputation is high, draw back support to make them reveal whether or not they have uncovered novel comparative advantages.

Finally, we see that the traditional regional policies with public risk-sharing can still be activated in cases where a locality loses a major plant and face dramatic unemployment. In the case we studied, the locality is mobilizing an abundance of schemes, partly assisted by the corporation that plan the plant-closure, and gradually a whole consortium of risk sharing institutions and actors – both at local and national levels - are brought to bear in the construction of novel institutions that ease the road for private entrepreneurs to step in with ideas and plans for a new product (in this case solar energy panels and silicon-refining). In this way the locality ties up with a highly promising, global and innovative industry that carries very high current and future dynamics. Whether this case also means that the locality ties into the dynamic of global experimentation is difficult to assess. Focus seems to be on protecting and perfecting existing manufacturing processes by holding exclusive rights to certain forms of equipment and by upgrading the process and its automation. This could indicate an inward orientation towards rationalizing existing production rather than engaging in the more broad exploration of novel possibilities and options connected to the solar energy industry. And yet the case is dubious. The extraction and processing knowledge accumulated for ages in this and other raw-material-processing communities creates entrances for and enables other, more networking Norwegian firms, to play roles in the global experimentalist economy, exactly because they provide access to raw-material processing capabilities of an

extraordinary quality and cost-efficiency able to make raw materials with new and specific properties. Whereas Norway used to make use of its comparative advantage of low-cost electricity to refine raw-materials for the bulk market, it may now make use of its processing skills in raw materials to gain new comparative advantages?

In this light, Norway is a very confusing case. At the surface it seems headed in a wrong direction focussing on oil and raw-material refining, and yet it uses these elements to enter into central positions of and engage in the new principles of the experimental economy. To us it seems as if that re-orientation to a high extent is made by people, who have been liberated from state governance. The new entrepreneurs in other words seem to originate from a risk-sharing and –taking system that has either been abolished, or where new initiatives seem to have been brought to a halt. A major question thus is whether Norway in this way will gradually concentrate and diminish its ability to explore new comparative advantages in the future?

Against this view, it could be argued that Norway apparently possess the ability to rig up - whenever a situation arises - a neo-corporatist set of ad hoc bodies that is able to produce risk-sharing consortia,, which are then able to redirect or structure re-structuring. Compared to Finland these corporatist assemblies are much less pre-given and working on a continuous basis-- they may emerge (or they may not). Compared to Denmark, where the corporatist bodies seem to process ongoing processes of continuous restructuring at local levels, the bodies in Norway emerges, intervene and disappears in such a way that it creates a development more like a pattern of local punctuated equilibriums, where the process is more ongoing, non-discrete and continuous in Denmark, while in Finland the apparatus construct a punctuated equilibrium on a national scale. These are very different ways of searching for comparative advantages.

Simultaneously search seems to be reserved for the *included*, while risks are carried by the *excluded*. As said Norway shows a combination of employment protection for core workers and combines this with a quite high and increasing proportion of workers on temporary contracts. This is again combined with very restrictive practises in duration and qualifications for unemployment benefits and as spending on training during unemployment benefits seems low, people are unable to use such periods to actively search for new skills. Instead this system seems to pacify increasing numbers. Norway spends nearly three times as much as the other Nordic countries on paid sick

leave, and close to the double on disability pensions (see chapter 1). It is as if the state seems to have withdrawn from sharing risks at any agency level.

The Swedish Enigma: Re-distributing risk-sharing. Sweden used to have all the attributes of an attractive system. An elaborate form of the welfare state, carrying the romantic name of “Folkhemmet”; a labour market governed by corporatist, central negotiations of wages that would deselect firms with less than average productivity increases out of business in the long run (the Rehn-Meidner model); schemes to help re-locate the working population from rural areas in decline to cities in growth; or schemes to compensate certain regions for declining industries by helping create new ones; an elaborate financial system centred around a few major banks with strong ties to international financial centres that could engage in risk sharing, when firms upgraded mass-production plants from one generation to the next; a highly elaborate innovation system that took hold from the 1930s in a number of collaborative programs between the state and large corporations to furnish the Swedish state with modern weapons, air-fighters, etc but then later elaborated and diffused to a number of systemic technology fields, furnishing the state and global markets with electrical power, nuclear plants and telecommunication equipment. The Swedish welfare state was not only a coordinated market economy designed to sustain the type of productivity gains that came with Fordism, it was a set of risk sharing systems that could guarantee that the Swedish economy from a small base could accomplish nearly all what its ideal, the American economy, could achieve as a much larger liberal market economy in combination with a military industrial complex, providing the US with an innovation pump. Even today it is unclear whether the Swedish model simply failed or outgrew itself because of its incredible achievements. The model surely fostered large scale enterprises that outgrew national boundaries much earlier than in the other Nordic countries, and Sweden was leading the way to globalization by becoming the home of a large group of large multinationals, often seen as models for imitation. In retrospect this outcome came at a price, as it had been achieved by undermining the formation of viable small firms in many industries. In this way Sweden reduced the number of potential risk takers, while at the same time giving the remaining risk takers a much less national focus. In the 1970s the Social Democratic government tried to compensate for this by creating “developmental blocks” around very large scale plants in steel production, shipyards, etc., but failed due to poor timing. The new generation of mass producers was ready to serve the national economy exactly at the time when the mass production model faced a global crisis and encountered international competition from low wage NICs. Working after the golden rule of the Rehn-Meidner model would now simultaneously harm

emerging SMEs and stimulate Swedish MNCs to invest in foreign countries to escape high costs at home. Since then the comparative indexes on international benchmarks have been confusing concerning the performance of Sweden. The elements of the former model seem difficult to re-assemble into a new version of the much more flexible, experimentalist and difficult to coordinate, knowledge economy of the future. Much of the former corporatist structure, centred on central wage negotiations, has been abandoned. Many large enterprises have been taken over by foreign multinationals – like in the case studied here – and confusion seems to reign.

