

## GLOBAL SUPPLY MANAGEMENT

### Selecting the 'Right' Source Countries

The globalisation of production places considerable demands on a company's supply management. These do not merely concern the challenges of managing related value activities at a distance and across national borders. With a growing geographical reach of a company's production network, or value chain, greater demands are also placed on the effective alignment of individual activities with the 'best' available locations on a worldwide basis.

*The focus of this White Paper is on the selection of locations for manufacturing activities (or source countries for intermediate products) in attempts to optimize a company's global footprint. While grounded in leading-edge thinking, the paper draws in large part on lessons from management practice, shared by our corporate clients and partners since the launch of Global-production.com, Inc. in 2003. Their valuable contribution to this paper is gratefully acknowledged.*

#### **Source-country priorities: Why and how?**

The efforts required in the search for, and selection of *new opportunities* in the configuration of a product's value chain — involving, say, new suppliers, joint activities with new partners, or new production facilities — tend to multiply with its geographical reach. There are several reasons for this: a larger distance must be travelled, a wider range of potential source countries must be considered, and greater demands are placed on the evaluation of distant suppliers, or partners, with unknown qualities.

#### **Towards source-country priorities ...**

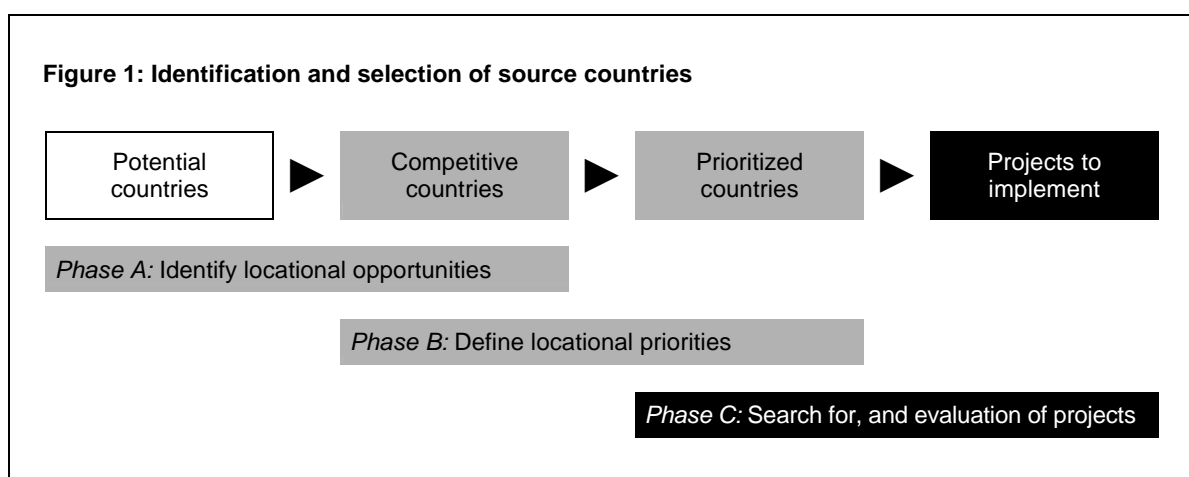
To effectively manage such efforts, manufacturing companies take various measures. One is to centralize responsibility for global sourcing, allowing for a company's in-house know-

ledge of available opportunities to be better exploited. Another is to pay more attention to locational priorities in its sourcing strategy. In this way, the search for new sources of supply in a given category of intermediaries is targeted to countries, offering particularly promising opportunities because of their cost and operating conditions.

So far, locational priorities have more often been based on 'conventional wisdom' than on hard facts. Sometimes, personal preferences of managers, rooted in their own experiences and business relationships, have played an important role in shaping such priorities. In other cases, China and a few other emerging economies have appeared the 'obvious' choices of countries to set up sourcing and production operations in order to reduce the cost of a company's products.

### ... based on a structured approach

However, as the 'China price' rises and the salaries of skilled personnel in leading emerging economies approach Western levels, a growing number of managers perceive a need to consider a wider range of locations — and to use a wider range of criteria in their selection. This calls for a structured, facts-based approach to the selection of locations in the optimization of a product's value chain. The basic building blocks of such an approach are schematically described in Figure 1.



