Latin America/Caribbean and Asia/Pacific Economics and Business Association

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The Governance of Global Value Chains; implication for state action

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The Governance of Global Value Chains; Implications for State Action

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Latin America and Asia: Strategic Policies for Global Competition
Second Annual Meeting, Latin America/Caribbean and Asia/Pacific Economics and Business Association (LAEBA)
An Initiative of the Inter-American Development Bank (IDB) and the Asian Development Bank Institute, with the support of the IDB Office in Japan and the Institute for the Integration of Latin America and the Caribbean (INTAL))
Raúl Prebisch Auditorium, IDB/INTA
Esmeralda 130, Piso 16, Buenos Aires, Argentina, November 28-29, 2005

Structure of the Presentation

1. Supplier-led industrial upgrading strategies in global value chains

2. Global suppliers are creating new constraints in industries that have already globalized

3. The global value chains framework, a typology of network governance forms (if there is time)

Frame of Reference — Key Trends

- Increased outsourcing
- Computerization of product design
- Computerization of process technology
- Formalization and segmentation of work tasks (services offshoring)
- Increasing market volatility and industry clock-speed
- Increasing geographic scope of production systems
- Better integration of geographically dispersed production systems
- The rise of a new, global-scale supply-base

✓ *The **global value chains framework** is an overarching rubric that ties these trends together*

✓ *New features are **global suppliers**, **global buyers**, and **value chain modularity**, which eases coordination between the two.*

Weakening of traditional development tools

- High tariffs on imports
- Local content requirements
- Targeted credits and tax breaks
- Duty free materials and component imports for exporters
- Quota systems and Most Favored Nation status

⇨ *Supplier led industrial upgrading has become a main policy focus*

- *Suppliers with links to global buyers and lead firms*
- *National and cluster specializations*
- *A focus on upgrading process technology*
- *Value chain specialization (contract manufacturing, components)*
- *Inward foreign direct investment*

⇨ *Assumes that foreign firms will take a major role in driving development.*

Is supplier-led upgrading the answer?

Old requirements for suppliers:

- High quality
- Low costs
- Continuous improvement
- A strategic location (low operating costs, close to end markets, in key cluster, trade advantages, etc.)

⇨ *Lead firms were willing to help in the upgrading process and develop distinct supply bases in multiple locations*

⇨ *Excellent manufacturing and low costs are now <u>minimum</u> requirements*

New requirements for suppliers:

- Product and component design and engineering capabilities
  - Physical layout, (re)design for manufacturability
  - Post architectural design, module design
- Process R&D capability, process upgrading, process validation
- Heavy use of information technology
  - Design collaboration
  - Supply chain and inventory management (MRP, ERP)
- Global locations
  - Product, module, and process co-development in design hubs
  - Regional production bases, increasingly Mexico and East Europe
  - China

✓ *Lead firms are less willing to help local firms to upgrade or to develop multiple supply bases*

✓ *May become stuck in supplier role - capacity to innovate at the product-level can remain underdeveloped, process upgrades increasingly embedded in equipment, competition with customers is a huge problem*

1) Upgrading in a world of national value chains:

- Import substitution
  - Protected national champions selling in the domestic market.
- Export promotion
  - (Decreasingly) protected national champions selling in international markets.

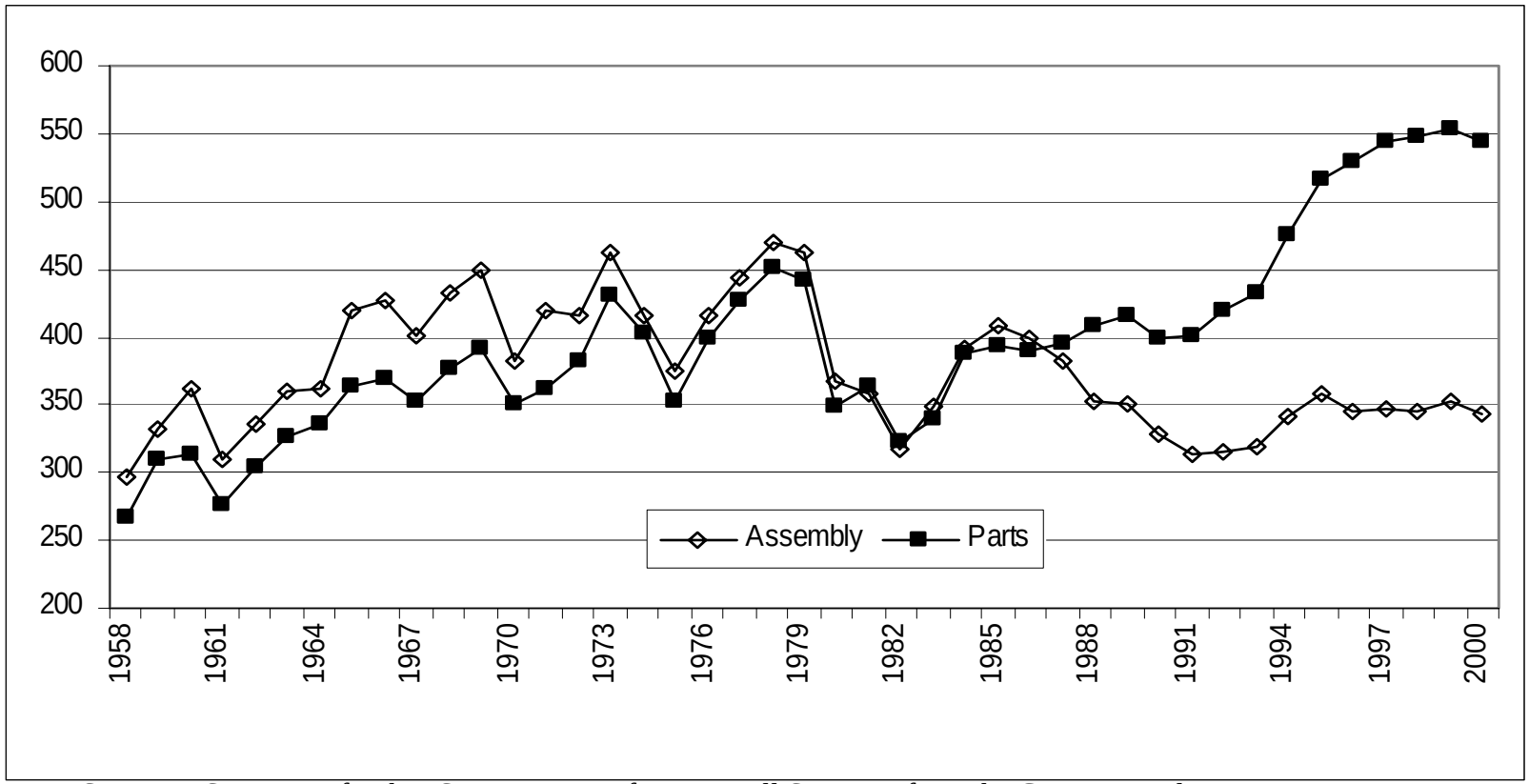
2) Upgrading in a world of global value chains:

- Supplier-led industrial upgrading paths
  1. FDI creates employment but makes little use of local firms (Mexico)
  2. From supplier to brand name competitor, OEM->ODM->OBM (Taiwan)
  3. From trading firm to network coordinator (Hong Kong)
  4. Specialized suppliers to MNC affiliates; brand aspirations low (Singapore)
- 2-4 involve typically involve some form of functional upgrading and bundling

The rise of the global supplier

- Many are American firms (exceptions include some European and Japanese auto parts suppliers, Taiwan semiconductor foundries, Hong Kong apparel trading firms, Taiwan and Korean apparel manufactures, etc.)
- Highly capable, full-service stance, pure-play, merchant
  - Many customers, own brand businesses absent or very limited
- Purchase and hold in-bound and out-bound inventory for customers
  - Huge financial burden
  - Sophisticated global purchasing, logistics, capacity planning, and inventory control systems with links to customer IT systems
- Support customers globally
  - Global operational footprint
  - Co-location in design hubs for interaction on tacit elements
- From parts to modules to complete products (full package contract manufacturing)
  - Upstream and downstream integration and consolidation (functional bundling)
  - Module, component, and process R&D (functional upgrading)

The Deverticalization of the U.S. Motor Vehicle Industry; assembly and parts employment, 1958-2000 (‘000 jobs)



Source: US Bureau of Labor Statistics, Non-farm Payroll Statistics from the Current Employment Statistics (National). Note: Assembly includes SIC 3711 (Motor Vehicles and Car Bodies) and Parts includes SIC 3714 (Motor Vehicle Parts and Accessories).