In this light, the Swedish case-study in Chapter 5 is highly illuminating. On the one hand we have a municipality suffering from first stagnating employment in its core enterprise, a paper and pulp mill, and then from down-sizing after being bought by a Finnish multinational. But within the community a coalition of significant partners emerges and initiates a number of projects that together aims at rejuvenating the locality by creating an attractive city space, developing novel forms of higher education, new R&D institutions, etc. This coalition in itself is a risk sharing club across the private public divide, but it simultaneously possesses such capabilities that it can evoke a multiplicity of quasi-corporatist ties to state bodies by which the state is activated to engage in and become part of the risk sharing consortium. Interestingly, the case-study reveals how the local coalition of partners become organized in such a way that both local initiatives and the use of state bodies and -financial resources can be locally coordinated over a long span of time in which the community transforms a set of institutions into an infrastructure that can serve the evolution of private services. Within this frame, parts of the R&D department of the paper mill makes draw on accumulated experience to serve paper and pulp mills globally with business consulting, helping them to make continuous improvement along every step of their value chains. Had it not been for the simultaneous change of the locality, it is difficult to see why this new R&D based service firm would still be located in the mill town. But as things have indeed changed, it is obvious that the locality in many ways shares the risks involved in developing a modern business service firm, and potentially the locality could evolve a cluster of advanced business services despite being located far from Stockholm.

The case-study raises the question, whether Sweden is so confusing because the former system is no longer being re-combined and composed in a coordinated way at the state level, but rather being recycled in a multiplicity of different ways in different localities? And, whether, consequently, we

will see a rich ecology of very different risk taking agents/partnerships embedded within highly differing risk sharing systems, being designed according to local circumstances? No doubt, the legacy of the Swedish system is very rich institutional environments, where recombinant evolution is potentially richer than in any other Nordic country, but the survival capacity of the recombinants is unclear, also when it comes to the case studied here. Gunnar Eliasson (2007) is very positive in his interpretation of the Swedish system. He sees the break-down of numerous large Swedish firm as a “spilling” of technology and competences, which simultaneously sets the carriers of these resources free so that they can be recombined into new, regional “competency blocks” (e.g. in biotechnology, life-sciences, ICT, mechanical engineering) and like us he is speaking about experimentalist forms of organizations, where the new competencies are not working within the closures of large firm’s R&D labs. This pattern is in many ways rehearsed in Glimstedt and Zander’s (2003) study of *Sweden’s Wireless Wonders*, where they show how the new ICT technologies and the internet creates new pockets of entrepreneurial competition within a larger frame of the traditional telecommunication industry and providers of services. Their case show how new synergies evolve between new entrants and old players and together they stir up and re-configure into a new, much more debundled network of enterprises that takes part in transforming Stockholm into a high-tech, ICT based locality.

Thus the studied case in this book may not only be indicative of a distinct municipality in transition, but also reflecting a more general transformation taking place, which will not only create an entirely new foundation for Sweden in the future, but make the steps taken in the case we studied exemplary for the general development.

Seen in isolation, the scope of transforming a corporate town as radically as our Swedish case demonstrates seems very costly and risky, indeed. It is easy to read into this case-study that it is about a set of local actors that form a coalition and then make use of its numerous ties to the larger national political system to generate an abundance of resources, making it possible to take advantage of tax-payers’ money to carve out a new place for themselves in which they – as a grouping – regain the dominating position over the locality, which earlier belonged to corporate owners in corporate towns. Imagining that numerous such local coalitions are mutually competing for directing resources to an unlimited number of localities, this whole process could be very costly and perhaps undermine the Swedish economy? In this light it is easy to see the advantage held by a

centrally coordinated system of the Finnish type. But the experimentalist scale and scope of this Swedish creative destruction and reconstruction might, in the longer run, carry great benefits.

Slovenia: Risk sharing between family, workplace, shadow economy and the welfare state

Our study has attributed a strong role for families in the Slovenian risk sharing system, making it seemingly natural to compare it to Italy and Greece, which are widely associated with a strong emphasis on familiarism:

This means that the family have the principal responsibility for their members' welfare, be it in terms of sharing incomes or providing care to those in need. Hence, these countries are: uniquely committed to protecting the male breadwinner via insurance and job protection; highly reliant on social contributions for financing; and, compared with the rest of Europe, very underdeveloped with regard to social services. (Esping-Andersen, 2000, p 5).

Slovenia only partially shares this orientation, though the Greek and Italian experiences have been increasingly shared by an increasing number of countries throughout Europe, giving the family a strong role in economic redistribution:

The economic well-being of today's elderly is the result of a unique combination of factors that have produced high retirement income and lifetime asset accumulation. OECD figures show that the average household at age 65 possesses wealth equalling 4-5 times its annual income. And though there are only scattered data for specific countries, there are indications of pension "overprovision" in some of them. My own analyses of data on Italian family expenditures indicate that income exceeds expenditures by more than thirty percent in the average pensioner household. A recent study by Kohli (1998) on internal flows of money within families indicates a huge volume of transfers from the aged (70+) to their children and grandchildren: 24 percent of income is transferred to their children, and nearly 15 percent to their grandchildren. (Ibid p 8-9).

Slovenia could be seen to replicate this trend as it uses a significantly higher share (47% in 2005) of a smaller expenditure on social protection on “old age” than do the Nordic countries, while Slovenia’s expenditure on unemployment benefits and labour market activities is only a third of the percentage spent in the Nordic countries. Simultaneously the integration of Slovenia into the EU has created a booming real estate market creating rich, elderly homeowners and poor young generations finding it difficult to establish themselves in independent accommodations.

As mentioned in the introduction, calculations show that the Swedish welfare state primarily re-distribute incomes/services over a life span, and the above figures indicate that the redistribution of incomes then goes in an opposite direction within the family, effecting a perverse total system, according to Esping-Andersen (Ibid, p 9):

... the redistributive effect must be considered perverse if the welfare of youth is becoming dependent of the retired parents’ and grandparents’ wealth. It is doubly perverse, in the sense that pay-as-you-go pensions are financed by the working age population. The welfare state was presumably constructed in order to level the playing field; but this is a case where it is helping to re-establish inherited privilege.

