“The Global Factory”:
The Multinational Enterprise as a Distributed Network

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Abstract

This presentation analyses “the global factory” – the dispersed, networked multinational firm in the context of globalisation.

Globalisation is examined as the interaction of markets and institutions, and their conflicts, in the world economy.

The strategies of the focal firm in the global factory are explained, together with their impact on host and source countries.

Methods of growing global factories in an emerging country are examined.
The global economy is changing

Multinational Enterprises (MNEs) are changing

but

The principles of analysis are still strong

Outcomes may differ
Overview

“Building Blocks”: Components of the Global Factory
Global/Local contrasts          Demand/Market
Outsourcing                     Supply/Production
Knowledge Management           Dynamics
Networks                        Configuration

“The Global Factory”
Building the Global Factory (Host countries)
Summary/Conclusion
Globalisation refers to growing economic dependence among countries as reflected in the increasing cross-border flows of three types of entities: goods and services, capital and know-how.

• Gupta and Govindarajan (2004:1)

……and people!
Strategies of the focal firm

Location and Ownership/Control Decisions

1. Where is an activity best located?

2. What is the best means of control of each activity in the system?
Global/Local contrasts: Demand/Market
Linkages between the activities of the firm

Adapted from Buckley, Pass and Prescott (1990)
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Global/Local

<table>
<thead>
<tr>
<th>GLOBAL</th>
<th>LOCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Revenue</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Responsiveness</td>
</tr>
<tr>
<td>Centralisation</td>
<td>Decentralisation</td>
</tr>
<tr>
<td>Standardisation</td>
<td>Adaptation</td>
</tr>
</tbody>
</table>

GLOCAL?

Global/Local
Even if the core product is global, it is likely that the bulk of value added will lie in marketing or associated services, both of which are intrinsically local. (Scott, 2001, *Heartland*)

Even big web players localise their National sites (e.g. Yahoo!, Amazon).
Fine-slicing the marketing function

- **Standardization - global strategy**
  - Positioning/segmentation
  - On Product
  - Packaging
  - Advertising & PR
  - Customer & trade promotion
  - Distribution

- **Cluster of countries**

- **Differentiation - separate strategy for each country**

1. Pure standardization strategy
2. An illustrative mixed strategy
3. Pure differentiation strategy

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‘Hub and Spoke’ strategies: An example

Warehousing and Adaptation IJV

Distribution IJV

Wholly Owned Production and Warehousing Hub

Warehousing Distribution and Adaptation IJV

Warehousing Distribution and Adaptation IJV
Outsourcing and Offshoring: Supply/Production
Outsourcing is the market procurement of formerly in-house produced goods and services from legally independent supplier firms.

NB: This is a “make or buy” internalisation decision about control.
Performing or sourcing any part of an organisation’s activities at or from a location outside the company’s home country. Companies create captive centres offshore where the employees work for them, or outsource offshore where the employees work for the outsourcing provider.
Supply Chain

A network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products and distribution of these finished products to customers. A supply chain has three main parts: supply, manufacturing and distribution. The supply side concentrates on how, where from and when raw materials are procured and supplied to manufacturing. Manufacturing converts these raw materials to finished products. Distribution ensures that these finished products reach the final consumers through a network of distributors, warehouses and retailers.

A typical offshore production process

PARENT COUNTRY

Inputs

EARLY STAGES OF PROCESSING

FOREIGN COUNTRY

Intermediate inputs

EARLY STAGES OF PROCESSING

FINAL STAGES OF PROCESSING AND MARKETING

Semi-finished goods

MARKETS

Home and Third country

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Key Facilitators

Technology

Electronic Communication
Containerisation
Modularisation

Politics

Integration (Philosophy)/Liberalisation
Trade Blocs
Knowledge Management: Dynamics
Notes: Successive stages of production are linked by flows of semi-process materials. Production and marketing are linked by a flow of finished goods ready for distribution. Production and marketing on the one hand are linked to R&D on the other hand by two-way flows of information and expertise.
“The concept of the firm… does not depend on the ramifications of stock ownership or on the mere existence of the power to control, although extensive stock ownership may, and probably should, be an important consideration in any attempt to apply it. On the other hand, long term contracts, leases, and patent licence agreements may give an equally effective control” (Penrose 1959, pp 20-1).

The true nature of the firm is not a legal entity but as a planning unit (Blois 1972).