Revenue Growth at the Top Five Electronics Contract Manufacturers, 1994 through 2001, $M

	1994	1999	2002	CAGR '94-'02	Share of Top 100, 2002
Flextronics	$211	$1,808	$13,615	68%	20%
Solectron	$1,642	$8,391	$12,261	29%	18%
Sanmina-SCI	$2,364	$8,624	$10,168	20%	15%
Celestica	$1,989	$5,297	$8,272	20%	12%
Jabil Circuit	$404	$2,400	$3,729	32%	5%
Top 5	$6,610	$26,520	$48,045	28%	70%
Top 100	NA	$46,029	$68,149	NA	100%

Note: All Celestica revenues in 1994 were from IBM.
Sources: Company annual and quarterly reports; Electronic Business Top 100 Contract Manufacturers, 2003.

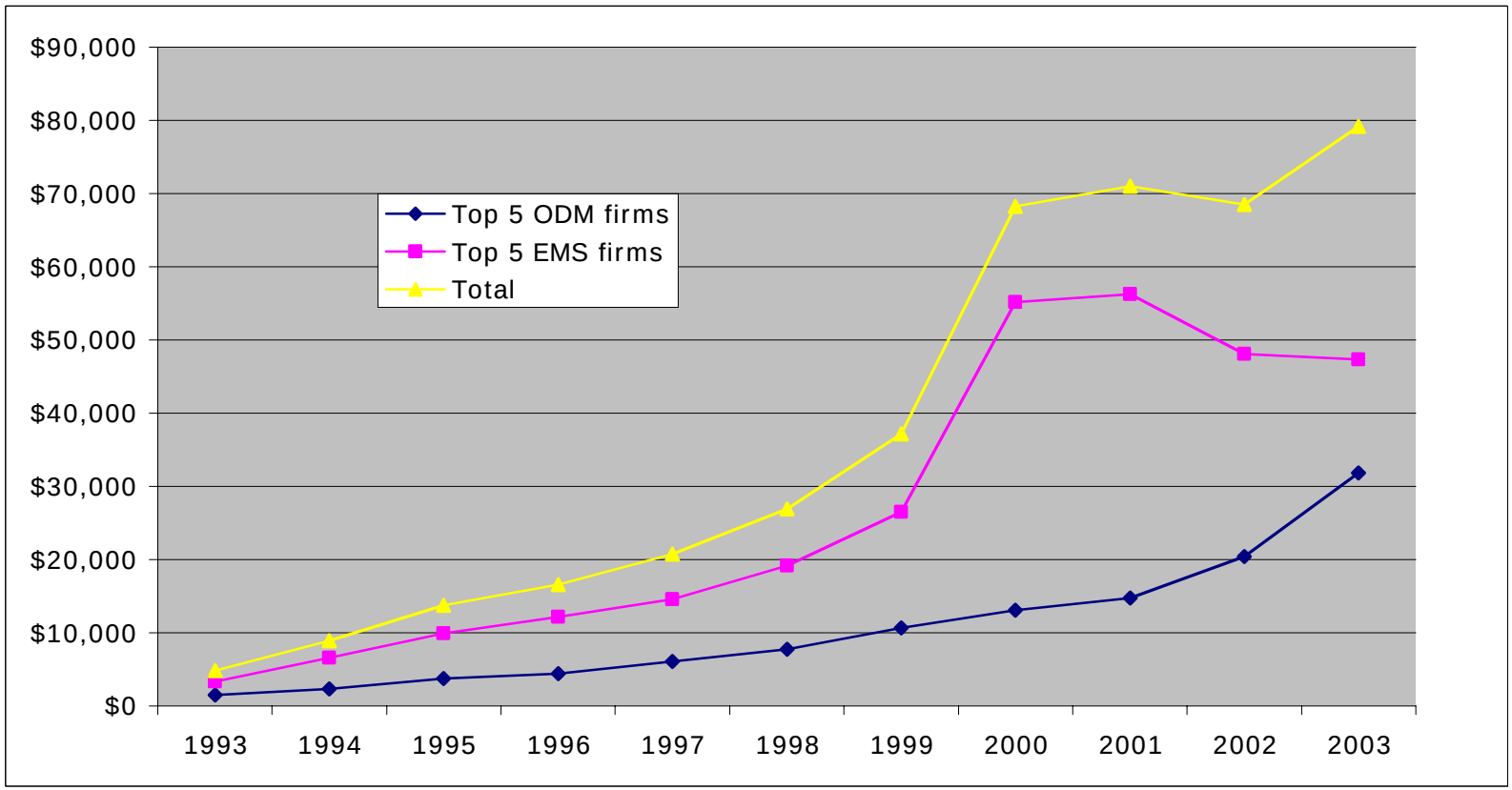
Top Five EMS Contract Manufacturers

Revenues, Employment, and Facilities, and Location, 1999 and 2002; Compound Annual Growth Rate 1999-2002; and Top Five Share of Top 100, 2002

	1999	2002	CAGR '99-'02	Share of Top 100, 2002
Revenues ($M)	$26,520	$48,045	22%	70%
Employment	123,580	280,030	31%	63%
Worldwide Facilities	244	420	20%	69%
Facilities Outside N. America	131	257	25%	82%

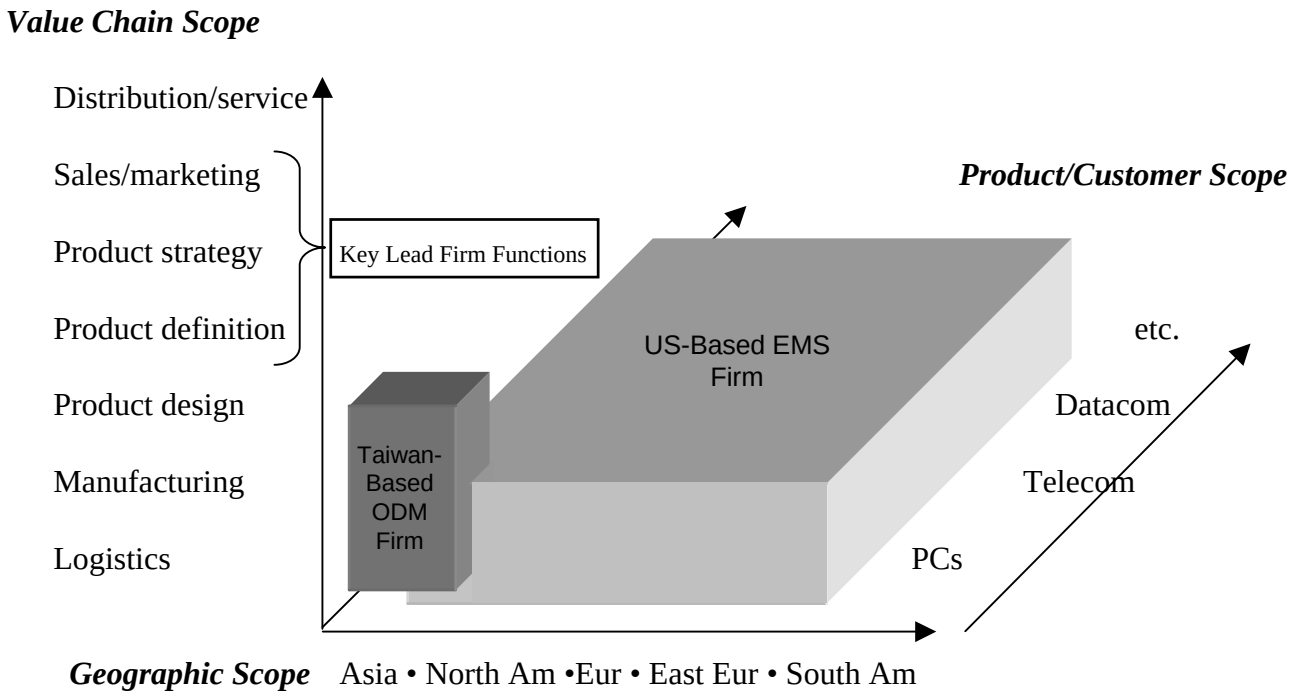
Source: Electronic Business Top 100 Contract Manufacturers, 2000 and 2003.
Notes: Flextronics facility figures are for 2000; growth rates have been adjusted accordingly.
Solectron facility figures are for 2001; growth rates have been adjusted accordingly.