There are many signs in Italy that the extended family by placing in this way an overabundance of wealth in the hands of male breadwinners creates a self-conserving structure. Male breadwinners are protecting their employment in particular and extending their privileges into the age of retirement, simultaneously creating difficulties for youth – especially young women - to enter the legally regulated labour market, making it difficult to obtain loans to finance the first home, to create a family and afford to have children – if not approved by the family head. This does indeed make it very difficult to live lives that break with previous patterns and to set up novel types of families that adjust to the life pattern of an experimentalist economy. The long term effect of this in Italy, in particular, is that females are much less represented in the labour market and if they are, suffer much more from unemployment.

Slovenia seems – despite the strong role of the family – to have a surprising even participation of men and women, and no particular high unemployment for women. In terms of equality, Slovenia is only second to Denmark (European Commission, 2004). Thus it seems as if the family here allows

for, instead of hindering, members to be active economically. On the other hand, the family is not coming close to be the root-cause for entrepreneurial activity, as it is in the industrial districts of SMEs in Italy. The metamorphosis between family and economy is apparently of a different sort.

The Slovenian system under Socialism was consolidated in a different way than in Italy. Kristensen and Jaklic (1997) have shown how Socialism in Slovenia took departure from extended families living on small farms (growing hey, grapes, olives, etc.), directed towards self-sufficiency. By setting up local factories, Tito's partisans, with local roots and feeling mutual obligations to 'their' localities, offered jobs and incomes that made it possible to modernize the rural life form and build houses with modern facilities. Thus the workplace or factory became de facto a way of sharing risk with and among families on the route to modernization. The partisan directors became the local risk takers searching through their international networks for products and new technologies that could guarantee incomes that in turn made it possible to upgrade the living of local families, being oriented very much towards making a pleasant life in big houses, preferably on the old family lot. During Socialism, one could say that large scale risk sharing took place among the old network of partisans, which would collectively search for new business opportunities and would bail out unsuccessful members and in this way bring the part of the country that were covered by this network into a fairly prosperous dynamic. Living by a combination of self-sufficient farming and factory-incomes became a mode of life, which further elaborated the evolution of a grey economy in which families mutually exchanged "services". In many ways employment in socially owned factories was *the* system for social protection because parents could create job for their children or have the factory offer stipends for training or education and the young students would typically later return to a job in the factory. In this way we see an almost organic joint growth of factories and communities of family houses, much more oriented towards cultivating the house and lot than pushing for their factories to become challenging providers of new skill and career options. Firms and factories had the role of providing families with opportunities for cultivating the "good life" on small lots. And today no visitor can doubt that it created the foundation for exactly a "good life". Whereas in the Nordic countries welfare state provisions compensated for failing companies, the company created the welfare provisions beyond subsistence needs in Slovenia, while the grey economy made it possible to become rich.

As a constitutional order, the Yugoslav system fascinated its observers already when it existed, and for good reasons. In our perspective one could say that the offensive risk takers, the collective of former partisans, could only retain power by taking risks that favoured the communities in which they were present. Unsatisfied communities could – as factory employees – deselect partisan managers and thereby erode gradually the powerbase of the collective of former partisans. On the other hand, defensive risk sharing was carried jointly by households and local factories, creating a bond for stable growth and prosperity, not least in Slovenia, where this stable bond tapped into ties with Western Europe, where such firms as e.g. Adria (caravans) and Gorenje (white goods) were fairly well-known brands for standardized goods.

Transition away from the former Socialist system by way of privatisation has been slow and gradual in Slovenia and at the surface, the system seems to have been very robust. Kolektor, as an example of old, global players, in the Slovenian case-studies of this book, in many ways demonstrates the predominant pattern of what has taken place in the metamorphosis between enterprises and communities of families. By concentrating on already gained comparative advantages and specializing on these, firms have been able to take advantage of a stock of employees with specialized skills and bounded by ties to a particular company. Increases in work intensity have been significant, work satisfaction has declined but overall development has been stable contrary to many of the other transitory economies. But as the Kolektor-case also demonstrates this process of consolidation seems to happen by specializing to an almost extreme extent – and the question is whether this specialization leads into a blind alley? In the Kolektor-case it is obvious that the firm until recently is not using its business to business ties to sophisticate and expand its role towards customers, and R&D was for some time unconnected to current business, intended for diversification, undertaken in-house and protected by secrecy, making it very difficult to actively explore potential future comparative advantages.

As far as we can see, no new collective system for exploring coming potential comparative advantages has replaced the risk sharing collective of post-war partisans. Slovenia – like the rest of the transitory economies – has adopted one new image of industrial policy after another, ranging from liberalization/privatization, over clusters, national innovation systems, technology platforms, etc., but without institutionalizing an endogenous pattern of risk sharing and deliberate collective search for potential future comparative advantages that seems well-connected. Risk taking has

become privatized and dependent solely on what goes on in a limited number of private enterprises, which the state can assist in a rather passive way through such schemes as the Slovenian Export Corporation (sharing risks in relation to exports), the Slovene Enterprise Fund (providing risk-capital for SMEs); the Public Agency for Entrepreneurship and Foreign Investments (JAPTI) and not least European Structural and Cohesion Funds. What seems lacking is the type of co-evolution, where public interests join hand with private to mutually enable each other. Much of the Slovenian government's effort seems primarily to be formative of a new class of individual capitalists to increase individual entrepreneurial activity. Steps have been taken to create an active labour market policy, but still people are searching for jobs under employment protection creating a significant difference in situation between included elderly workers and excluded youngsters. Among the old firms all this means that the firms will tend to build their own little world, and almost be pressurized to adopt a Chandlerian innovation mode at a time when the global dynamic is tipping towards an open collaborative form of innovation, yet it is clear that Slovenia, due to its size and its quite diversified economy, will have extreme difficulties building up publicly financed educational and research institutions that can underpin and share the risks with private risk takers in such a strategy. Maybe this is why a firm like Kolektor seems to both to experiment with the old Chandlerian mode, and yet engages in collective ventures pointing in the direction of open systems of innovation. These experiments may force local communities of families to share even more risks with private enterprises by accepting increasing levels of work intensity and stagnant wages in a system, strongly regulated by organizational hierarchy, where the unions are too weak to negotiate for fair concessions or eventual changes in business strategy. This could indicate a strong case of lock-in, where the economy is doing well, but its innovativeness is declining or wasted.

