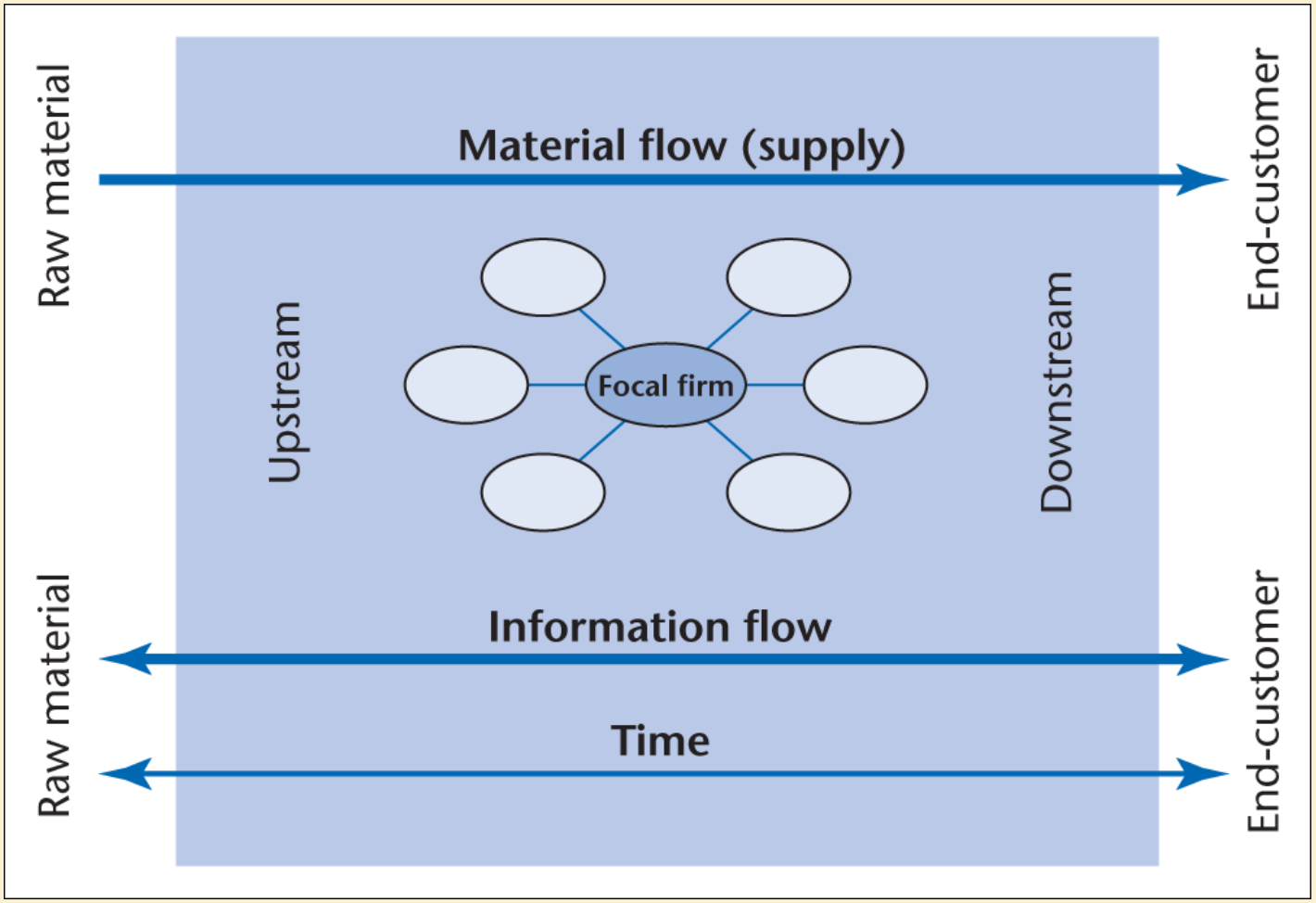
Part Two: Leveraging logistics operations



Chapter 4: Managing logistics internationally

Objectives

The intended objectives of this chapter are to:

- identify challenges that internationalisation presents to logistics management;
- analyse the structure and management of a global logistics network.

By the end of this chapter you should be able to:

- understand the forces which are shaping international logistics;
- understand challenges of international logistics networks;
- understand how to begin to balance these in organising for international logistics – bearing in mind risks and sustainability considerations.

Key issues

This chapter addresses seven key issues:

1. **Drivers and logistics implications of internationalisation:** the trade-off facing internationally operating businesses.
2. **The tendency towards internationalisation:** three strategies for improving the transition to global supply chains.
3. **The challenges of international logistics and location:** barriers to international logistics.
4. **Organising for international logistics:** proposes principles by which international logistics networks can be organised, including offshoring considerations.
5. **Reverse logistics:** developing the 'returns' process.
6. **Managing for risk readiness:** two levels of risk readiness and several specific steps to take.
7. **Corporate social responsibility in the supply chain:** the need to include social responsibility in supply chain design.