The global factory is a system under which effective managerial planning extends across the whole network.
Knowledge Internalisation

The key to planning, orchestrating and organising the global factory is knowledge internalisation.

“Two distinct forms of internalisation were identified: operational internalisation, involving intermediate products flowing through successive stages of production and the distribution channel; and knowledge internalisation – the internalisation of the flow of knowledge emanating from R&D” (Buckley and Casson 2009, p 1567).

This can be broadly equated with “vertical” and “horizontal” networks.
Internalisation decisions are interdependent in two distinct ways (Buckley and Casson 2009). First, (focal) firms are involved in making multiple internalisation decisions and these decisions are interdependent – the outcome of one decision cannot be understood without reference to other decisions. Consider for example a global factory that operates three facilities – R&D, production and marketing. Internalising one linkage (between R&D and production), involves the firm in the ownership of two facilities but internalising a second linkage (between production and marketing) automatically internalises a third (between marketing and R&D). While acquiring a second facility internalises only one linkage, acquiring a third facility internalises two “This demonstrates that internalisation decisions taken as part of a restructuring operation need to be analysed holistically. Focusing on a single linkage, such as the link from R&D to production, rather than the full set of linkages can create a misleading picture” (Buckley and Casson 2009, p 1574).

The second independence is between internalisation decisions of different firms. From a systems perspective (Buckley and Hashai 2004, 2005, 2009) a facility that is wholly owned by one firm cannot be simultaneously wholly owned by another firm. As a consequence, if one focal firm internalises a linkage to a given facility, then other firms cannot internalise linkages to that same facility. They can only then have external links to it. The internalisation decisions of different firms are interdependent when they compete to internalise linkages to the same facility. In this context, internalisation is a strategic competitive weapon.
Networks: Configuration
# Stocks and Flows in the Global Factory

<table>
<thead>
<tr>
<th>Stock</th>
<th>Tangible</th>
<th>Intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>(fixed)</td>
<td>Brand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intellectual Capital</td>
</tr>
<tr>
<td>Flow</td>
<td>Product Distribution</td>
<td>Information on market, production</td>
</tr>
</tbody>
</table>
Network Co-ordination

“Value Chain”
(Multi-stage activity co-ordination)

“Learning”
HORIZONTAL

Source: Buckley 2004b p259
Classification of costs in the international business system

<table>
<thead>
<tr>
<th>Type of flow</th>
<th>Facility</th>
<th>Linkage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource flow</td>
<td><strong>Operational cost of a facility</strong>&lt;br&gt;Cost of factor inputs: labour, land and capital</td>
<td><strong>Operational cost of a linkage</strong>&lt;br&gt;Cost of transport and the communication of knowledge, tariffs, non-tariff barriers, etc.</td>
</tr>
<tr>
<td></td>
<td>Varies with the nature of the product, the production technology used, and the location of the facility</td>
<td>Varies with the nature of the product, the transport and communications technologies used, and with the locations of origin and destination facilities; affected by geographical, political and cultural distance</td>
</tr>
<tr>
<td>Coordination (information flow)</td>
<td><strong>Intra-plant coordination cost</strong>&lt;br&gt;Cost of factor inputs to headquarters: labour, land and capital</td>
<td><strong>Inter-plant coordination cost</strong>&lt;br&gt;Costs of negotiating and enforcing contracts in external markets, and administering coordination in internal markets</td>
</tr>
<tr>
<td></td>
<td>Varies with the nature of the product and with the location of headquarters, and with the relation between the location of the headquarters and the location of the plant; strongly affected by political relations between the headquarters location and the plant location</td>
<td>Varies with the nature of the product and with the locations of the headquarters of origin and destination facilities; affected by geographical, political and cultural distance, and by internalisation economies</td>
</tr>
</tbody>
</table>
## Benefits and Costs of Different Types of Network Configuration

<table>
<thead>
<tr>
<th></th>
<th>Benefit of Open, and transparent</th>
<th>Cost of Closed and opaque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>Learning / Diffusion</td>
<td>Collusion on price</td>
</tr>
<tr>
<td>Vertical</td>
<td>Co-ordination of intermediate product markets and upstream/downstream Investments</td>
<td>Vertical integration as barrier to entry</td>
</tr>
</tbody>
</table>