In this light, accepting to sell off enterprises to foreign multinationals, as in the case of the Danish owned Danfoss-Trata and the Swiss owned Novatis, seems a pretty attractive way out of the lock-in. In both cases, the new owners experience well-functioning subsidiaries ready to accomplish the tasks that are set for them, and in both cases they are offered room to search for expanded mandates and new role-taking within the global corporation. In both cases, foreign owners discover that the Slovenian firms give access to comparative advantages by the readiness of the Slovenian employees to accept either a Danish or a Swiss form of constitutional ordering of the company. In both cases the membership of a multinational means for the Slovenian subsidiaries that they are given access to a much larger world of innovative search and a very different form of risk sharing. Yet we find

that the effects on the Slovenian society are quite reproductive. As in the case of the traditional, typical Slovenian firm that carved out a social space for specialized skills and employees, unable and unwilling to search for jobs in other firms or communities, the subsidiaries of foreign multinationals create an enclave, functioning with each their tradition of work organization, distribution of skills and discretion, making it difficult for employees to shift to another employer as there is no general system that can accredit these distinct skills and working experiences. Slovenia is a low trust society in international comparisons, probably this is connected to the fact that it is very difficult for individual employees to build up more broad competencies by exploring horizontal careers in the labour market. Without this mobility there are no mechanisms for transferring practises across firms and localities. Decentralized learning may take place, but transfer of new practises within the private sector is without carriers as employees search for stable employment. The place that used to communicate across boundaries of firms, the collective of partisans, seems not to have been renewed.

Yet the category of new firms, illustrated by Parsek, offers seemingly a way out of these self-limiting characteristics of the Slovenian Business System. In this case, special institutional conditions – in terms of salaries and temporary contracting – for students make it possible for entrepreneurs to organize and run a software company that simultaneously explores options of new technologies, serves local and regional customers and enables students to build experience with new types of jobs in a way where they are systematically not locked in, but rather abandoned as soon as their life position as students expires. Whether Parsek is part of a significant tendency in Slovenia, we do not know, but if it is, the scheme for students – being subsidized in many complementary ways - seems ideal as it gives them an early introduction to the labour market, eventually in a rather experimentalist oriented fraction of the business community. If in such a fraction a different socialization to working life is provided, the effect could be a diffusion of novel practises on a broad scale by students searching for more permanent jobs and not being ready to accept the Taylorist forms of work organizations that are so prevalent in the previously dominating Slovenian firms.

Parsek represents a very interesting form of risk sharing. First, it makes it less costly for the firm to explore new competencies and experimentally co-evolve with customer firms. The students so to speak share the risk by being paid low salaries, this again is only possible because they are

subsidized partly by state subsidies (meal-tickets, etc.) and partly by their families. Thus a quite promising way of exploring possible alternative comparative advantages lays open for such firms. Unfortunately, the scheme is also limiting the extent to which this exploration takes place. Parsek have until recently seemed to stick to quite routine forms of jobs, e.g. setting up web-pages for customers, but did not really engage in increasingly elaborate forms of jobs. The reason is simple. To develop capabilities to do so demands experienced professionals with a much higher pay and more permanent employment conditions than are granted to students. Without the more sophisticated employees it is difficult to imagine how firms such as Parsek could pursue a sesocu-strategy and become interesting collaborators for advanced, foreign firms. And without such ties it is difficult to see how firms of this type could become entangled in the global networks of experimentalist innovation. Parsek seems to have realized this recently, has increased its number of permanent employees, and has been active in creating foreign relations to advanced centres of research. With this shift firms such as Parsek could become important transitional agencies as they share the risk of new adventures through students with the state, for students they offer opportunities to tie up with a the dynamic patterns of global innovation and its new ways of working – and as these students later search for more permanent jobs, they may carry new practices with them.

Membership of employers' organizations was until recently obligatory in Slovenia, as is the case in Austria. Formally, Slovenia shares many institutional features with other coordinated market economies, and yet it is as if they are not present in the tales given in the Slovenian case-study. We see no attempts to process collective decisions leading to novel organizational devices or initiatives that represent collective risk taking or – sharing. It is as if the legacy of such institutions were purely ritualistic and that all that happens takes place outside the realm of the apparatuses that could negotiate and process collective decisions. Privatization seems to have emptied the space between the economic and public sphere, and the system seems without means to coordinate and create institutional innovations.

Rather families must be entrepreneurial and by combining self-sufficiency farming, wage labour and grey economy activities are struggling hard to continue a life form that is at risk, and yet is still seen as the primary means to the good life. Perhaps it is also from these struggling families that we might witness a break-up with the lock in? Such families have started to send their youth for

educations in Ljubljana or abroad in order for them to escape employment with the employers that employ their parents. Given the low salaries of students and young professionals, the high costs of housing, of public services, such as day-care for children, etc., such break-ups are highly costly for families and add troubles to their already threatened life form. Families will have to invent new forms of internal reciprocity, being more oriented towards transfers of financial means than on exchange of personal services. It is unclear whether it will be possible to maintain the quite egalitarian representation of males and females on the labour market, and economic equality would probably suffer because of differences between those who succeed and those who fail in this break-up movement. The risks involved and the uncertainty of outcomes makes it a major challenge for families to overcome the lock-in and cast votes for a welfare state that supplies the benefits and social services that enable young educated families to engage in activities that will grant them membership of the global world of continuous innovation. But through their struggles they simultaneously bring a sharply increasing number of youngsters in contact with firms as Parsek that offers a route to a different life form, increased mobility and highly innovative practices.