For a given area of activity, promising source countries are to be identified and selected in two steps. In a first one, countries are identified whose cost and operating conditions allow

for international competitiveness to be achieved in the activity under consideration (Phase A). In a second step, some of these 'hot spots' are prioritized over others in terms of offering a 'better fit' with the company's business strategy (Phase B). The latter countries are, then, the ones to focus on in the search for projects to implement (Phase C).

In the prioritization of prospective source countries, the focus is on the extent to which a country's cost and operating conditions support a company's competitive priorities in the market place — as reflected in, say, the relative importance placed on the cost, quality and timely availability of its end-products. In the selection of projects to implement, the focus is on their impact on performance metrics such lead times, total cost of ownership, and the financial bottom line.

### **What makes a country competitive?**

The existence of differences between countries, making manufacturing activities performed in one country better placed to compete internationally than if they are located in another, is a basic premises of this model. In the case of emerging economies, such differences originate not only in traditional cost factors, but also in the advantages of being part of an (increasingly) sophisticated business environment. In addition, the benefits of a country's proximity to (regional) customers need to be considered.

### **Cost-based advantages**

Reductions in the cost of production, mainly because of comparatively low wages for blue-collar workers, have been the principal reason for companies to engage in manufacturing activities — especially in labour-intensive ones — in emerging economies. But, as the globalisation of production becomes the name of the game in a wider range of industries, wage costs remain merely one among several factors to consider in the choice of source countries.

Depending on the activity under consideration, differences among countries in the following regards play today a key role in the location of manufacturing operations:

- ▶ *the availability of skilled personnel and an effective protection of intellectual property rights* affect the cost and risk of R&D-intensive activities;
- ▶ *industry-specific engineering capabilities* are crucial for manufacturing processes where a high degree of product variability and small volumes of individual items are involved;
- ▶ *infrastructure cost and quality* drive location decisions in activities with great demands on the timeliness of supply.

### **Clustering advantages**

While advantageous cost and operating conditions allow a country to get established as a hot spot in an industry, a growing volume of activity becomes itself a crucial factor shaping the country's operating conditions. By adding to the local demand for intermediate inputs and services, it provides more room for specialised suppliers to set up shop. A growing range of suppliers contributes to further growth in the industry — as well as in related industries.

#### **Box 1: Clustering in Singapore's hard disk drive industry**

In the early 1990s, Singapore developed into a 'hot spot' for the production of hard disk drives.

Singapore's ability to retain a competitive edge in this field for several years to come, despite rapidly rising wages, can be traced to the development of mutually supporting activities and capabilities, benefiting the production of disk drives:

- ▶ The development of a deep pool of managers and engineers with industry-specific skills, supporting local process innovation and ramp-up.
- ▶ The emergence of a local supply base for related components (printed circuit boards, connectors, etc) and services (equipment repair, tool and die production, machining, casting etc).
- ▶ The establishment of a government-sponsored laboratory, the Magnetic Technology Center, devoted to product and process innovation in the hard disk industry.
- ▶ A growing web of related industries, allowing for economies of scale and specialisation to be realised by, among others, the local partners to the disk drive industry.

Clustering advantages of this kind contribute not only to the cost competitiveness of the local suppliers of disk drives, but also the quality and timely availability of their products.