*Source: Buckley 2004b p 260*
## Type of Asian Network Firms

<table>
<thead>
<tr>
<th>Type</th>
<th>Keiretsu</th>
<th>Chaebol</th>
<th>Overseas Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor Ownership</strong></td>
<td>Cross-Shareholdings</td>
<td>Family (often disguised)</td>
<td>Family</td>
</tr>
<tr>
<td><strong>Products</strong></td>
<td>Specialised</td>
<td>Diversified</td>
<td>Diversified</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
<td>Ingroup Bank</td>
<td>State, Debt</td>
<td>Family ‘Soft Money’</td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td>Protected Home Market and</td>
<td>Protected Home Market +</td>
<td>Regional/Local</td>
</tr>
<tr>
<td></td>
<td>Global Sales</td>
<td>International Expansion</td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Licensed-In</td>
<td>Group Development (Incremental)</td>
<td>Borrowed/Low-Tech</td>
</tr>
</tbody>
</table>
“The Global Factory”
“New Strategies”

1. Fine-slicing
   Locating (ever more finely defined) activities in least cost location.

2. Outsourcing and offshoring
   Using contracts rather than ownership
   “You don’t have to own a facility to control it”

3. Control of whole “global factory” through knowledge internalisation.
Globally Distributed Operations

BRAND OWNER

Design Engineering Branding Marketing

Engineering Contractor

R&D Contractor

Core Functions

Parts Supplier

Parts Supplier

Parts Supplier

Contract Assembler

Outsourced Parts Supplier

Contract Assembler

Parts Supplier

Distributed Manufacturing

Warehousing, Distribution and Adaptation

Local market Adaptation

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Globally Distributed Service Operations

BRAND OWNER

Service Hub

Design

R&D

Outsourced goods supplier OGS

Outsourced goods supply

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Key elements of the global factory

**Flexibility** – the ability to reallocate resources quickly and smoothly in response to change.

Response to:

(a) increasing volatility arising from globalisation;
(b) opposition to monopoly including internal monopoly.

**Resilience**

Systems are resilient if they can absorb shocks.

Firms can survive downturns, crises and panics.
Value creation in the Global Factory (1)

The Smile of Value Creation

* Mudambi, JIBS 2007

Inputs

Vertically integrated firm

Markets

R&D Knowledge

Marketing Knowledge

Location 1

Location 2

Location 3

Location 4

VALUE CHAIN DISAGGREGATION

© Mudambi, Temple/Reading, 2008
Value creation in the Global Factory (2)

Businesses recognize this ...

THE STAN SHIH SMILE CURVE

- Concept/R&D
- Branding
- Design
- Manufacturing
- Distribution
- Marketing
- Sales/After Service

Under this model manufacturing is the lowest value input

... but

© Mudambi, Temple/Reading, 2008
Value creation in the Global Factory (Example iPhone)
Strategies of Developing Country Firms…

**Cooperate**
- Subcontracting
- Joint Ventures
- Technology Transfer
  - Leading to later competition
- Be acquired
  - Capital reinvested elsewhere?
- Enter PPPs (Govt. Role…)

**Compete**
- Find niches and use bargaining power
- Own globalisation
  - Gradualism
  - Acquisition
  - Infant industry conglomeration in large economy

Path chosen depends on context:
Country endowments, industry etc

- Develop domestic entrepreneurship
- Legal framework (model contracts)
  - Management capacity
The bargaining relationship in global factories between the focal firm and its associated constellation is complex because it is both asymmetric and non-parallel. It is asymmetric because of the locked-in advantage that knowledge internalisation gives to the focal firm. It is non-parallel because the bargaining strength of the focal firm derives from its internalised knowledge, including its rent from branding but the power of the associated firms relies in their hold-up capabilities, their ability to provide specialised services in which it is not worth the while of the focal firm to invest and possibly because of cost advantages arising from economies of scale or privilege access to key resources (labour, raw materials, government restrictions on entry).
The strategies of global factories often have highly sector-specific routes of expansion. This leaves market niches or interstices for SMEs to exploit as we have seen above (Buckley 1989). SMEs with entrepreneurial foresight to see these opportunities are thus presented with strategies that anticipate and fulfil the needs of client global factories. This process has a time dimension. A cycle can be envisaged where lots of small firms vie for these opportunities but gradually they consolidate through competitive processes or acquisition. Thus global factories are, overtime, faced with larger specialized subcontractors who can utilize bargaining power in a countervailing direction.
The flexible firm

Note: A shift in the supply function S to $S'$ increases market transactions (outsourcing) from $q$ to $q'$. 