Revenue Growth at the Top Five EMS and ODM Electronics Contract Manufacturers, 1993-2003, $M

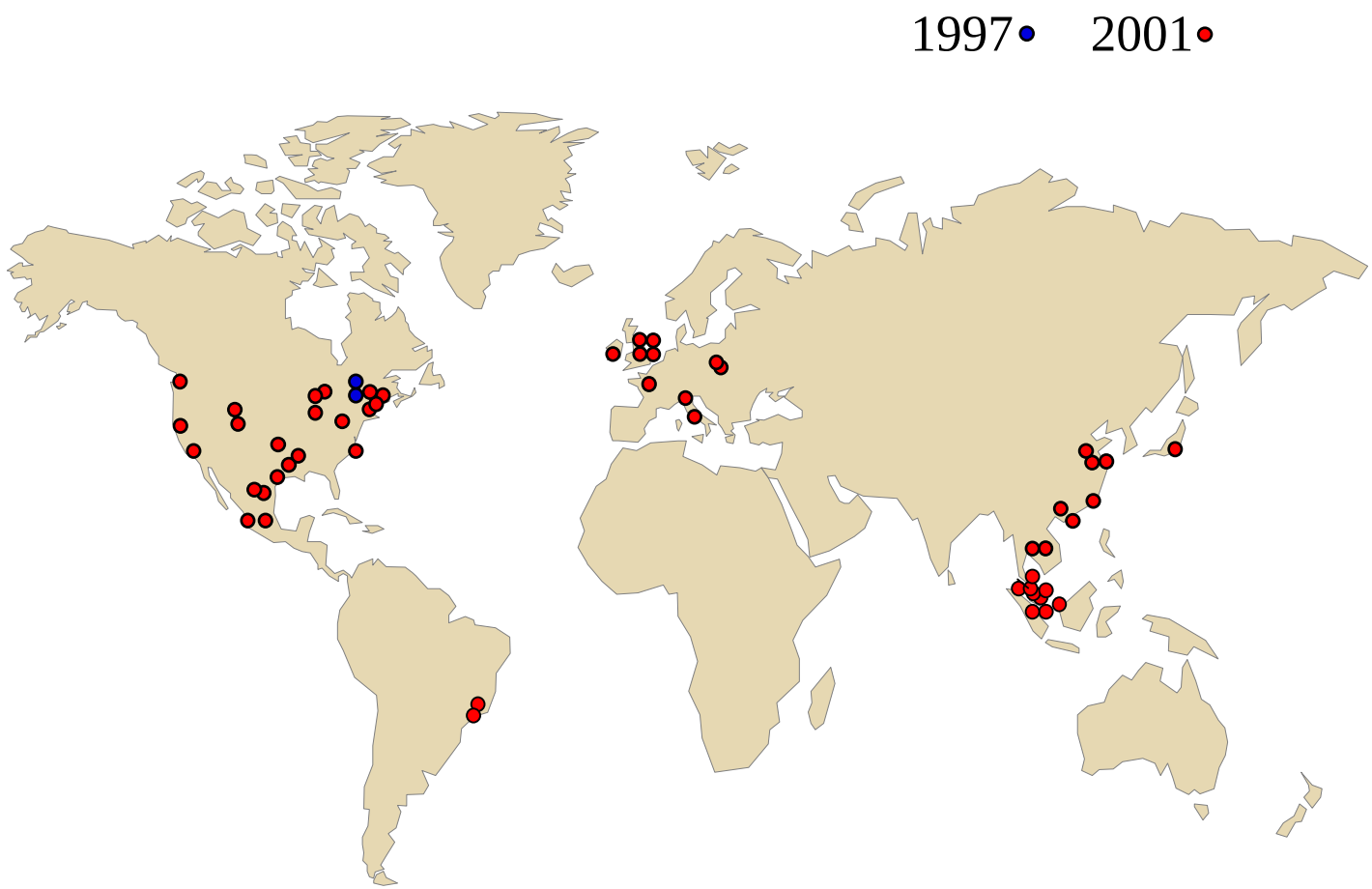


Source: Company annual reports.
Note: The largest five EMS firms are Flextronics, Solectron, Sanmina-SCI, Celestica, and Jabil.
The largest five ODM firms are Hon Hai, Quanta, Acer, Compal, and Asustek.

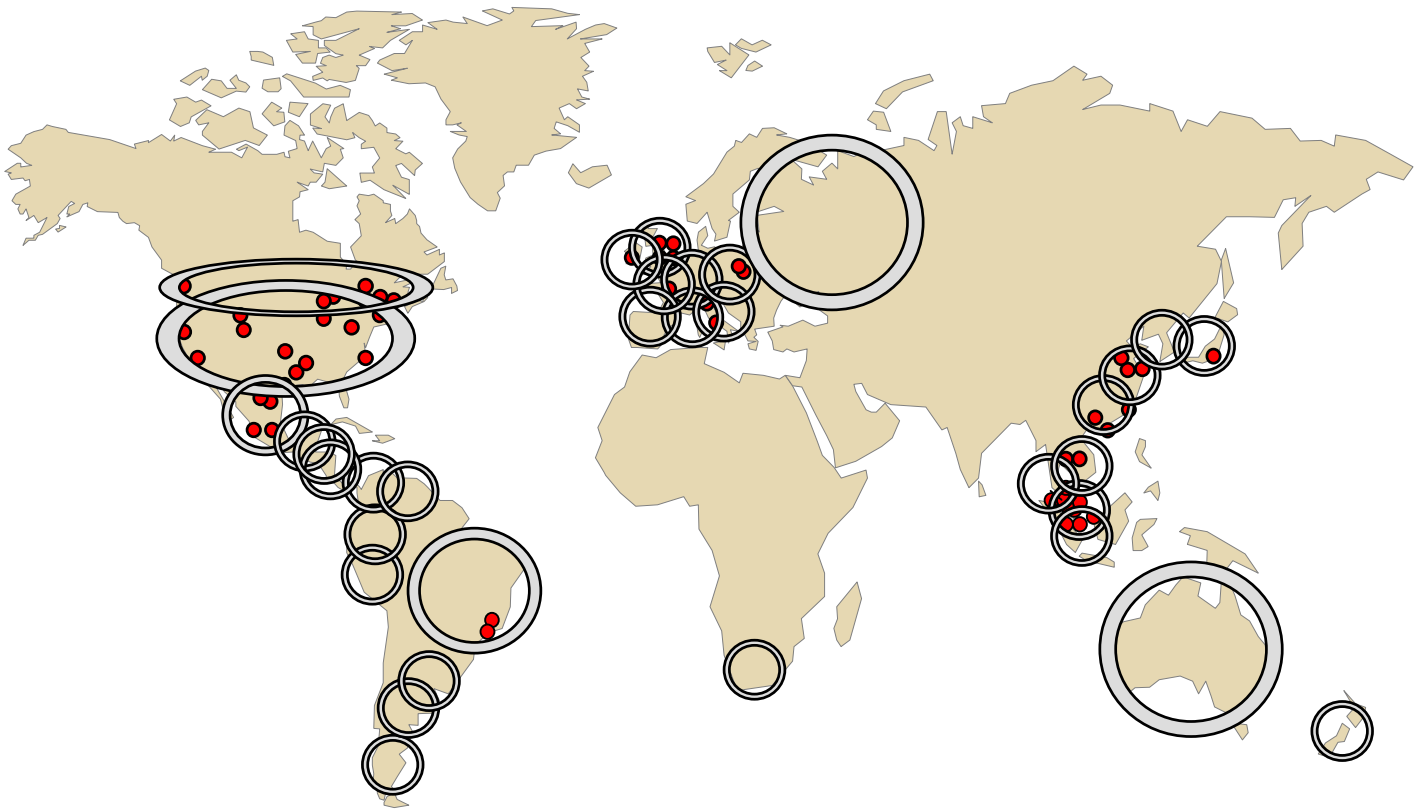
Comparison of typical ODM and EMS electronics contract manufacturers: value chain scope, product/customer scope, and geographic scope