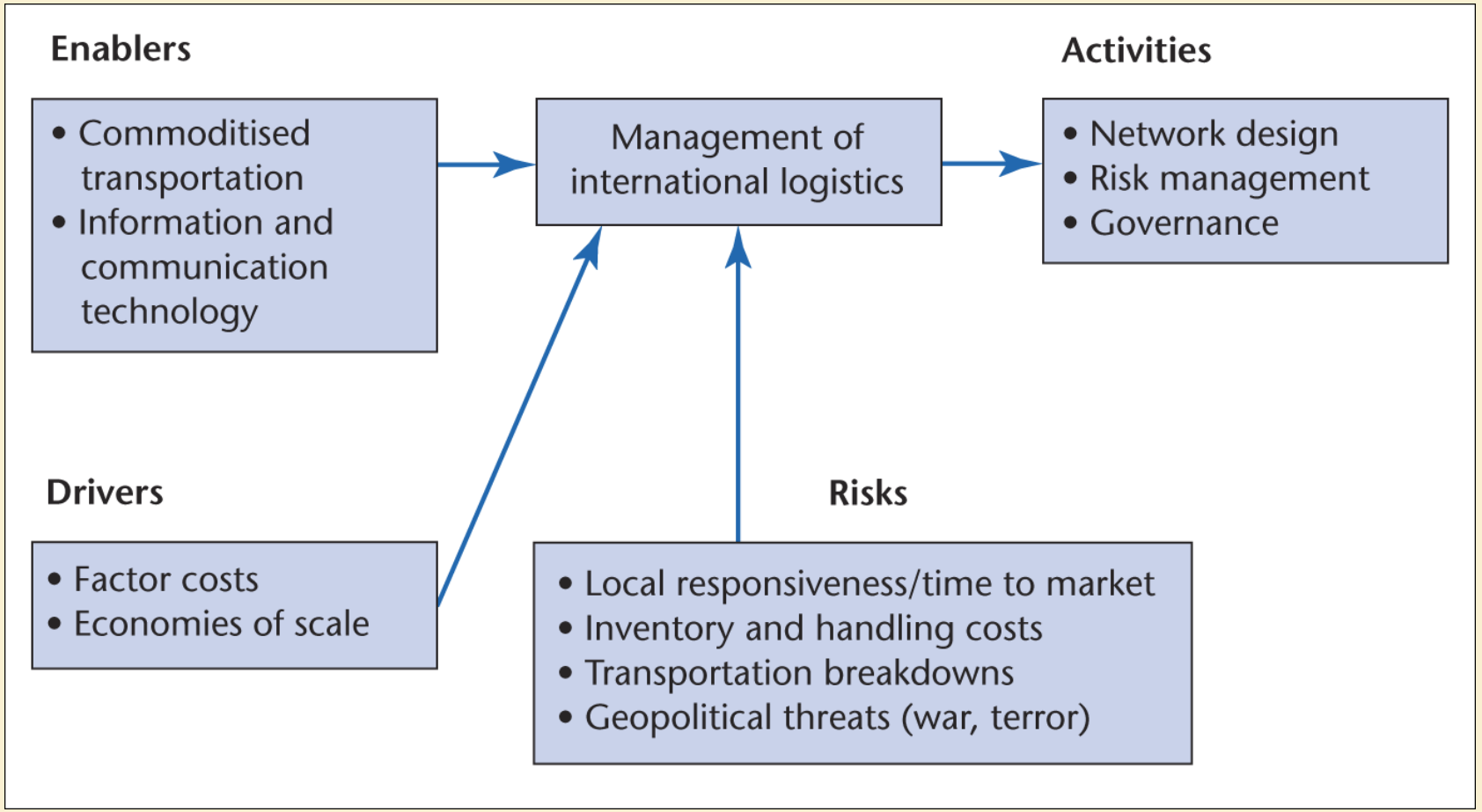


Figure 4.1 Decision framework for international logistics

Internationalization

The designing of a product in such a way that it will meet the needs of users in many countries or can be easily adapted to do so.

Drivers and logistics implications of internationalization

Motivations for International Expansion

- Increase Market Share
  - domestic market may lack the size to support efficient scale manufacturing facilities
- Return on Investment
  - large investment projects may require global markets to justify the capital outlays
  - weak patent protection in some countries implies that firms should expand overseas rapidly in order to prevent imitators

Drivers and logistics implications of internationalization

Motivations for International Expansion

- Economies of Scale or Learning
  - expanding size or scope of markets helps to achieve economies of scale in manufacturing as well as marketing, R & D or distribution
  - can spread costs over a larger sales' base
  - increase profit per unit
- Location Advantages
  - low cost markets may aid in developing competitive advantage
  - may achieve better access to:
    - **Raw materials**
    - **Lower cost labor**
    - **Key customers**
    - **Energy**

Generation	First	Second	Third	Fourth
Period	1950s–1960s	From 1960	From 1980	Emerging now
Primary drivers	Labour shortage	Labour costs and flexibility	Market entrance	Responsiveness to customer orders, risk reduction, and social and environmental responsibility
Shift of labour and investment towards	European countries without labour shortage	Newly industrialised countries, low labour cost countries	Eastern Europe, China, Latin America	Market region for responsiveness and lower risk. To low-cost region for social responsiveness initiatives
Transport routes	Still significantly continental	Increasingly intercontinental	Adding additional destination regions	Beginning to refocus on continental
Nature of international flow of goods	Physical distribution of finished products from new production locations	Shipping parts to production locations and exporting finished products	Physical distribution towards new market regions	Shipping (semi-) finished products to markets, reduction of eco footprint and risk exposure where possible

Table 4.1 The fourth-generation global shift in Europe

Dimension	Setting in a pure multi-domestic strategy	Setting in a pure global strategy	Setting in an integrated network strategy
Competitive moves	Stand-alone by country	Integrated across countries	Moves based on local autonomy and contribution of lead subsidiaries, globally coordinated
Product offering	Fully customised in each country	Fully standardised worldwide	Partly customised, partly standardised
Location of value-adding activities	All activities in each country	Concentration: one activity in each (different) country	Dispersal, specialisation, and interdependence
Market participation	No particular pattern; each country on its own	Uniform worldwide	Local responsiveness and worldwide sharing of experience
Marketing approach	Local	Integrated across countries	Variation in coordination levels per function and activity
Logistical network	Mainly national; sourcing, storage and shipping on a national level and duplicated by country	Limited number of production locations that ship to markets around the globe through a highly internationalised network with limited localised warehouse and resources	Balanced local sourcing and shipping (e.g. for customised products and local specialities) and global sourcing and shipping (e.g. for commodities)

Table 4.2 Dimensions of different internationalism strategies

(*Source*: Based on Yip, 1989, and Bartlett and Ghoshal, 1989)

Drivers and logistics implications of internationalization

- Strategy and operating decisions are decentralized to strategic business units (SBU) in each country
- Products and services are tailored to local markets
- Business units in one country are independent of each other
- Assumes markets differ by country or regions
- Focus on competition in each market
- Prominent strategy among European firms due to broad variety of cultures and markets in Europe

Logistical network: Mainly national; Sourcing, storage and shipping on a national level and duplicated by country

Drivers and logistics implications of internationalization

- Products are standardized across national markets
- Decisions regarding business-level strategies are centralized in the home office
- Strategic business units (SBU) are assumed to be interdependent
- Emphasizes economies of scale
- Often lacks responsiveness to local markets
- Requires resource sharing and coordination across borders (which also makes it difficult to manage)

Logistical network: Limited number of production locations that ship to markets around the globe through a highly internationalized network with limited localized warehouse and resources.