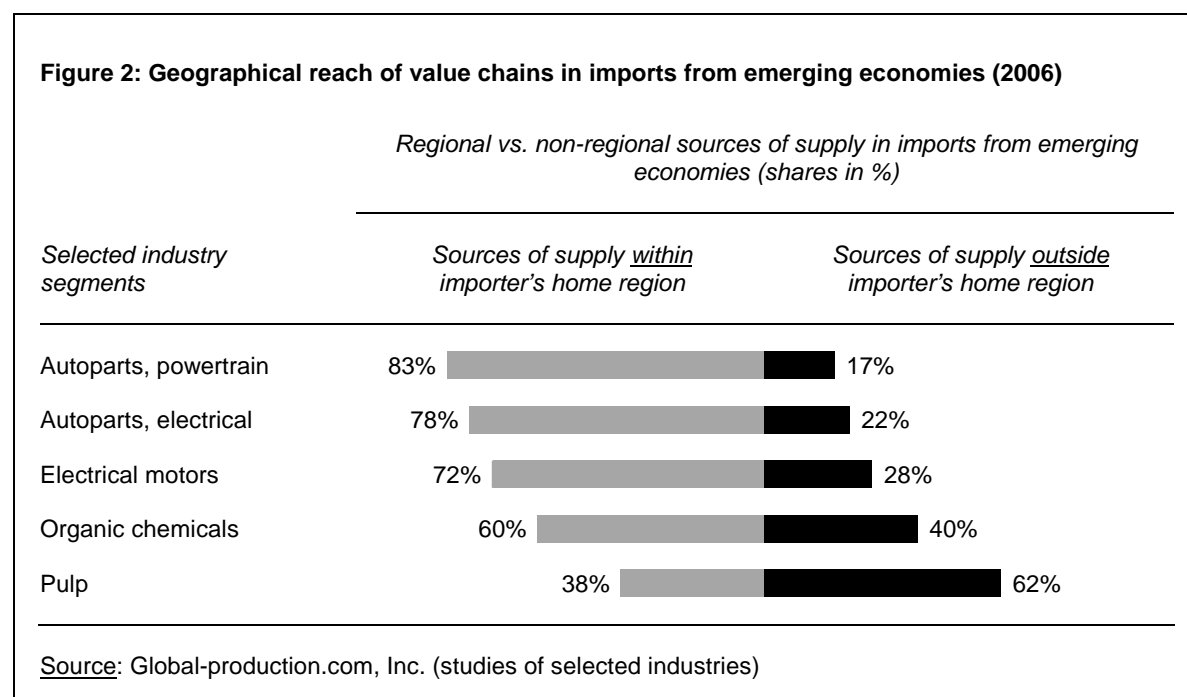
Source: Kenney & Florida eds (2004)

As the industrial base of emerging economies grows more sophisticated, clusters of mutually supporting activities become more important as a source of competitiveness and,

also, deepening specialisation among countries. As a result, it is increasingly the case that countries with similar conditions of production (e.g. the cost of personnel) emerge as hot spots in quite different areas of activity — not only at the industry level, but also surprisingly often at the level of individual products.

### Proximity to customers

Although falling barriers to trade open up new opportunities in the location of value activities, the benefits of proximity to customers remain a factor to be accounted for in a wide range of activities. As shown in Figure 2, regional sourcing is preferred to global sourcing in categories such as autoparts and electrical motors. In these categories, a point is reached where the gains from tapping a more distant source of supply do not offset the (additional) cost of managing related value activities at a larger distance.



The reasons why the cost of managing related activities at a distance and across national borders sometimes translates into an advantage of regional (over global) sources of supply, can be traced to one or several of the following factors:

- ▶ the need for extensive face-to-face interaction in, for example, the communication of product specifications and the verification of product quality,