The new global supply-base; Celestica's global footprint

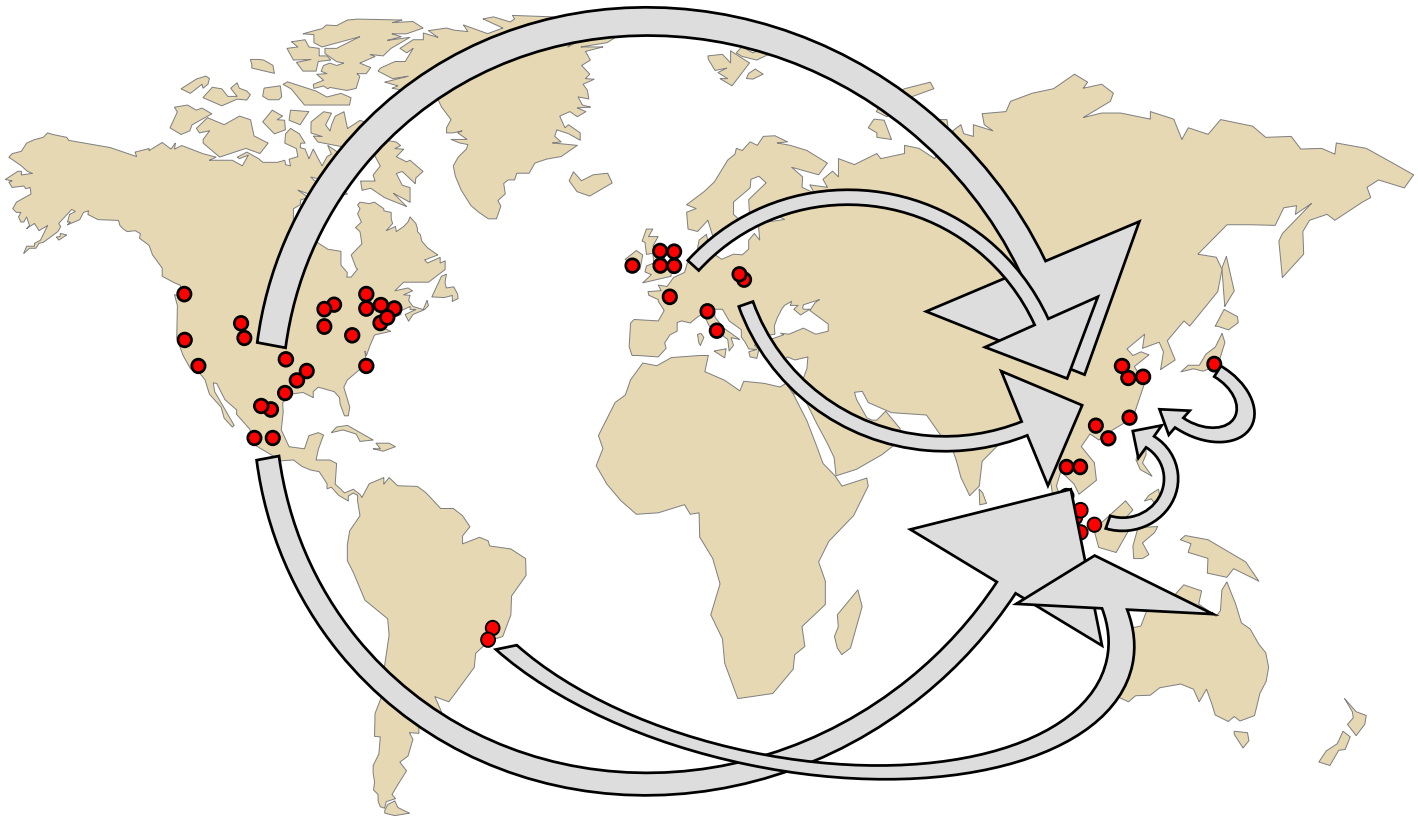


National Production Systems

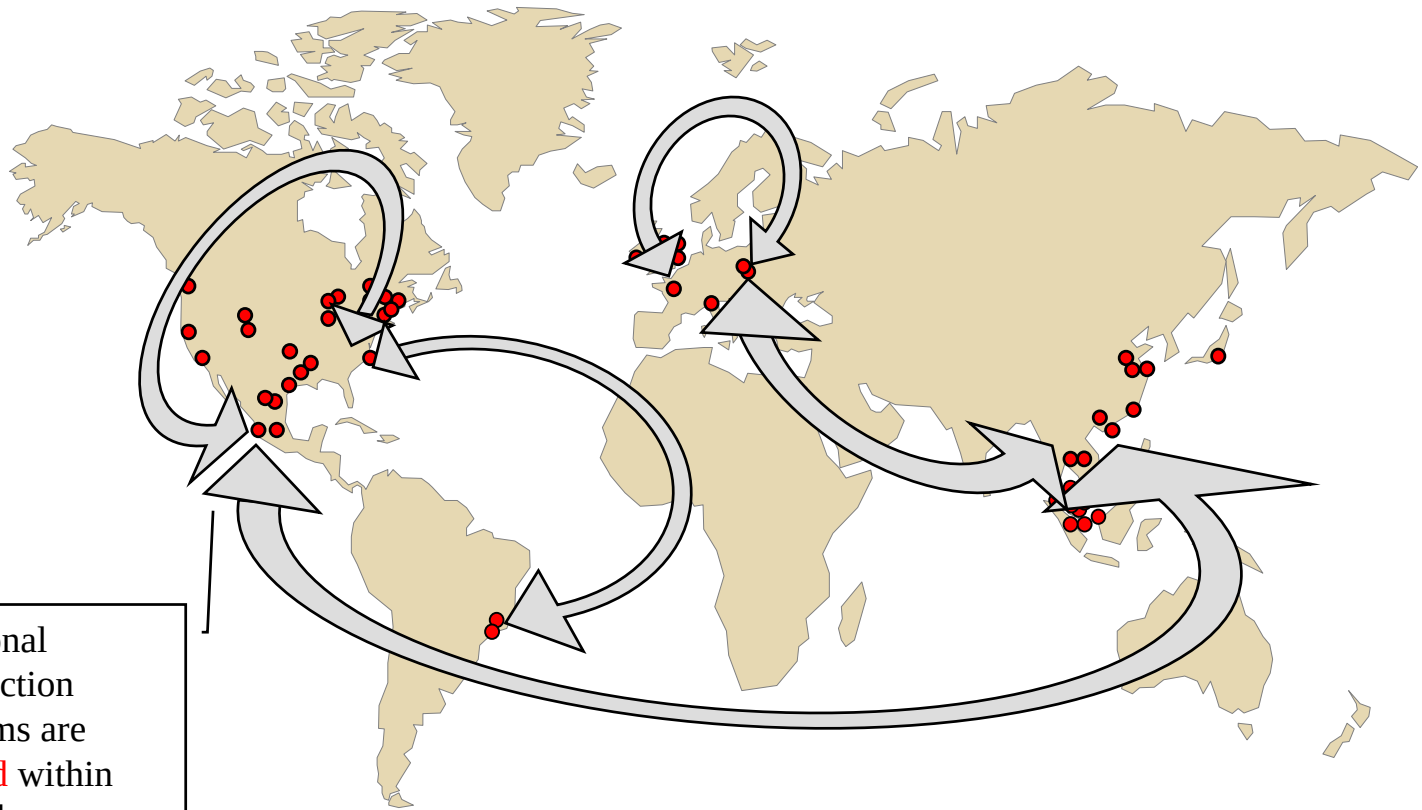


Regional Production Systems — the shift to low cost peripheries

Consolidation in China - larger scale, large local market, low costs

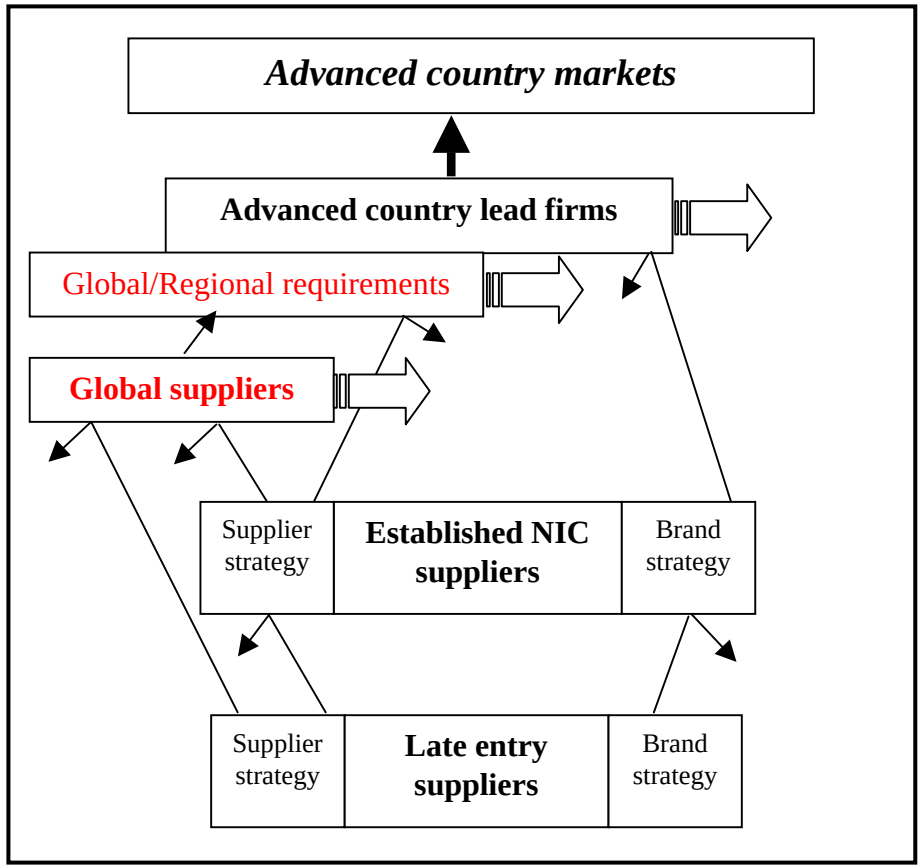


Global Production Systems - total geographic flexibility



Regional production systems are nested within global production systems

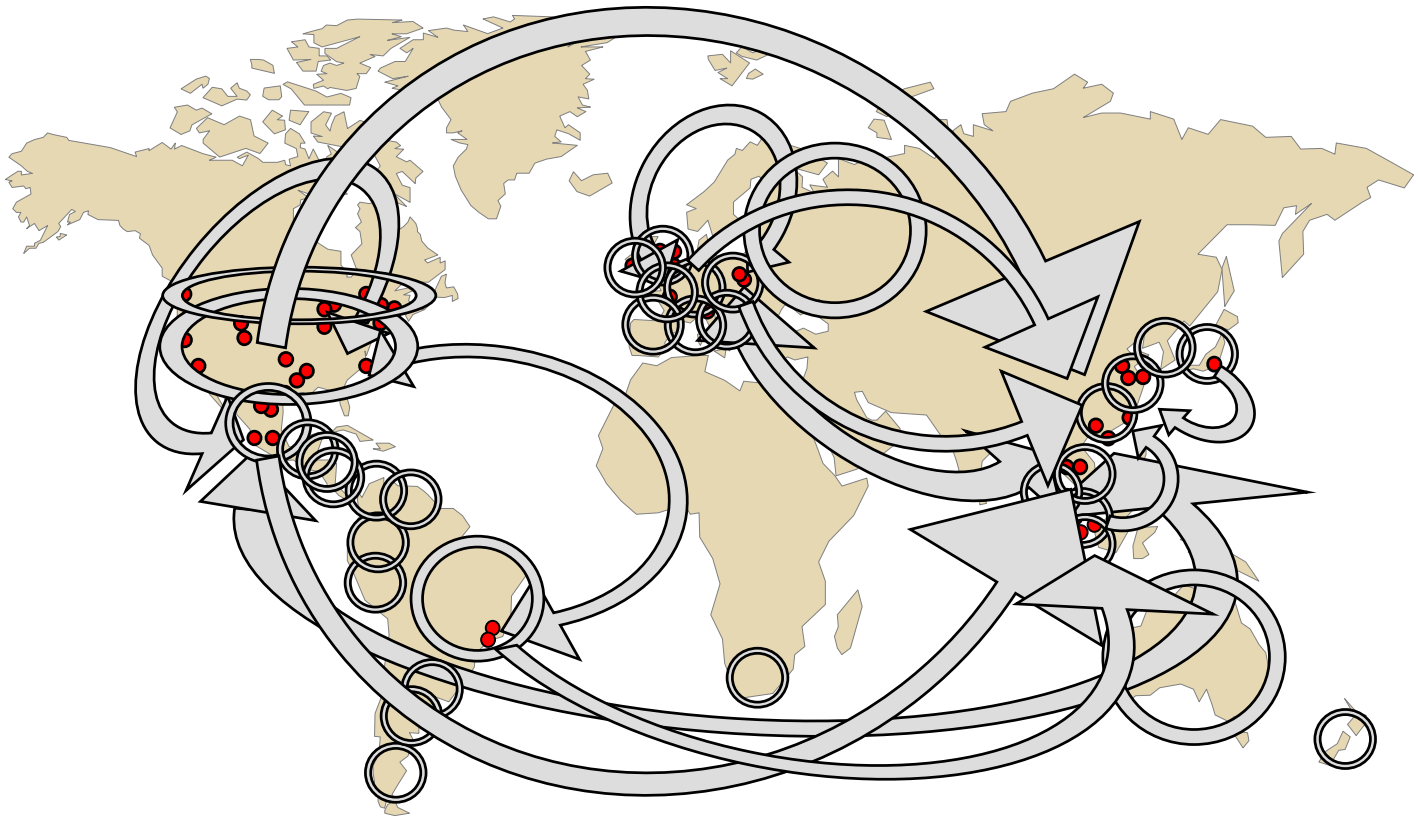
New obstacles to supplier-led industrial upgrading



Upgrading options in a world of global suppliers

- Develop second tier suppliers
  - Attract global suppliers and nurture the local supply base.
- Participate, learn, and spin-off
  - Attract global suppliers and lead firms and use them to train managers, engineers, and workers and then help them start their own firms.
- Develop locally-owned global suppliers
  - Continue to upgrade managerial, technical, and geographic capabilities of local suppliers but abandon brand name aspirations.
- Develop suppliers in just-globalizing industries (e.g., services)
- Move to the head of global value chains; use existing global supply-base
  - Develop "virtual" lead firms that tap the capabilities of GVCs to serve local and global markets—separate product development and marketing from manufacturing.
  - Encourage the emergence of design and marketing hubs—design and customer-centric, not manufacturing-centric.
  - May require changes in regulation and business culture.

