

Regional Manufacturing Competitiveness in the Age of Globalization

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Sloan Global Components Project

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- * Funded by the Alfred P. Sloan Foundation
- * Follow-on to earlier Advanced Manufacturing Project (AMP), 1999-2002
- * Consortium of scholars from US and European universities (Wisconsin, Chicago, Columbia, MIT, Göttingen, Copenhagen Business School)
- * Focused on dynamics of supply-chain globalization & implications for manufacturing competitiveness in high-wage regions

Sectors and regions

- * Global Components Sectors
 - * Automobiles, Construction Machinery, Agricultural Equipment, Industrial Machinery, Electrical Equipment
 - * Component Suppliers (1st, 2nd, 3rd, 4th tiers)
 - * From multinationals to job shops
- * Global Components Regions:
 - * US (mostly Midwest), Germany, Italy, Denmark
 - * China, Central Europe (Poland, Hungary, Czech Republic, Slovakia)
 - * Eventually Latin America

Organizational and strategic trends

- * Vertical disintegration without modularity
 - * Innovation and cost reduction drives disintegration
 - * Modularity (standardization of component interfaces) not technically achievable in these sectors
- * Integration with Global Economy
 - * Interdependence between developed and developing regions
 - * Specialization and exchange of technological & commercial knowledge across the supply chain
 - * Spatial redefinition of the division of labor

Four key consequences of vertical disintegration

- * Importance of recursive relationship between design and production for innovation and cost reduction
 - * Collaboration between customers and suppliers
 - * Iterative co-design of products and processes
 - * Supplier Upgrading
 - * Need to grow infrastructure for upgrading
- * Creates fluidity in the location of firm boundaries and customer-supplier roles
 - * Learning, Sustained Contingent Collaboration
- * Rewards quick response, flexibility, mixed batch size capabilities
- * Leads to distinctive globalization process

Globalization: drivers and dynamics

- * Two main reasons for globalization (spatial dispersion of supply chains) in our sectors
 - * Cost reduction
 - * Follow the customer
- * Separate drivers pushing production to offshore locations, but distinction becoming increasingly blurred in practice
- * MNC Customers/MNC Suppliers/Off Shore Suppliers
 - * Our focus primarily on MNCs

The new global division of labor in old-line manufacturing

- * New relations between developing regions (low wage) and developed regions (high wage) emerging
- * Capacities in both sorts of region changing shape
 - * Initial off-shoring trend driven by cost pressures
 - * Still salient, but dynamics increasingly complex
- * Two notable dynamics:
 - * Production in developing regions is not only expanding, but also upgrading (becoming more technologically sophisticated)
 - * Production in developed regions becoming more secure
 - * At least in many US supplier firms, according to interview evidence

Upgrading in developing regions

- * Driven by technological transfer into those regions
 - * Physical reproduction of high wage production processes
- * Developing country locations increasingly integrated into production and design logics of high wage regions
 - * Need for design know-how to quickly ramp up new products to high series
 - * Need for capacity flexibility to accommodate shifting customer demands

Reverse transfer from developing to developed regions

- * Unanticipated beneficial feedback to developed regions from upgrading in developing regions
 - * De-automation (Germany in particular)
- * Internal re-allocation of capacity and competences within MNCs
 - * High wage locations producing over-runs for maxed out low wage production facilities
 - * Greater diversification of capacity and production in all locations
- * Duplication of engineering and production know-how across locations to allow for short- term flexibility in capacity allocation

Implications for SMEs in high-wage regions

- * Offshoring mania is over
 - * Greater obstacles than initially thought
 - * Long supply chains, unreliability, rising costs
 - * Need to be more strategic about offshoring
 - * Many OEMs have brought work back home
- * Paradoxically, offshoring can help expand home component supplier production
 - * Creates cost and capacity flexibility for high wage suppliers
 - * Low cost capacity can be bundled into bids
 - * Allows lower aggregate bids
 - * Results in more work for high wage suppliers
 - * Without low cost option, there would be no work

Internationalization of SMEs as a pro-active strategy

- * Growing worldwide trend towards internationalization of SMEs, especially based in industrial districts and regional clusters
- * Internationalization as a pro-active strategy.
- * Globalizing Firms seek to
 - * benefit from new opportunities
 - * respond to new threats created by globalization

Denmark

- * Outbound FDI exceeds inward investment
 - * 43.4 vs. 41.7% of GDP (up from 5.5%/6.9% in 1990)
- * > 50% of workforce employed in firms with at least 1 foreign subsidiary
- * 34% work in small multinationals with <650 employees
- * Foreign multinationals as engines of industrial districts
 - * Closure/restructuring of foreign-owned multinational subsidiaries as stimulus to new firm formation
 - * Kristensen/TRANSLEARN project

Italy

- * TeDIS survey of leading district firms (1999)
 - * Corò, Micelli, et al. (Venice Int'l University)
- * Average firm size: 73 employees/€16.5m sales
- * 37% belong to multi-firm groups
- * 31% have international production
- * 40% have foreign sales infrastructure
- * Most successful firms do both:
“open networks” account for 12% of sample but 33% of turnover

What organizational forms for internationalization of SMEs?

- * An un(der)-explored question
- * What do Italian 'open network' groups and Danish small multinationals do, and how are they organized?
- * New non-corporate property forms for internationalization of German *Mittelstand* firms
 - * Formation of group of family spring/precision metal stamping firms to support joint production for European customers in Asia, Middle East, North America
- * Swiss Fine Mechanical Holding Companies
 - * Families as private equity
- * Multiple pathways to internationalization of US SME suppliers

Modes of SME internationalization: Initial thoughts

- * FDI (greenfield, joint ventures) and/or offshoring?
- * Assistance from the customer
 - * Help with FDI and finding JVs/local market suppliers
- * Acquire overseas capacity through mergers
- * Federations of SMEs (e.g. German spring makers)
 - * Experimentation with property forms
- * Corporate parent services
 - * Resident engineers, SQA
 - * Private Equity
- * Third party services
 - * Public: German International Chambers of Commerce, Associazione Conciatori/Regione Toscana
 - * Private: China Business Network

Public policy implications

- * Globalization and firm upgrading pressures create new challenges for regional actors
- * Are existing public programs and private market solutions adequate to enable SMEs
 - * to respond to rising demands from their customers for flexibility, innovation, cost-reduction?
 - * take advantage of new globalization opportunities?
- * Need for new types of supplier support services
 - * Lead/cycle time reduction
 - * Lean manufacturing conversion
 - * Assistance with internationalization
 - * Product development/co-design
 - * Investment finance