Given these tendencies, constituencies may force regions and municipalities to compete mutually over becoming attractive spaces for coming cohorts of young professionals by searching for new types of job openings, new types of relations to the global market that would enable local life in a reproduced, yet modernized form. From this perspective the formation of Regional Development Agencies jointly with state level Regional Development Programmes could become both a discursive forum and a platform of resources for rebuilding localities. Would it be possible to imagine that some communities would set up vocational training institutions in support of subsidiaries, owned by foreigners that break away from the pattern of Fordism, as in the case of Danfoss-Trata? Obviously, the move towards open systems of innovation in firms like Kolektor would be a favourable way to increase its attractiveness. Could it be that creative destruction of some of the large enterprises could lead to a re-formation of another region to become a replicate of the processes going on in Örnköldsvik? Or are the Slovenians rather hoping that the Slovenian Technology Agency (TIA) like the Swedish VINNOVA and the Finnish TEKES will make them quantum leap from traditional to high-tech-industries? In any case, if such movements take place on an extended scale, it is easy to see that the risk sharing of the family may make transformations easier. Yet at the same time it will mean – to the extent that transitions become successful – that

families will have to become liberated from their extended responsibilities and instead need help to be enabled – by a growth in public services that are already on its way (in e.g. childcare).

Rather than suggesting that Slovenia is trapped into a low cost route, this indicates that Slovenia has the possibility to enlarge the insular cases of new dynamics on a broader scale by making the labour force more mobile by building enabling welfare state institutions. This could come simply by municipalities starting to compete mutually over becoming attractive places for new professional families to live by offering them the services that make the new life and family form of the new economy possible, gradually exchanging the combination of subsistence farming, grey economy activities and routine factory work with one of continuous professional upgrading and change in firms that quickly run through a metamorphosis from cost effectiveness to innovativeness possible. Whether this is simultaneously a route to a good life, capable of competing with or combining with the previous life form is another question? Gradual evolution from the present to a future state, however, seems possible with the elements already in place if the state and the public sector rather than catering for a neo-liberal route choose a Nordic approach.

Searching for a Route to a Comprehensive Enabling Welfare State

As a heuristic concept “the enabling welfare state” searches for ways by which the state enables citizens, firms and regions to cope with disabilities and shares the risks that connected to experimentally out-stepping the boundaries of routines and activities of known comparative advantages and being engaged in search for new, partly by becoming dynamically and collaboratively connected to international communities of search and innovation. In contrast to Slovenia, we saw that all the Nordic countries had achieved this at a general level, but in very different ways, partly reflecting divergent legacies of the past. Citizens in the Nordic countries have been enabled to engage in frequent changes in work, further training, etc., by a state providing services to families, and this again has enabled firms to organize in ways that make experimentalist change as responsibilities for learning can be decentralized to employees in a system where union traditions create the constitutional foundation for continuous re-negotiations and collaboration among parties rapidly changing both identities and interests – at the level of individuals, social groupings and firms (eventually as subsidiaries of MNCs). Whether it is more effective for the state to engage in offensive risk sharing directly through citizens by offering rich access to further training and life long learning as in Denmark, or conversely by subsidizing the activities of

particular groupings, such as engineers in Finland, to effect transformations of particular firms in a dominating position is difficult to judge. Probably Finland could learn much from Denmark and vice versa? In both the Norwegian and the Swedish case the state has been drawn into wrestling corporate communities out of dependence on corporations, stagnating because of global restructuring that has left them and their local communities comparatively disadvantaged.

The regional dimension seems to play a major role in Finland, Norway and Sweden, where “one corporation town” have played a major role during industrialization, and these “mill-communities” seem not to have been complemented with institutions that enabled them to search for and experiment with novel comparative advantages, while they were cultivating existing specialities. They – so it seems – specialize into a dead-lock, and either major system rebuilding schemes are brought to bear in order to re-configure these societies, or society wide depressions diffuse, when they are being abandoned by their former principals. Alternative costs are difficult to assess, but in the cases studied in both Sweden and Norway the costs of reconfiguring local communities must have been enormous for the state, while in Finland the abandonment of Varkaus makes both the public and private citizens carry large losses. Despite huge costs it is very difficult to tell whether the Norwegian and the Swedish localities studied will not repeat to specialize into blind alleys again, in Norway because the project sets a destiny of industrial specialization, in Sweden because the local coalition holds such a dominant position that it is difficult to see whether complementary activities and agents will find sufficient support to search for alternative forms of future comparative advantages.

In the case of Denmark, the regional dimension has played a less important role. There are several reasons for this, which it would be too complicated to review fully here. In Denmark, coming plant-closings, major steps into outsourcing, etc., are often announced as shocking news in the press, but then after a year when effects has been investigated the conclusion is most often that unemployed have been absorbed, new firms have taken their place, etc. The Danish study mentions a case where exactly this has happened. In contrast to the mill-communities of the other Nordic countries, Danish peripheral communities have often been constituted around railway towns with a diversity of craft shops and –firms engaged in a multiplicity of specializations, making each locality much more diversified. These communities were continually competing mutually by building up institutions to support their development, and for a complex set of reasons in many places around the country,

towns are furnished with a complex of vocational training institutions, often set in motion to create continuous training schemes to solve problematic situations. In this way local communities may explore alternatives while exploiting current comparative advantages.

In terms of regional equality of economic development, the effects are large. In Denmark the overall convergence across regions in terms of low unemployment and moderate employment increases is the highest among all the Nordic countries, and nearly all types of communities are doing well. In contrast, in particular Finnish development is one of spatial polarization with rapid job creation within regions of low unemployment leaving peripheral regions with high unemployment and negative job creation. Sweden, though to a less extreme degree, repeats the Finnish pattern, while Norway with a generally low unemployment locate net job creation to its capital (Hanell and Persson, 2006, p 190-196).