A world of possibility and constraint (National, regional, and global production systems all co-exist and interact, and for now, consolidation in China is real)



The governance of global value chains: an analytic framework

Based on a paper by:

Gary Gereffi, Duke University

John Humphrey, IDS

Timothy Sturgeon, MIT

Published in:

Review of International Political Economy, 12(1) 2005

Summary of approach with related literature:

www.globalvaluechains.org

Theoretical Underpinnings
(starting point: industrial organization)

1. Transaction Costs Economics

   Asset specificity

2. Production Network Theory

   Trust, reputation, repeat transactions, social proximity, geographic proximity, power

3. Complementary Competencies

   Resource view of the firm, learning, core competence

Three Variables

1. Complexity of information required for a transaction

2. Extent to which this information can be codified

3. Supplier capabilities in relation to a transaction's requirements

- Three variables
- Two options for each - High or Low
- Eight possible outcomes

The Matrix

Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	*Outcome: Value Chain Governance*
Low	Low	Low	
Low	Low	High	
Low	High	Low	
Low	High	High	
High	High	High	
High	Low	High	
High	High	Low	
High	Low	Low	

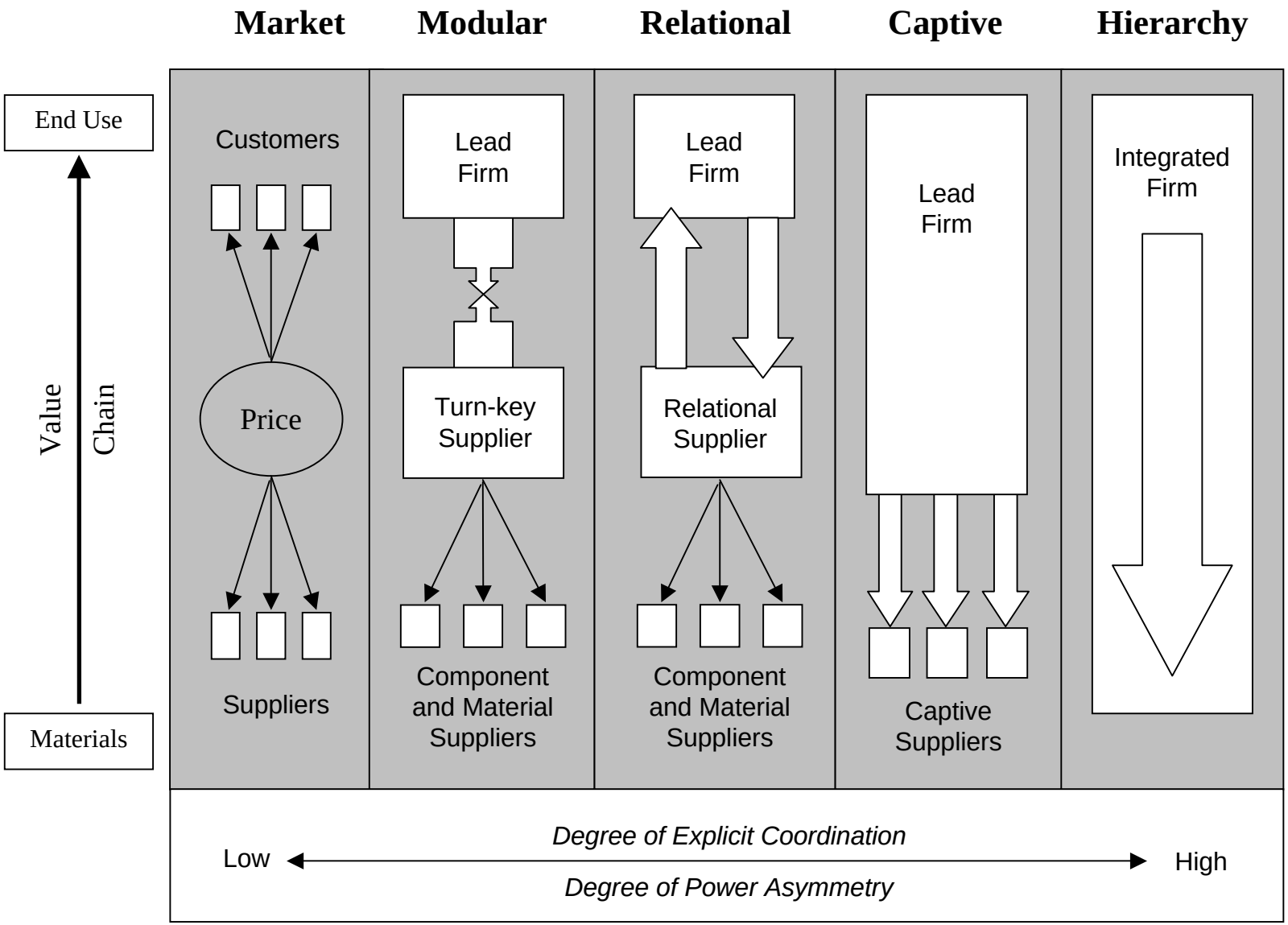
Discard Three Combinations

Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	*Outcome: Value Chain Governance*
Low	High	Low	***Excluded from chain***
Low	Low	Low or High	***Unlikely to occur***
Low	Low		