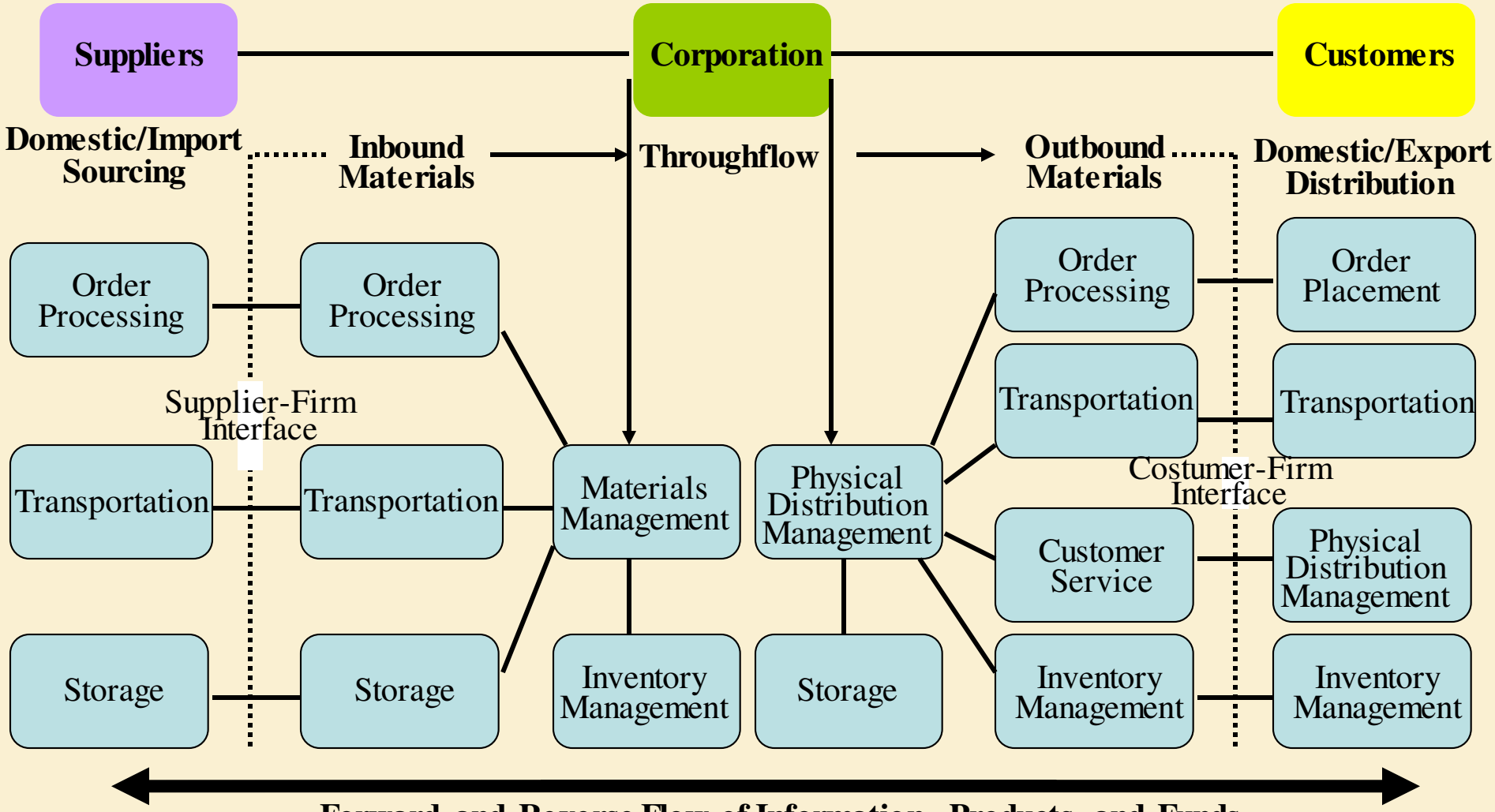
Drivers and logistics implications of internationalization

- Seeks to achieve both global efficiency and local responsiveness
- Difficult to achieve because of simultaneous requirements
  - strong central control and coordination to achieve efficiency
  - decentralization to achieve local market responsiveness
- Must pursue organizational learning to achieve competitive advantage

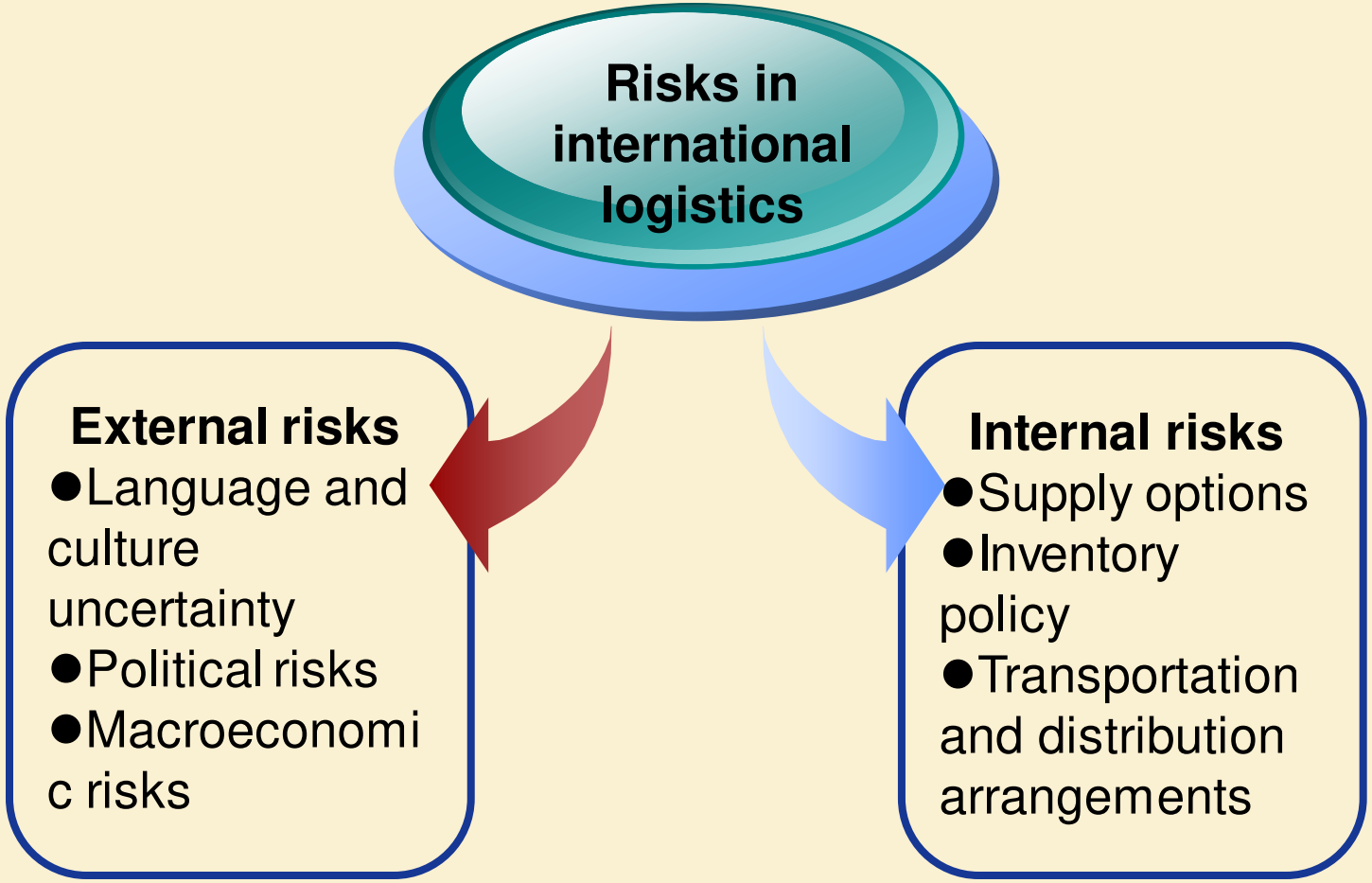
Balanced local sourcing and shipping (e.g. for customized products and local specialties) and global sourcing and shipping (for example for commodities).