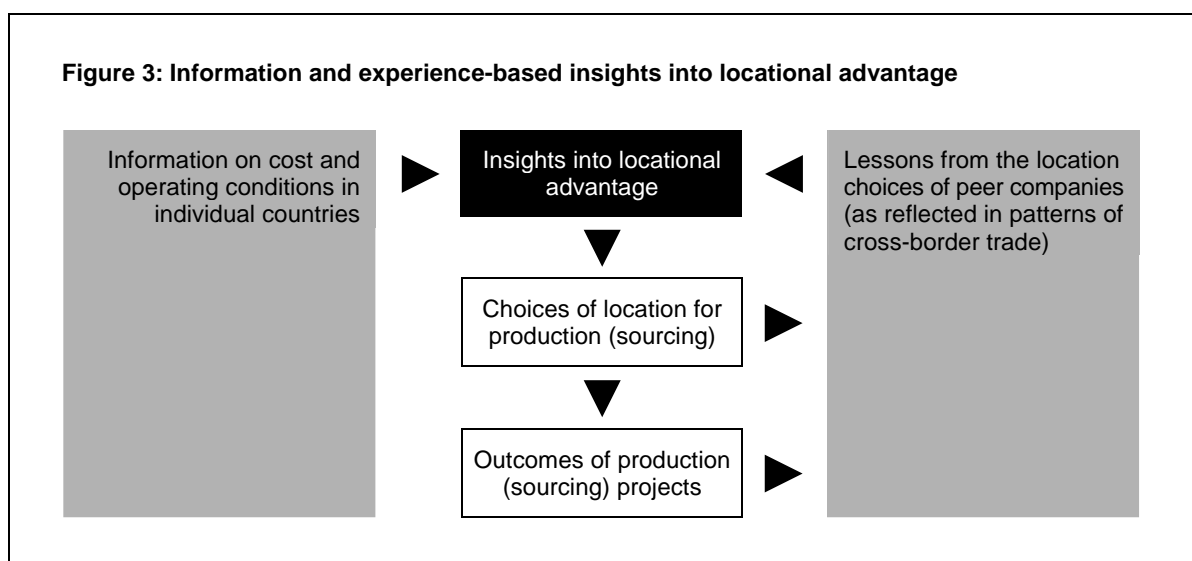
- ▶ the importance of short lead times and the frequent replenishment of stocks in 'lean' distribution systems,
- ▶ preferential trade agreements (and related local content rules), which favour regional over non-regional sources of supply.

### Insights into locational advantage

The ability to align manufacturing activities with locational advantages is closely linked to the availability of relevant information and insight. The significance of this challenge follows not only from an increasing number of locations to consider, but also from a growing diversity in terms of their strengths and weaknesses. To effectively exploit this diversity, many companies need to re-examine the ways in which prospective locations are identified and examined.

### Multiple sources of insight

To examine the pros and cons of alternative locations of production, an obvious approach is for companies to collect relevant information on the prevailing conditions of production in the countries under consideration. Another approach is to draw on the lessons from other companies in the same industry of operating in a given country. As the geographical reach of value chains covers a larger distance, including countries on which information is costly to collect, the experiences of peers become a more valuable source of insight.



In the case of international production and sourcing operations, flows of cross-border trade can be considered a special source of experience-based insight. Since such flows reflect the (aggregate) outcome of the investment decisions by numerous companies, patterns of cross-border trade provide useful insights into the (collective) views of investors on the advantages of one country over another as the preferred location for the manufacture of a given product.

Today's supply management needs to effectively combine different sources of insight. Insights from the activities of peers may not only substitute for information on operating conditions that is costly to collect. Such information and experience-based insights also contribute in different ways to the location planning task: While patterns of cross-border trade help identify competitive locations (Phase A in Figure 4), information on operating conditions are necessary to assess each country's strengths and weaknesses (Phase B).

**Figure 4: Location planning, selection criteria, and sources of insight**

	<i>Phase A</i>	<i>Phase B</i>	<i>Phase C</i>
<i>Planning objective</i>	Identify locational opportunities	Define locational priorities	Search for, and evaluation of projects
<i>Selection criteria</i>	Supply capacity & competitiveness	Cost, quality & timeliness of supply	Contribution to financial bottom line
<i>Sources of insight</i>			
▪ Information on cost & operating conditions	+	++	++
▪ Observations of cross-border trade patterns	++	+	

### Cost and operating conditions

In contrast to their identification, the prioritization of prospective source countries requires information on individual items of local cost and operating conditions. Here, the focus is on the items of particular importance in terms of the operational requirements of a company's competitive strategy. Furthermore, to assess the bottom-line impact of individual projects

(e.g. total cost of ownership), detailed information is needed on all relevant dimensions of a country's cost and operating conditions.

**Box 2: Location selection criteria of a supplier of automotive parts**

A supplier of foundry parts, mainly to truck makers, faces increasing price competition in key product segments. To meet this challenge, the management looks at possibilities of re-locating selected activities to a low-cost country.