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A hierarchical firm with inelastic administrative heritage

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Note: A shift in the supply function SS to S'S' does not increase market transactions.
Upward sloping supply function for market transactions: the inelastic firm and “interstices” versus the flexible firm

Notes:
- $q, c/p$ - inelastic firm equilibrium
- $q', c'/p'$ - flexible firm equilibrium
- $q', c'/p'$ - inelastic firm with interstices - filing firms equilibrium
Emerging countries: Three strategies to build up global factories


2. Acquire existing global factories (Sovereign Wealth Funds)

3. Build analogue of global factory within country, then internationalise it (large countries only).
Original Equipment Manufacturer

Design Engineering Branding → Contract Assembler → Marketing
Original Design Manufacture
Original Brand Manufacture

Brand Owner

Engineering Contractor

Design Contractor

R&D Contractor

Manufacture

Distributed Marketing
New Management Skills

- Internalisation of knowledge, externalisation of (routine) operations
- “Fine-slicing”
- Control of Information
- Interface Competence

= A new, more subtle, management style

“You don’t have to own something to control it”
Relationship between Global Factory and SMEs

Policies of Focal Firm

SME strategies?
[At the very least, constrained by actions of focal firm, if not determined by them. cf “born globals”]

The global factory is a constellation of linked independent enterprises
Division of entrepreneurial labour.
<table>
<thead>
<tr>
<th>Managerial Action</th>
<th>Basis of Division of Entrepreneurial Labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who? Differentiation</td>
<td>Capabilities</td>
</tr>
<tr>
<td>How? Connectivity</td>
<td>Interdependence</td>
</tr>
<tr>
<td>Where? Adaptation</td>
<td>Context</td>
</tr>
</tbody>
</table>

Buckley and Prashantham AMP 2015
Role of Headquarters

Controlling Intelligence

“Orchestration”

Focal Firm as the “Impresario”

[Strategies of linked/subcontracting/subordinate firms?]
Is a company really responsible for everything in its supply chain?

Power of global factory is not measured (and is under estimated) by FDI.
Industry 4.0 (German Government)

Manage Supply Chain → Factory Automation → Demand Forecast

NB: GPS Data Gathering System (e.g. from Komatsu construction machines) – feeds back into forecasts. “Internet of Things” + Big Data.
International Issues

1. Not a blueprint
   “One size fits all”

2. Influence of home country
   Culture (family firms etc.)
   Response to markets
   Regulation

3. Innovation?
   In marketing especially – interface of product/market
   Relationship SMEs with Global Factory

4. “Penrose effect”
   Expanding management teams – cultural issues
 Emerging Country Global Factories

Leapfrogging?

[Chinese Companies] – a race between era of cheap capital and developing international management and innovation skills?

Branding

Cultural issues – internationalism (viz Japan)
The source of the economic power of global factories arises from knowledge internalization. Operational internalization is no longer a key source of advantage for MNEs except insofar as it is necessary to capture knowledge. The interdependencies implied by knowledge internalization determine the configuration of global factories. The associated ability of focal firms to fine slice and therefore to outsource and offshore non core activities provide opportunities for smaller, host country firms to subcontract activities from focal firms. The sector-specific expansion routes of global factories provide interstices that can be exploited by smaller firms. The ability of SMEs to benefit from these potential sources of profit depends on the ability of indigenous entrepreneurs to identify these opportunities and to marshal the resources necessary to deliver these activities. In the longer run, learning in subcontractors will determine their ability to survive and prosper and to achieve economies of scale and scope. If these opportunities are taken, SMEs can build countervailing power and, indeed, aspire to become global themselves.
Interaction between Global Factory (policies of “focal firm”) and differential globalisation of markets (capital, labour services).

Location policies – move capital and knowledge to locationally fixed elements (labour pool, markets, resources and assets).

Internalisation policies – determine division of organisation and market. Use of market to put pressure for internal efficiency.

Innovation and knowledge management policies – create “ownership advantages” – brands and other intangible assets.
Research Issues

How widespread is Global Factory organisation? (Given that Unitary MNEs are important in many sectors). Data on global factories/global value chains.

- new initiatives by OECD and UNCTAD on FDI data (ultimate destination and origin)
- new recognition (WIR 2011 onwards) of Non-equity modes of international business
- evidence is cross-sectoral and cross country data tends to be industry and single country based

Ownership and knowledge links difficult to trace.
References (2) Formal Models of the Global Factory