These differences in regional patterns may have important implications for how the welfare state is working. In Finland, we would expect a lot of transfer payments, activation schemes, etc., of the welfare state to be of a passive, social insurance nature so that the defensive and offensive risk sharing schemes (the latter related towards R&D) are highly divided. In Denmark, on the other hand, the social or defensive schemes have been much more turned into tools for offensive risk sharing. According to the IFO-Institute ¹⁰⁶ during the 1990s Finland modestly and Denmark dramatically increased (Denmark reached the Swedish level of) public expenditures as a proportion of GDP on Active Labour Market Policies (ALP) (while this proportion dropped in Norway). ALP is a way of turning passive into offensive risk sharing tools, but in contrast to Denmark (and Norway) where the spending on active measures as a percentage of all expenditures on labour market policies increased rapidly, this percentage dropped in Finland (and Sweden). While in Denmark the percentage distribution of active labour market expenditures was changed towards occupational training, which went up from 24% to 56% (compared from 25% to 31% for Finland), the basic change in Finland was from public job creation to subsidizing employment in private firms. Sweden, on the other hand, reduced the proportion spent on occupational training, and seems to have spent a major proportion on public employment creation and subsidies for employment in the private sector. Finally in Norway spending on occupational training fell from 36 to 6%, while

most money was channelled into support for disabled. If the task is to search for future complementary comparative advantages, it is obvious that it is much better to give emphasis to occupational training than to place individuals in existing simple jobs, probably already threatened by international competition. Thus it is obvious that the Nordic countries have not found a formula for deliberative search for a way to turn the social into the enabling welfare state. Reforms are continually being carried through, but often in the dark and without any point of reference to what works, why and how.

In our view a combination of the Danish way of transforming social schemes into tools for activation, focusing on further occupational training that allows individuals to gain and explore competencies beyond current reach, combined with some of the Finnish systematic in exploring new technology-fields with vigour and determination constitute a promising combination enabling localities and firms to transform gradually as the occupational identities of its population are changing.

Perhaps this hybrid is coming into existence in both Finland and Denmark currently. Thus Finland has over the last decade, with support from the EU-regional funds, created a regionally distributed system of vocational training centres that could be used as tools for gradual regional transformations and become tools for active labour market policies in the future. Simultaneously Denmark, with its Administrative Structural Reform merging municipalities and establishing five regions in place of many more counties, have set up regional Growth Forums intended to initiate R&D-projects and collaboration among universities, training institutions, and regional business communities. The latter could become a locally initiated way of getting some of the Finnish system, but without running the risk of binding it to the Finnish form of centralized initiative and coordination. There is no doubt that both Finland and Denmark are currently looking towards each other to learn more about what next steps to take, while both Norway and Sweden provides too confusing lessons to make real sense. But this confusion is a dominating mode as our short review of changes in active labour market policies demonstrates. All the Nordic countries seem to be in need of new ways to learn systematically from gained experiences, to govern new experiments and to discover routes that can be safely imitated. What can be learned from both Norway and Sweden is that such societies need an institutional matrix that may be combined in distinctive ways so that regions and localities may be able to change from a past set of comparative advantages to new ones.

In Need of Governance for an Experimentalist Economy

For our research team it has been a fascinating surprise to discover the extent and variability of the experimentalist processes that goes on in the Nordic countries both among citizens recasting former professional identities and engaging in continuous efforts to rebuild profiles of competencies, and among firms that continuously change their work organization to pursue strategies that enable them to become increasingly more useful collaborators to their customers. But the way in which agents from both the private and public sectors join forces and make use of and recombine institutions in novel and innovative ways is perhaps the largest surprise. Wherever we have looked into a case-study, the experimentalist vigour of both private and public organizations has been striking and evoked admiration, not least because the general debate within the Nordic countries does not reveal this extent of innovativeness, in particular on the part of the public sector.

The experimentalist and innovative vigour of the Nordic countries cannot be said to be an effect of deliberate policy or strategy from the government – apart from the Finnish case. Rather it is unintended effects of policies that tried to bring about a different, mainly neoliberal orientation, but which became re-engineered by local agents in firms, institutions and localities and brought to bear on developmental projects that are very diverse. Some of our readers may ask whether what we have found is typical for each of the countries studied. To some extent we believe they are, because in each of the countries local agents have remade and recombined institutional complexes that are distinct and characteristic for each country. Yet, we would expect other municipalities in Sweden to recast their entire society and economy in very different ways than in the case of Örnsköldsvik, to find different ways of combining restructuring of work-organization and vocational training than in the cases, we actually studied in Denmark, and we would now expect that studying any privatized organization in Norway would reveal a novel pattern of making people and resources useful in unexpected ways. Our drill samples are too few to reveal the geology of the underground, but wherever we actually drilled, we found a novel way of innovating and experimenting in ways that made sense from the perspective of the agents involved.

Apart from Finland, where the experimentalist processes are what one should expect from the innovation system type of policy that has been designed centrally combined with a conscious policy of distributing growth poles geographically, the experimentalist processes that we have studied are

not the outcome of state planning and governance, and they happened basically unrecognized by the state level politicians and administrators. Local agents have joined forces, they have evoked relations to national institutions and corporatist bodies and made local use of shifting national policies to coordinate a flow of activities that helped them bring about transformations that would have looked formidable had they been done by design and implemented by the state top-down. Our study reveals that exactly the abundance of local initiatives, multifarious corporatist channels, a rich and varied institutional environment, etc., have created the foundation for making the Nordic countries score well in global comparisons, not deliberate state strategies for picking winners, choosing new technology-platforms or creating clusters.

In Norway it seems as if privatization under the guise of neo-liberalism created the pressure by which former public institutions became successful private innovators. In Denmark a weak neo-liberal attack, inspirations from new public management and a systematic yearly reduction of budgets of individual institutions have fostered innovation and readiness to collaborate across divides both within the public and towards the private sector. In Sweden similar measures, combined with a creative destruction of formerly dominating large enterprises, have provided the impetus for searching for novel paths, locally. Unintended this has provided the Nordic countries with experimentalist economies and enabling welfare states.