Based on a review of the company's operations and its competitive positioning in the market-place, the VP Global Operations identifies the criteria to used in the selection of a suitable location as follows:

<i>Location selection criteria</i>	<i>Weight</i>	
Average wage level in production	4.5	
Availability of key inputs, services	3.5	
Availability of engineering personnel	3.0	
Quality of logistics infrastructure	2.5	
Government incentive package	2.0	
Protection of intellectual property	2.0	

However, for a location selection process of the kind described in Box 2, it is not uncommon that insurmountable obstacles are encountered in the collection of the necessary information. Reliable information, permitting meaningful comparisons across an increasing growing range of potential locations, is difficult and costly to obtain. And for clustering advantages, playing an increasing role in the location of industrial activity, useful metrics are not available.

**Patterns of cross-border trade**

In a world economy with low barriers to trade, a decision to invest in new production facilities must address the strengths and weaknesses of the location where the facilities are to be built. A location must be chosen that allows the supplier to compete against industry leaders — in the home market as well as in international markets. Analogously, flows of cross-border trade are a reflection of the views of investors on the advantages of one country over another for the manufacture a given product.

### **Box 3: Measurements of cross-border trade flows**

The business economics literature offers a wide range of approaches to the analysis and interpretation of cross-border trade flows. Here, a few examples are briefly described:

*Value of exports.* Exports of Product X from Country A to Country B imply that Country A offers cost and operating conditions, allowing local suppliers to compete with industry leaders — in the home market (Country A), and in international markets (Country B).

Analogously, the absence of (significant) exports implies that ‘insiders’ with a deep knowledge of Country A find local conditions of production inadequate for financially viable investments in the manufacture of Product X in the country.

*Export specialisation.* The strength of Country A’s specialisation in Product X refers to its ‘weight’ in the country’s exports of a basket of reference products. If Product X carries a disproportionately high weight in Country A’s export basket (compared with a group of reference countries), its cost and operating conditions offer a ‘good fit’ with the requirements for international competitiveness in this product.

*Export growth.* If Country A’s exports of Product X grow at a higher rate than those of a group of reference countries, this is a reflection of short-term changes in the country’s relative conditions of production (public policy, exchange rate etc) — encouraging suppliers to expand their production capacity (and to grow their share of world exports).

By combining individual metrics, it is possible to gain deep insight into a country’s ability to compete in international markets — allowing us, for example, to identify today’s ‘hot spots’, ‘laggards’ and ‘cold spots’.

Referring to Figure 4, patterns of cross-border trade are a useful source of information and insight when competitive source countries are to be identified. Because trade data is available at low levels of detail, they allow for assessments of a country’s supply capacity and competitiveness at the level of individual industries and intermediaries. Also, all relevant sources of locational advantage are accounted for, offering a comprehensive view on a country’s competitiveness.

### **Summary and key take-aways**

In sum, we argue that the ability of a company’s global supply management to achieve a superior alignment of ‘activities’ with ‘places’ rests on two important pillars: (i) an in-depth understanding of locational advantages, and how such advantages contribute to a superior performance of its value chain; and (ii) a structured approach to the identification and selection of the most promising locations, permitting a focused search for new opportunities in the optimization of value activities.

To strengthen a company's capabilities in these regards, we identify three recipes for management action:

- ▶ *Employ a step-by-step management process* — to ensure that the company's competitive priorities are effectively aligned with the 'right' source countries in the configuration of its value chain.
- ▶ *Make creative use of multiple sources of information and insight* — in the identification and prioritization of attractive locations, as well as in the search for, and evaluation of individual projects.
- ▶ *Pay particular attention to patterns of cross-border trade* in product categories in which source-country competitiveness depends on conditions that are hard to measure (such as the availability of technical expertise and specialised inputs).