Drivers and logistics implications of internationalization

The International Supply Chain



Drivers and logistics implications of internationalization



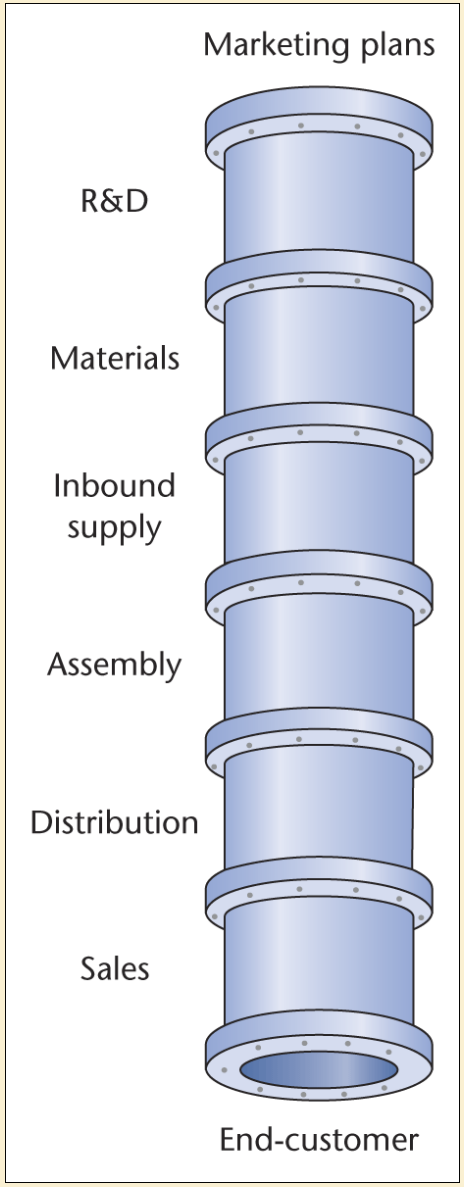


Figure 4.2 The international logistics pipeline

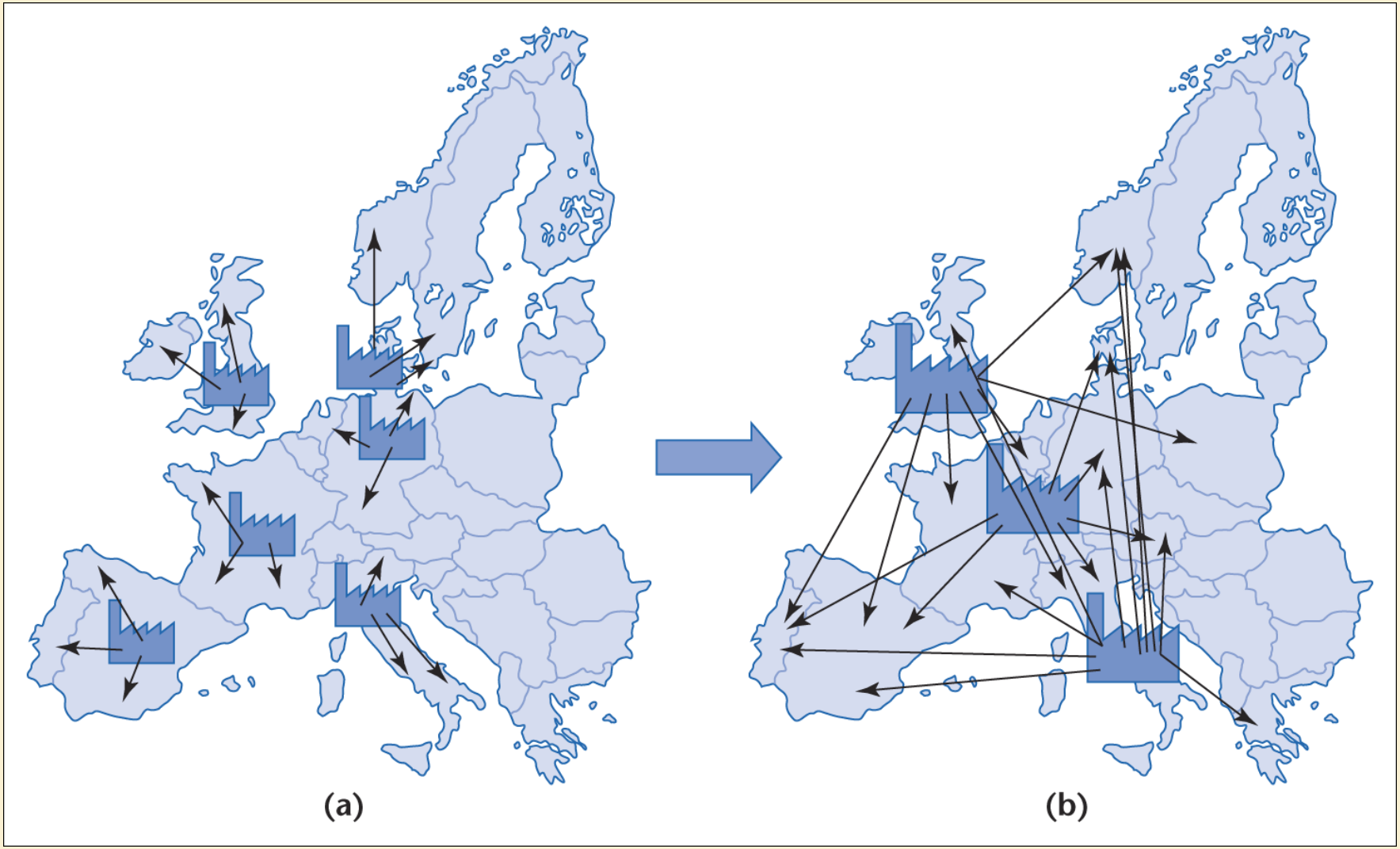