However, while such an economy and society may come into being unintended, it may not be cultivated, elaborated and come full without a shift in political orientation, new visions of its path and creative ways of learning how to govern it.

Compared to this need, it is depressive to observe how central state agents in most of the countries have become encapsulated by the vision of the neo-liberal turn. Reforms of the welfare state are still discussed in terms of creating more market and competition within the public sector, making the public sector better equipped for sub-contracting activities to the private, and mostly new public management principles install bureaucratic principal-agent forms of governance that leads to standardization or “mainstreaming”. Even with respect to achieving a more innovative public sector, such visions for governance are predominant.

One of us joined a conference in Denmark to discuss a strategy for an innovative public sector in May 2008. Nearly all participants from the state level – politicians and administrators alike – took departure from a view that innovation and public sector was a *contradictio in adjecto*, thereby revealing that the state basically ignores what actually goes on in society. Then they created a vision for how to create leadership and managerial techniques to push from the central level innovative pressures towards the bottom. It seems as if the intended use of benchmarking, evaluations, etc., would prepare for making it possible for the principal to blame its agents, or to let the blind guide the seer.

According to international measurements, The Nordic countries score high on good governance, but this is not because they have found ways of governing experimentalist economies and enabling welfare states. As we have observed in every country case-study, agents evoke resources by working through corporatist channels and bodies. This probably creates the foundation for a governance system in which it is difficult to appropriate public resources for private ends that are not appreciated by a multiplicity of stakeholders. But it gives no indication as to whether public resources are used with the best possible effects. Nobody, today, can assess whether the enormous use of public and private means that it has taken to transform Örnköldsvik from a mill society to a service economy have been a good way of spending the money, and whether it constitutes a template for imitation or an example to diverge from. Nobody have compared the “job bank” settlement between the labour market institutions in Odense and Microtronic with alternative ways of organizing local modes of doing active labour market policies, so that the better options can be chosen in the future. Nobody has questioned whether Norway needs to invest in building peak research institution in order to form future high-performance firms similar to those that we have studied. But such discussions need be at the centre if mechanisms for offensive risk sharing in searches for future comparative advantages are to be continuously improved.

Obviously, the Nordic countries are, first and foremost, lacking a system that recognizes and appreciates what goes on in terms of decentralized learning and innovation. Only by creating such a system will it be possible for localities, firms and employee groups to learn from each other, to search for better and more competitive ways of combing processes within private firms and surrounding public institutions, to benchmark them against each other and to choose temporary templates for solving more general problems in the continuous struggle for constantly redefining

roles in the larger global system. Contrary to the prevailing tendency, at least in Denmark, where it is central bureaucrats and politicians that formulate benchmarks, these must be formulated by those that live in the ongoing motion of the present. Only they can see what problems to overcome, the possible means to work with and what goals are achievable. But they need somebody to discuss this with, to reach mutual agreement with and to exchange information on known alternatives so that local learning becomes public and generalized. As it is now corporatist bodies of the past are being gradually made use of in novel ways so that institutional resources become re-directed in ways that the many stakeholders find legitimate. But the associations involved in these multilevel governing bodies are not comparing and controlling how effective the new ways are in generating a novel development path. To us it seems as if unions and employers associations, together with other emerging stakeholders, need to assess how different ways of organizing work may work in concert with changes in labour market institutions and public R&D institutions. Municipalities need collaborative institutions, where they can compare transformative outcomes in different localities and learn how to engineer restructuring and ask the state for help to follow strategies, rather than creating strategies gradually drawing on resources that they happen to be able to wrest out of an assemblage of corporate bodies, probably created for different purposes. As we see it, the Nordic countries have managed to create institutions that make it possible to explore potential future comparative advantages by sharing risk and making enabling gradual steps mutually between the public and the private, but there is no deliberate way of governing and improving on these institutional talents when it comes to offensive risk taking.

The same can be seen in the case of institutions for more defensive risk taking. Educational and social policies are primarily being discussed in the light of the old social welfare state. Though social policy is increasingly being seen as schemes for rehabilitating the labour force and bring it back into employment, the schemes are not used deliberately to enhance the skills and cater for employment beyond existing skill-levels of society. Such schemes, though, can be found in Denmark, but they are created locally and owe their existence to a few individual entrepreneurs that move beyond existing institutional barriers. They are not part of an offensive deliberate national search for alternative novel ways of building skills and competencies that may force firms and public institutions to take new paths to attract employees furnished with novel professional aspirations. That the system nevertheless works this way is cheer luck, but this luck could be

deliberately cultivated by a system of governance that appreciated, compared across, benchmarked and assessed the usefulness of institutional innovations.

Norway, Denmark and Sweden have recently been taken by surprise in discovering that PISA-benchmarks in the performance of their public schools are mediocre though spending is high. Neither reading abilities nor math and natural science mastery seem high. In Denmark this has led to a painful discussion, where politicians have blamed teachers and school leaders for bad performance. Against advice from OECD, lists of performances of individual schools are being published so that the poorly performing schools can be blamed. But how and why the best performing schools are doing well, how they have overcome a set of problems, etc., has never been analyzed. Instead a number of new “disciplining” measures have been installed, such as national tests, obligations to make individualized learning plans for students, for teachers to work in teams on curricula development, etc. The interesting part is that the best performing society in terms of PISA-tests, Finland, has not been consulted in order to find out how to re-design the Danish – and Norwegian and Swedish – school system. A comparative understanding of different school systems would, however, reveal that the Finns are as concerned about students’ lack of creative skills as are the Danish or Norwegian about reading and math abilities. A search for the better school system can only be made in full if we recognize that none of us know how such a system would look.