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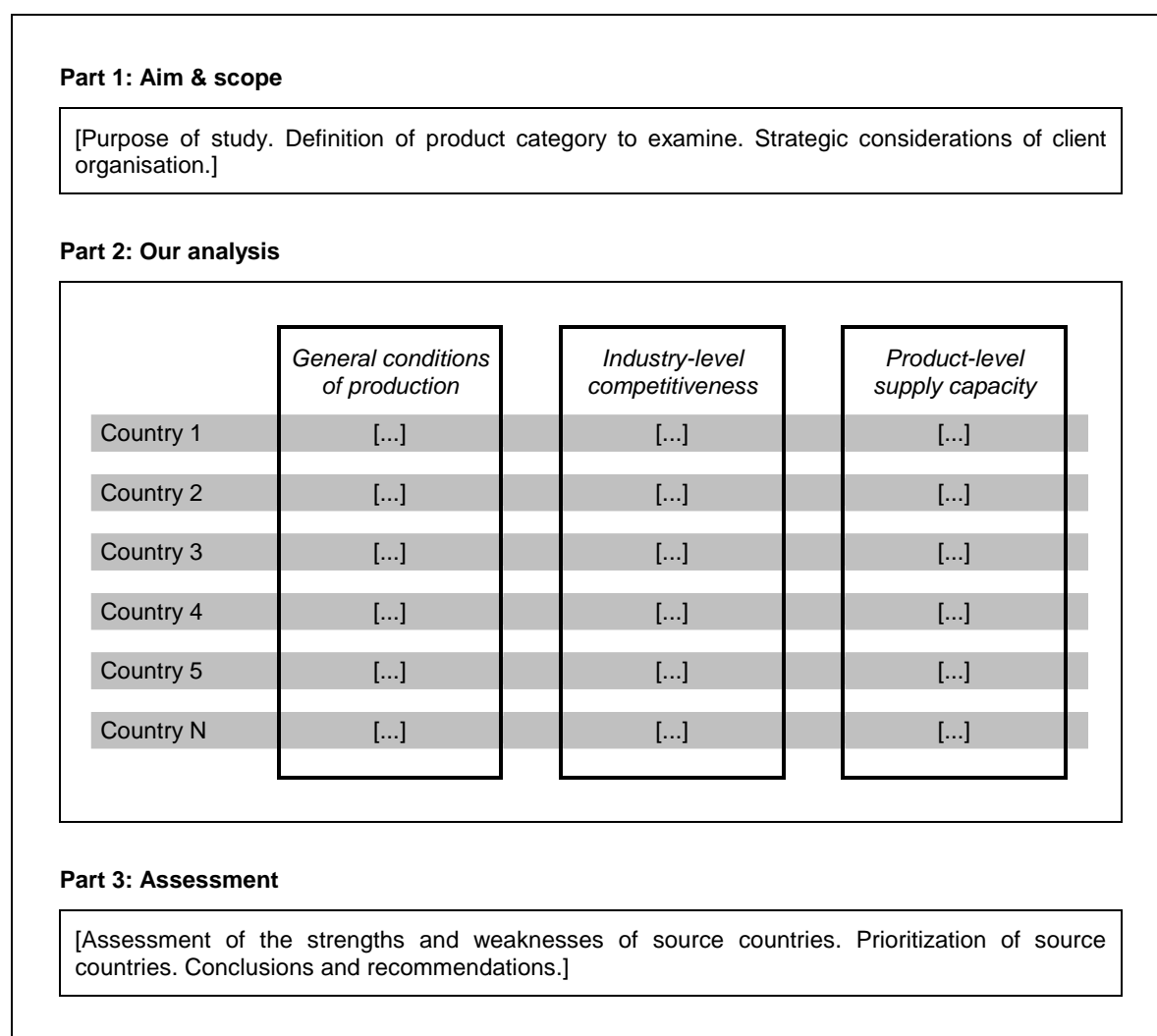
## About Global-production.com, Inc.

Global-production.com, Inc., founded in 2003, is a boutique provider of information and research services for location decisions. The focus of our services is on emerging economies as locations for manufacturing (sourcing) operations.

Core competency: Assessments of the supply capacity and competitiveness of source countries by product category, based on state-of-the-art techniques in the business economics field — see 'Product Studies' and 'Product Briefs'.

Our references include location assessment support to companies such as ABB, Amstead Rail Group, Autoliv and Intier Automotive as well as methodological work for the World Bank Group.

### Product Studies:



### Product Briefs:

For a selected product, a Product Brief (a) identifies the top-7 source countries, and (b) categorizes these as 'hot spots', 'challengers', 'laggards' and 'cold spots', respectively, based on key metrics of supply capacity alone.