Figure 4.3 (a) Focused markets: full-range manufacture for local markets
(b) Focused factories: limited range manufacturing for all markets

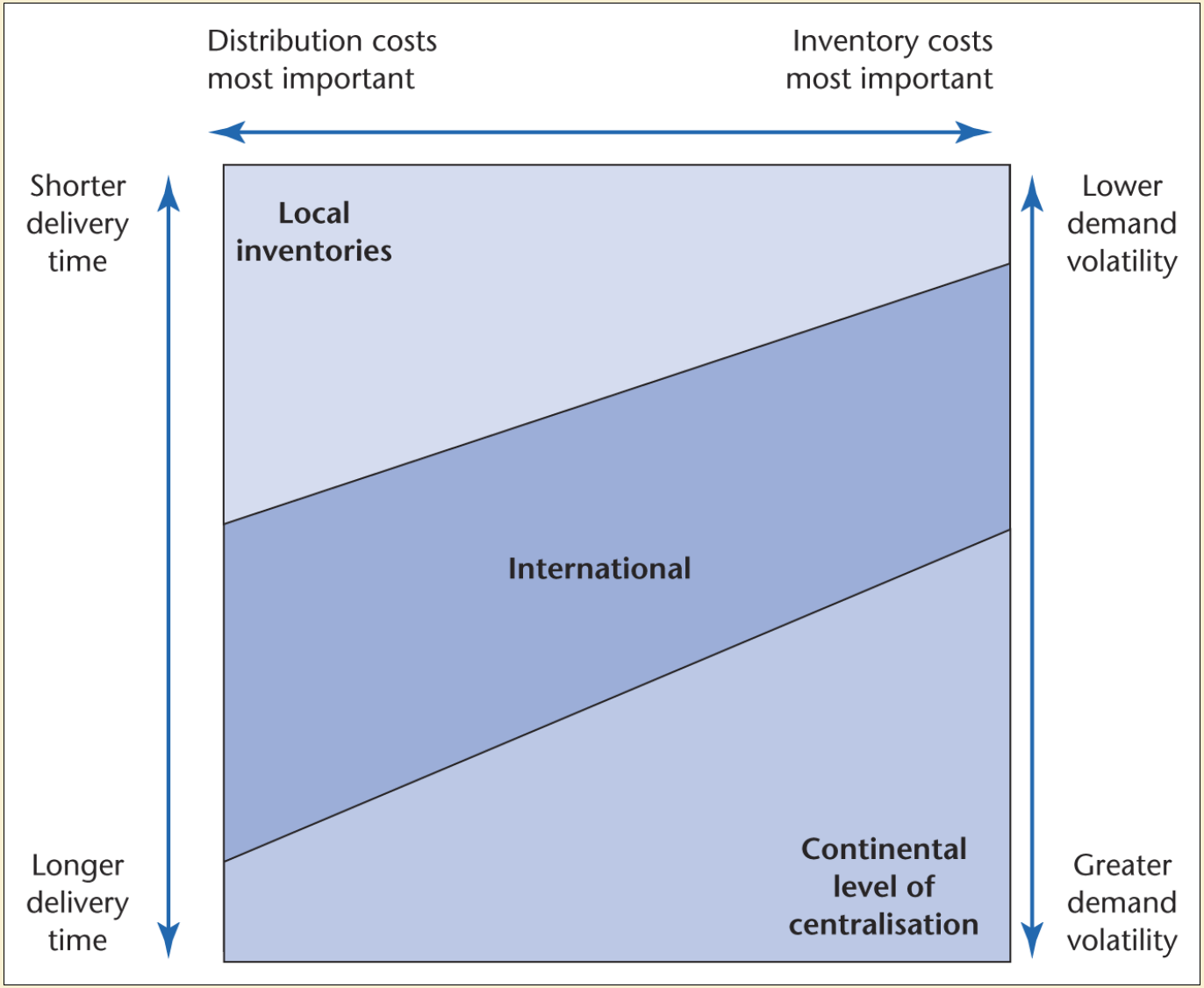


Figure 4.4 Inventory centralisation against logistics costs and service dimensions