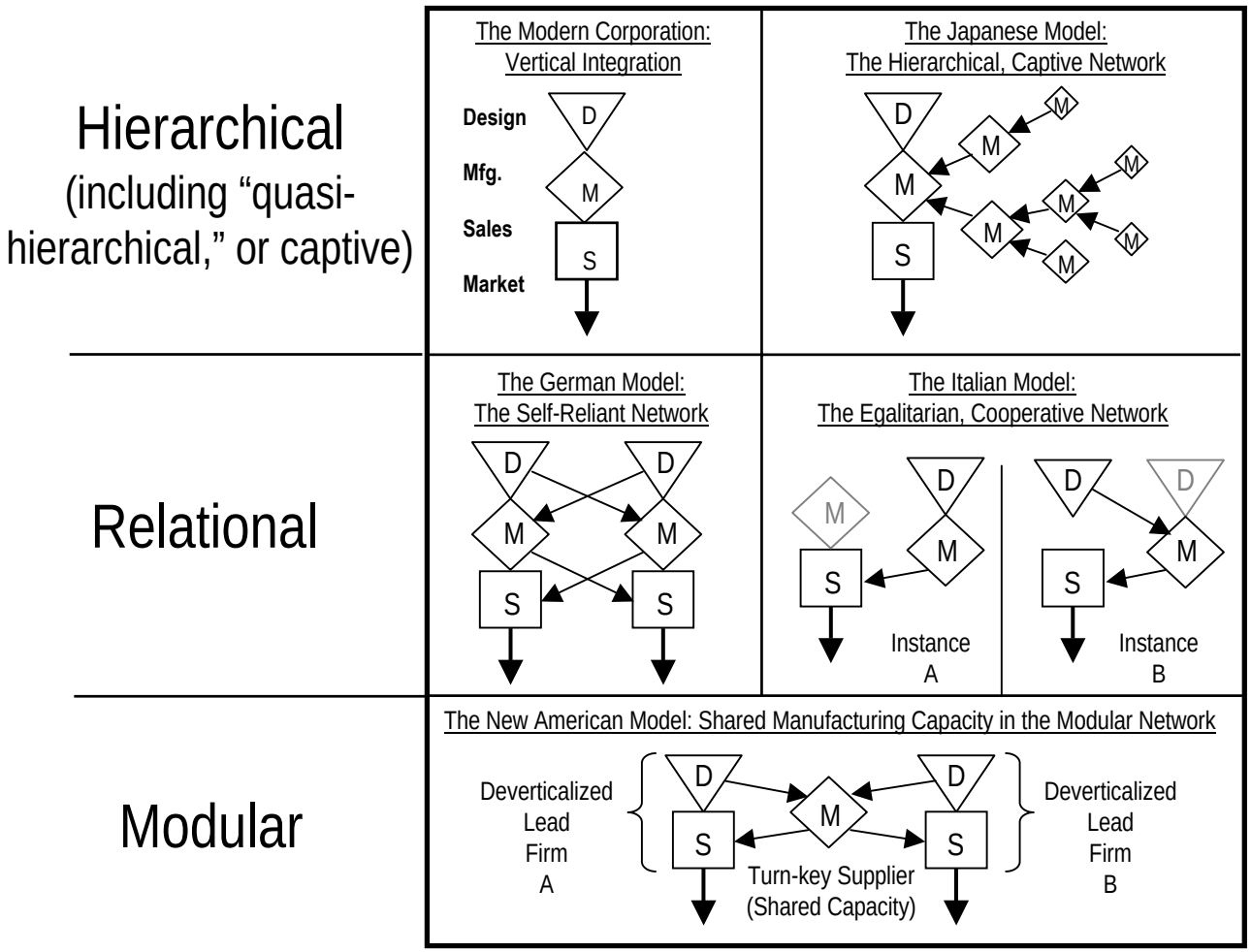
Five GVC Governance Types

Governance Type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	*Degree of explicit coordination and power asymmetry*
Market	Low	High	High	*Low*  *High*
Modular	High	High	High	
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	

Five GVC Governance Types



Country-Specific Production Network Models: How the GVC Typology Fits



Global value chain dynamics: Opposing forces

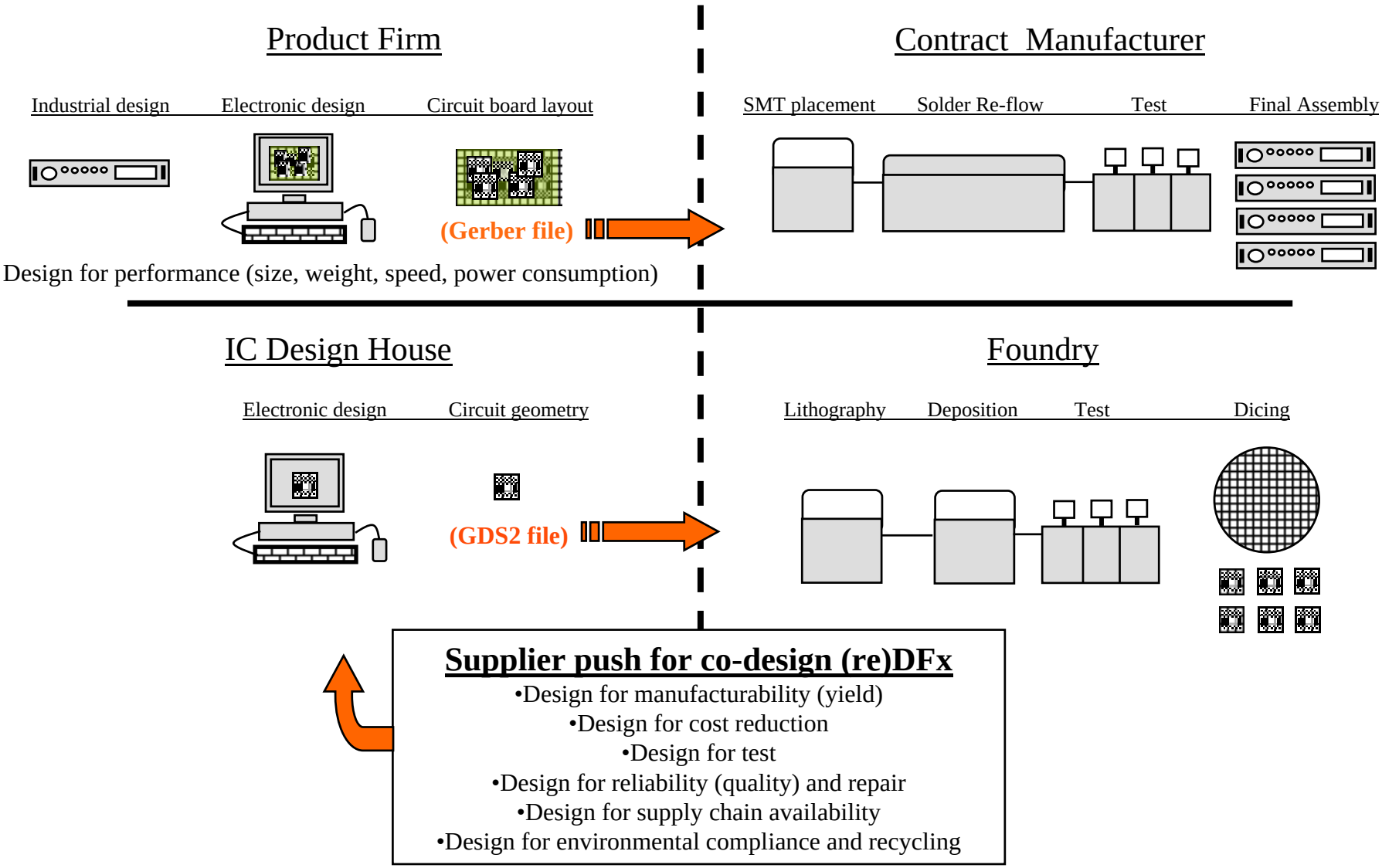
- Codification vs innovation
- Increasing supplier competence vs new suppliers and new requirements

Some Dynamics in Global Value Chain Governance

Governance Type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base
Market	Low	High	High
Modular	① High ②		
Relational	High	③ Low	⑤ High ⑥
Captive	High	High	Low
Hierarchy	High	Low	Low

① increasing complexity of transactions (harder to codify transactions, effective decrease in supplier competence)
② decreasing complexity of transactions (easier to codify transactions effective decrease in supplier competence)
③ better codification of transactions (open or *de facto* standards, computerization)
④ de-codification of transactions (technological change, new products, new processes)
⑤ increasing supplier competence (decreased complexity, better codification, learning)
⑥ decreasing supplier competence.(increased complexity, new technologies, new entrants)