To make an anti-authoritarian, creative school that also brings about high standards with respect to reading, math, etc., is a challenge that most countries will have to face if they are to bring about individuals capable of mastering life in an experimentalist project economy. Governance systems that primarily focus on being able to blame those schools that fail in these attempts will probably have difficulties in creating the diagnostic knowledge that makes it possible to learn from the more successful ones. Yet such a tool is exactly what we need to enable deliberate search for ways to educate and prepare individuals for the new economy.

The same goes for family services. Most have been governed to make institutions provide some minimum standards that help families out of troubled situations. But if our way of comprehending the current and coming economy’s dependence on families that are able to live a changing and unpredictable life is correct, the public service institutions must systematically be questioned and improved to make it possible for families to meet ever increasing challenges. Families in the Nordic

countries have faster than in other places been able to enter the new life of mobility and change because public services enable both mothers and fathers, single and double income families to do so. Yet it is obvious that in many and increasing cases, this transformation comes with high costs in terms of children with a multiplicity of problems, classroom filled with noise, a great need for parents to do homework with their children, children feeling left to themselves or the elderly feeling neglected. An increasing proportion of the populations in the Nordic countries suffers from stress and is burned-out. Looking to the pattern of stable life in Slovenian families and valley communities, Nordic families may easily become the envying part.

The Nordic countries have performed so effectively that they today – for good or worse – stand at the frontier of social and economic development. In many ways they must learn from themselves and each other what to do next. In this light their experimentalist steps are too serious to be collectively neglected as private experience and tacit knowledge. Individually and combined they constitute important experimental laboratories, but they need to create governance systems that make it possible to learn from experiments and make these lessons imitable for other practitioners.

The Global Challenge for an Experimentalist Economy

In many ways the concept of a fairly stable global value chain with a clear division of labour between the highly and not so highly developed countries has served as a guide for the policy orientation of the Nordic as well as the remaining EU-countries. Within this frame it was believed that the highly developed should cater for the parts that involved R&D, design, logistic coordination and sales and management, while the less developed would serve with manufacturing facilities based on cheap labour. Within this frame the state of the highly developed should primarily supply the economy with public financed R&D, higher education, facilitate entrepreneurial vitality, help supply venture capital and an infrastructure for networking in the digital age. The Lisbon process may be seen as a European wide way to institutionalize among member-countries a rivalry to do increasingly more of this among its members. But the less developed countries have done exactly the same in order to break out of a foregone conclusion of becoming sites for cheap manufacturing. India and China, in particular, have challenged the global space that the West had reserved for itself.

The outcome is a very complex pattern, constantly in transformation, where the location of exploitive and explorative activities is much more mixed and constantly being changed (Herrigel and Zeitlin, forthcoming). Within countries this has moved us away from “closed” to “open innovation” systems. Within the last two decades of the 20th century a dramatic shift took place. As shown by Chesbrough (2003: 48) the share of R&D by the largest enterprises (more than 25.000 employees) in the US fell from 71% in 1981 to 41% in 1999, in the same period the proportion of R&D by the SMEs (with less than 1000 employees) increased from 4% to 22%, signifying that the world is in search of a new “paradigm” of open innovation (Chesbrough et al 2006). This evolution is no doubt fostered by the simultaneous change toward a high-mobility labour market, in the US created by experts that circulate among different firms on short term contracts and organizing search in novel ways (Barley and Kunda 2004). But it has also been shown by Saxenian (2005 and 2007) that brains are circulating globally among the technology-centres of the highly developed countries and the industrializing Asian countries, making it almost impossible to predict from where the new impulses for innovation will appear. In other words the location of technological frontiers becomes unpredictable and a number of competing solutions may emerge from different quarters of the world:

...the more knowable the world as a whole becomes the less confident we can be about the kind of knowledge that will prove useful in engaging its parts. By the same token, the more development depends on applying knowledge from domains traditionally unrelated to the industry’s core activities, the less meaningful the idea of a technological frontier – it is everywhere and nowhere – and the less confident we can be that leadership today assures leadership tomorrow. In these circumstances it may well be more important to be able to search effectively across domains than to dominate the generation of ideas and technologies within any one of them. The decline of the centralized corporate research laboratory, where stable project groups could pursue a line of research for a decade or more and the ad hoc research consortia, connecting expertise from once seemed disjoint domains is one widely remarked reflection of this transformation (Sabel and Saxenian, 2009: 17).

The challenge for business firms and the wider national setting in which they are hosted is to be invited into such ad hoc research consortia that join together domains in a stream of co-creation. To receive such invitations probably depends on the capabilities that the firms already possess or have

access to through the wider environment. Private and public investments in R&D, up-skilling of the labour force, abilities to work in a stream of re-combinant projects, etc. are no doubt important for being invited. But the big problem for governments is that the usual policies for innovation systems or for up-scaling skills in national labour markets have been to advance and make the movements of the parts of nations cohere in a joint development. However, on the new world-scene this type of policy could easily make the business units and the wider population less prone to engage in ad hoc projects spanning the world. It seems as if national governments are facing the challenge of making it possible for national actors to engage in a multiplicity of ad hoc projects globally by furnishing the national economies with an abundance of weak ties internally.

The cases we have studied show signs of moving in this direction unintendedly while at the same time breaking the conformity of the stable global value chain. Take Unimerco as an example. It is not its internal strength in R&D that helps it become invited into joint search processes by its future customers. It is its capability to bring standard solutions together and combine it with a manufacturing capability to solve difficult tooling-problems that makes it a good partner across many domains. On the other hand, the more this calling is being responded to globally the more it weakens its numerical ties to the districts and branches it used to serve locally and nationally. Unimerco becomes less interested in solving usual problems in the national contexts, but becomes a highly valuable partner if unsolved problems in the national realm shall be researched for finding new solutions. Nodes in national networks may transform from being frequently used to become a multiplicity of departure points for global search when faced with novel problems.

How government policies can assist in making such architecture of national business systems possible is the future challenge, not least for the Nordic countries, where the business firms we have investigated seems to have reached a point in which they have outgrown the infrastructure that made their current success possible.

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