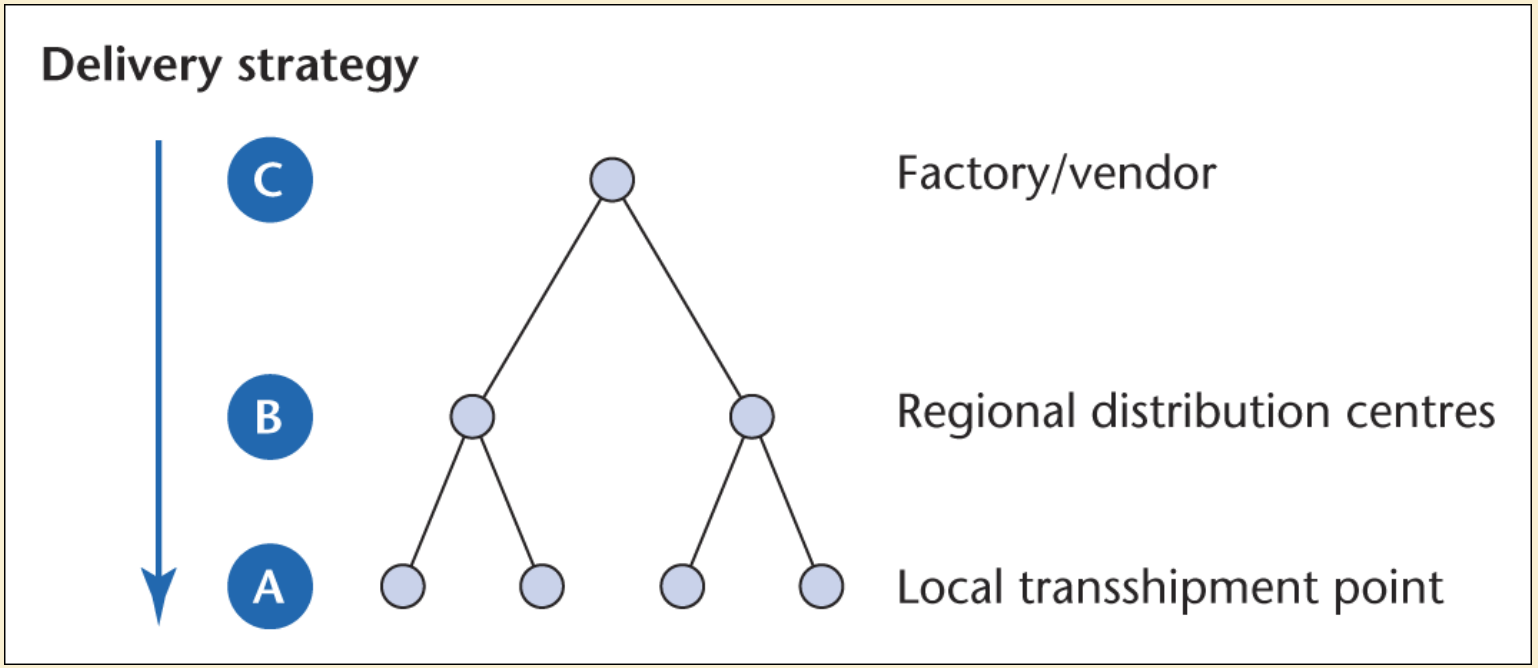


Figure 4.5 Delivery strategies in a global network

Delivery strategy	Description	Pros	Cons
A	Direct shipment of fast-moving, predictable lines. Held locally, probably pre-configured	Short lead time to customer	Multiple inventory points leading to duplication of stocks
B	Inventory of medium velocity, less predictable demand lines held at generic level awaiting final configuration	Lower overall levels of inventory, consolidated shipments to distribution centres and concentrated handling	Longer lead time to customers
C	Slowest-moving lines, least predictable. Perhaps one shared global inventory or make to order	Low overall inventory levels	Long lead time to customers

Table 4.4 Three different delivery strategies

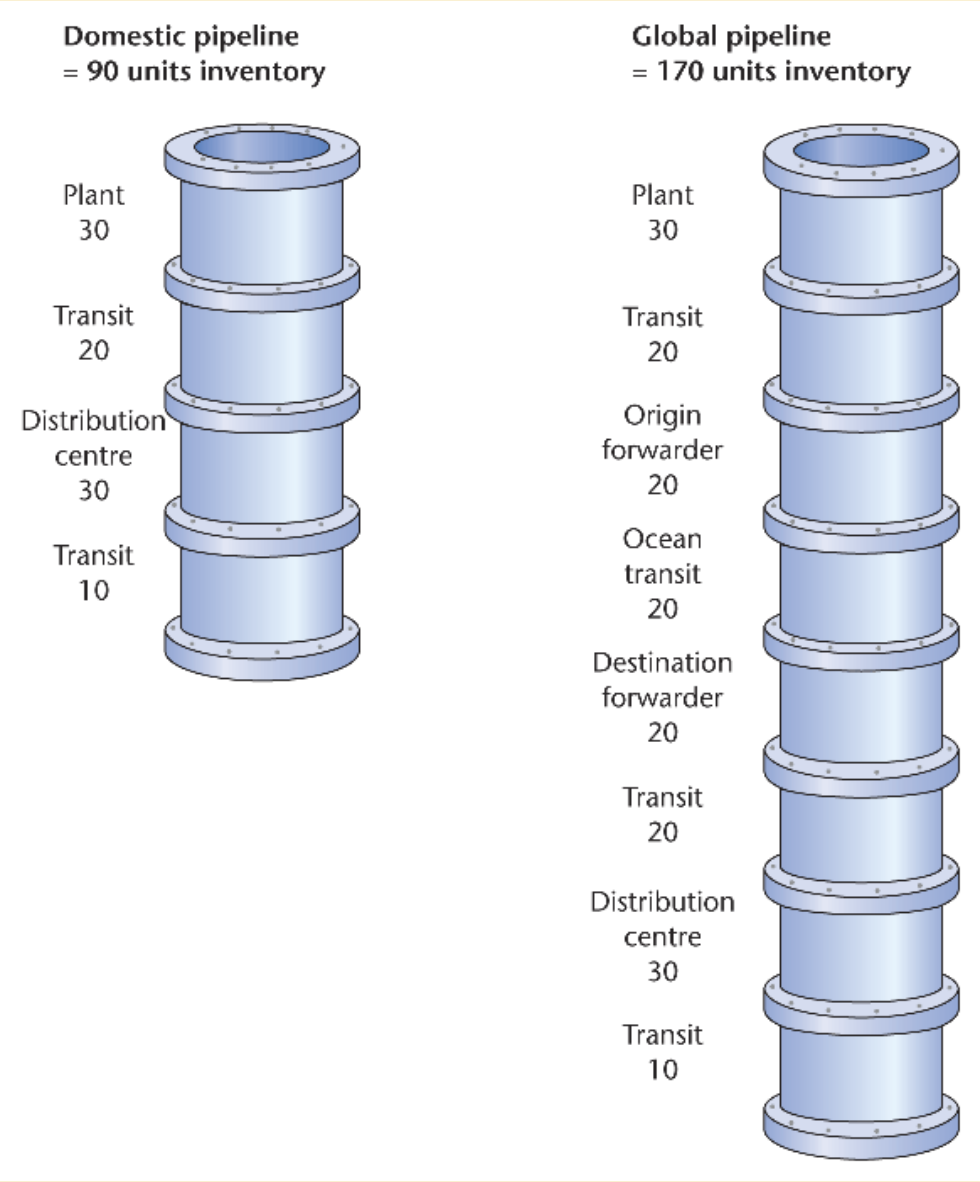


Figure 4.6 Comparison of domestic and international logistics pipelines
(*Source*: After van Hoek, 1998)