New product introduction in electronics manufacturing

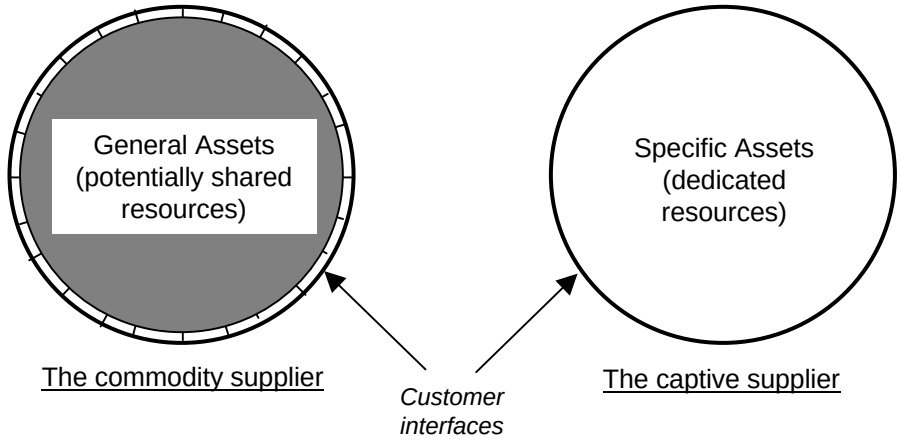


Framework limitations

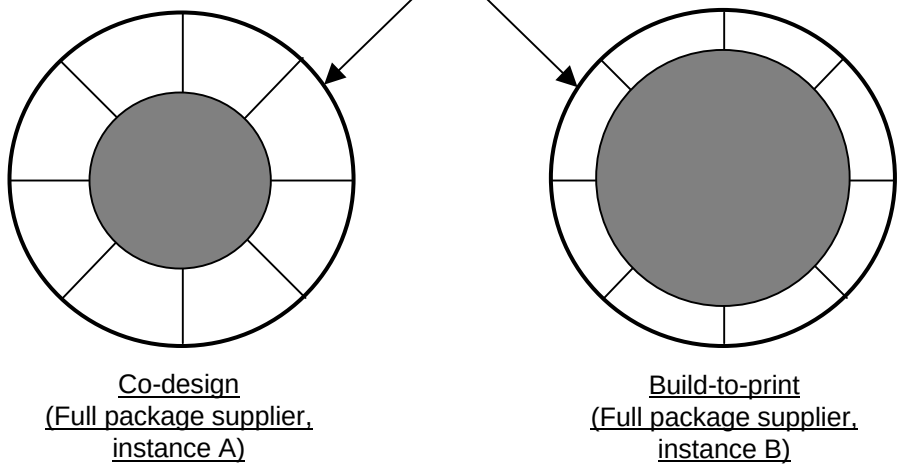
- Institutional context and path dependence matter
  - Local, national, regional
- Corporate strategy and culture matters
  - “Open pathways” at the firm level
- Regulations and policies matter
  - National, bi-lateral, multi-lateral; states and institutions can be powerful value chain actors
- Underdeveloped view of consumption
  - Advanced users
  - Consumer cultures and geographies
- Multiple and overlapping value chain governance mechanisms are the norm

The Full Package Supplier
Mixing the relational and modular

DIADIC VIEW OF ASSET SPECIFICITY IN INSTITUTIONAL ECONOMICS



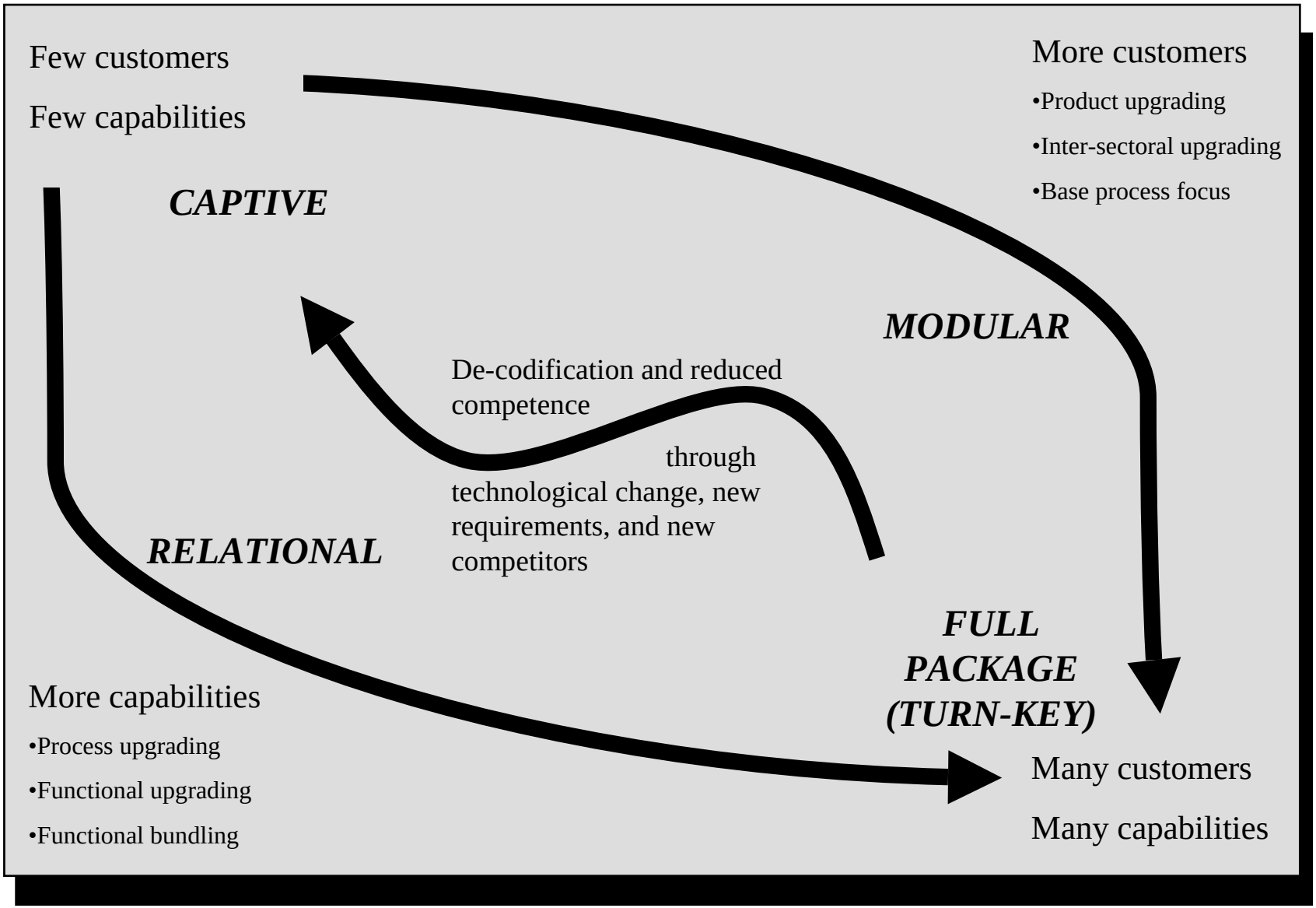
A MIXTURE OF GENERAL AND SPECIFIC ASSETS IN FULL PACKAGE SUPPLIERS



So What?

- Upgrading (or not) in global value chains
- Consolidation, modularity, and growing knowledge intensity in GVCs affects inclusion and exclusion for late entrants
- Increased geographic flexibility provided by value chain modularity poses new challenges for adjustment in both advanced and developing economies

Supplier Upgrading (and Downgrading) in Global Value Chains



GVC Governance Types
Links to Policy

Governance Type	Linkage mechanism	Developing country firm roles and competencies	Policy emphasis
Market	Arms-length exports	Branded exporter	Brand and product development, market research and access, import substitution and export promotion
Modular	Buyer-supplier complimentary specialization in cross-border value chains	Full package supplier with generic, base process competencies and ability to coordinate local and/or regional networks	Knowledge of global standards, process- and information technology upgrading, linkages to global buyers, strengthening of backward linkages and networks
Relational	Collaboration in cross-border value chains (lots of air travel) Collaboration with co-location (foreign direct investment)	Specialist supplier with process and/or domain-specific competencies	Competence building, linkages to buyers, support of clusters and districts, focus on building tacit domain knowledge
Captive	Foreign direct investment	Dependent supplier, customer-specific competencies	Recruitment of MNC affiliates, local content rules
Hierarchy	Foreign direct investment	Lower tier supplier	Recruitment of MNC affiliates, education and training, infrastructure development