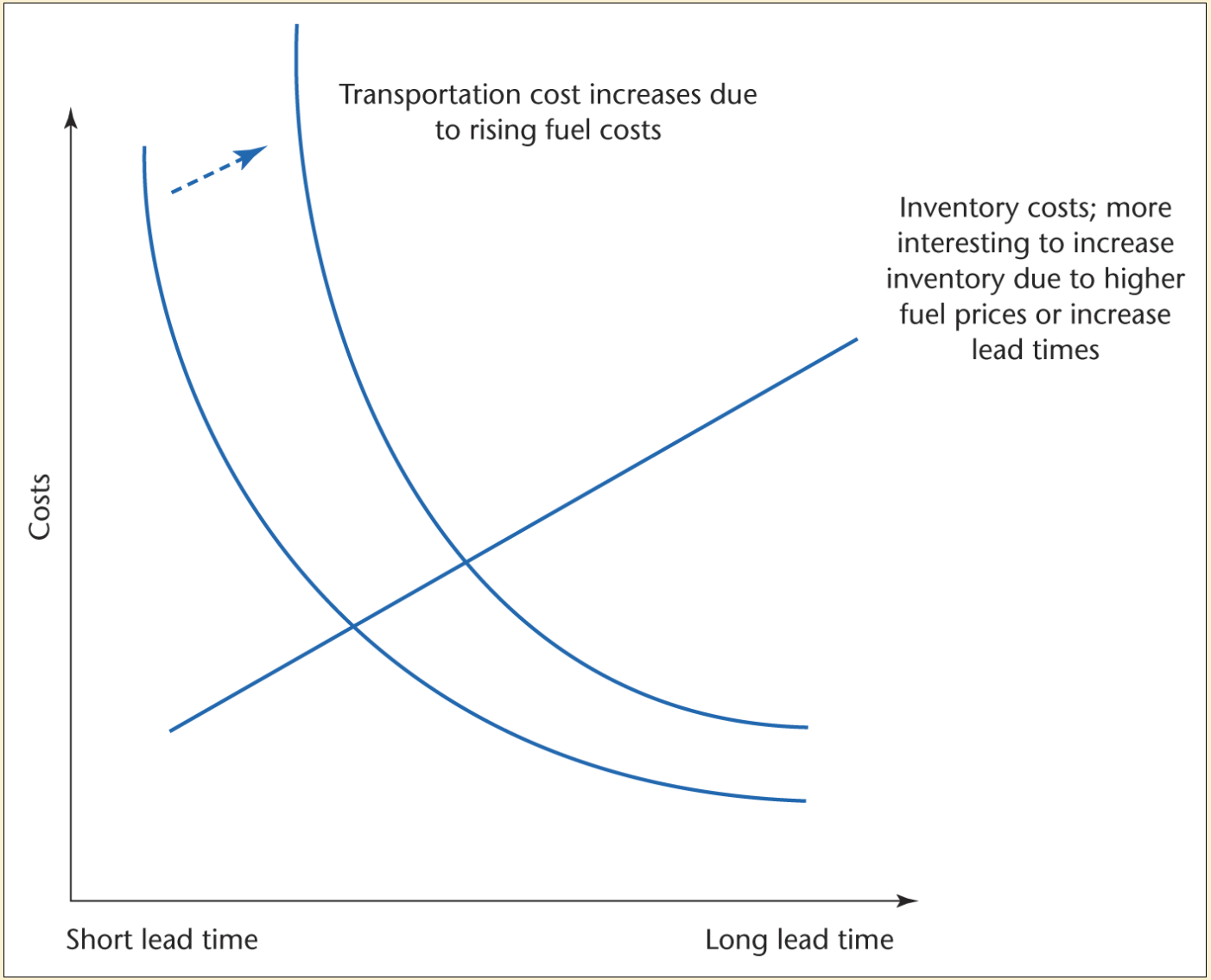


Figure 4.7 The trade-off between cost and lead time for international shipping

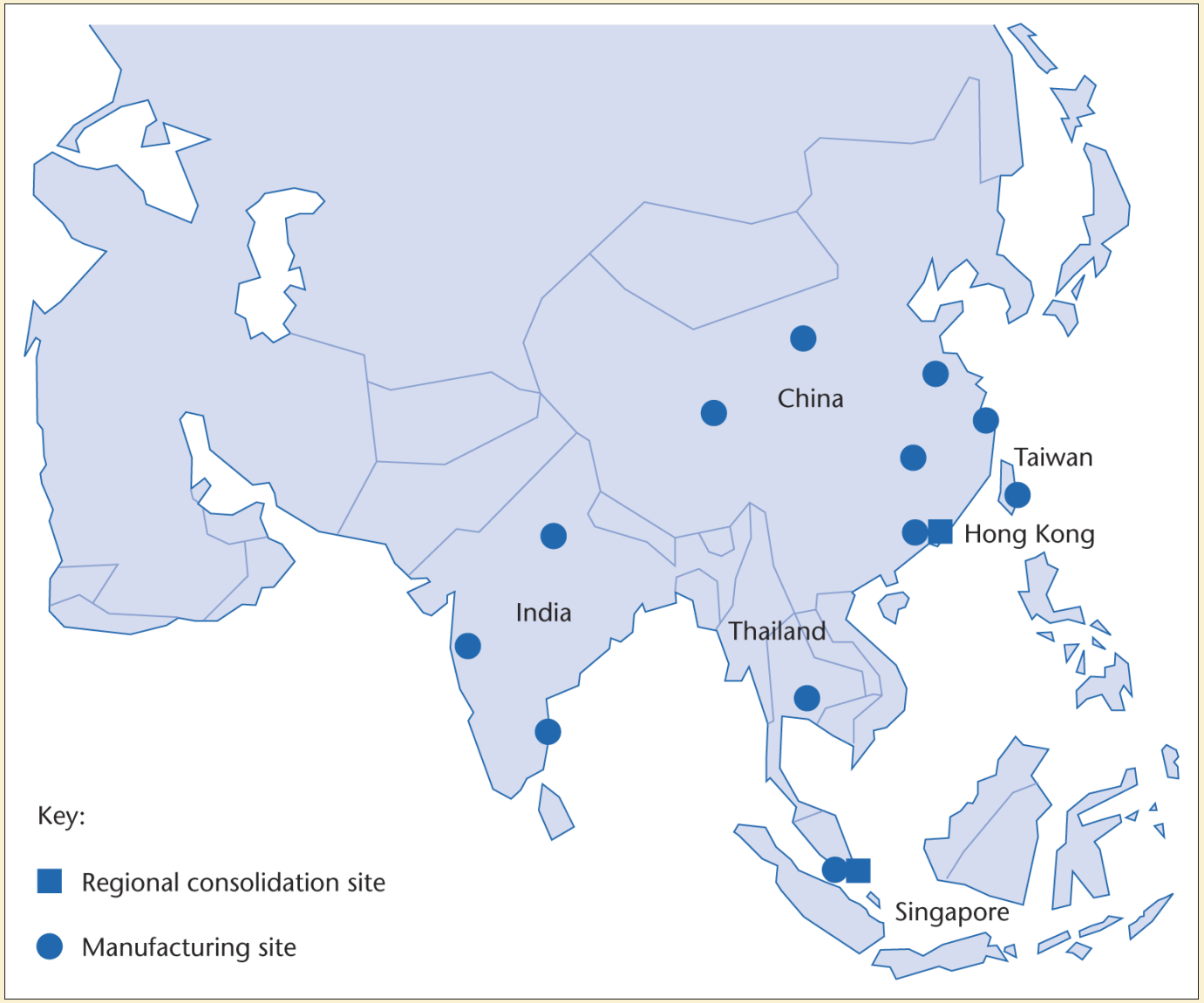


Figure 4.8 Location of Asian facilities

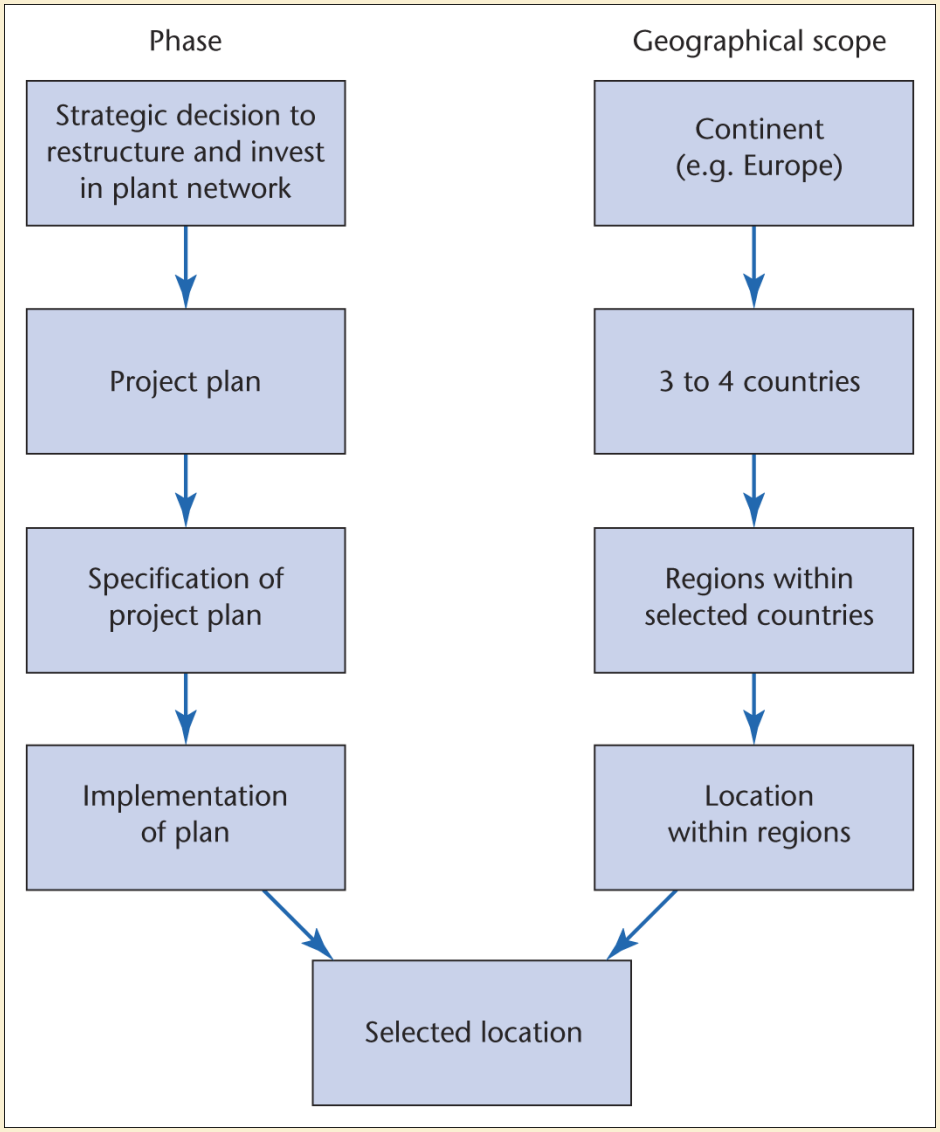


Figure 4.9 Phases in the location selection process

Location criteria	Weight	Score region A	Score region B
Railways	1	4	1
Water connections	1	4	1
Road connections	2	2	4
Site availability	2	2	3
Central location	3	1	2
A . . .	. . .		
Total		19	22

Table 4.5 Trade-offs between two locations

Key: Score on a five-point scale ranging from poor to excellent

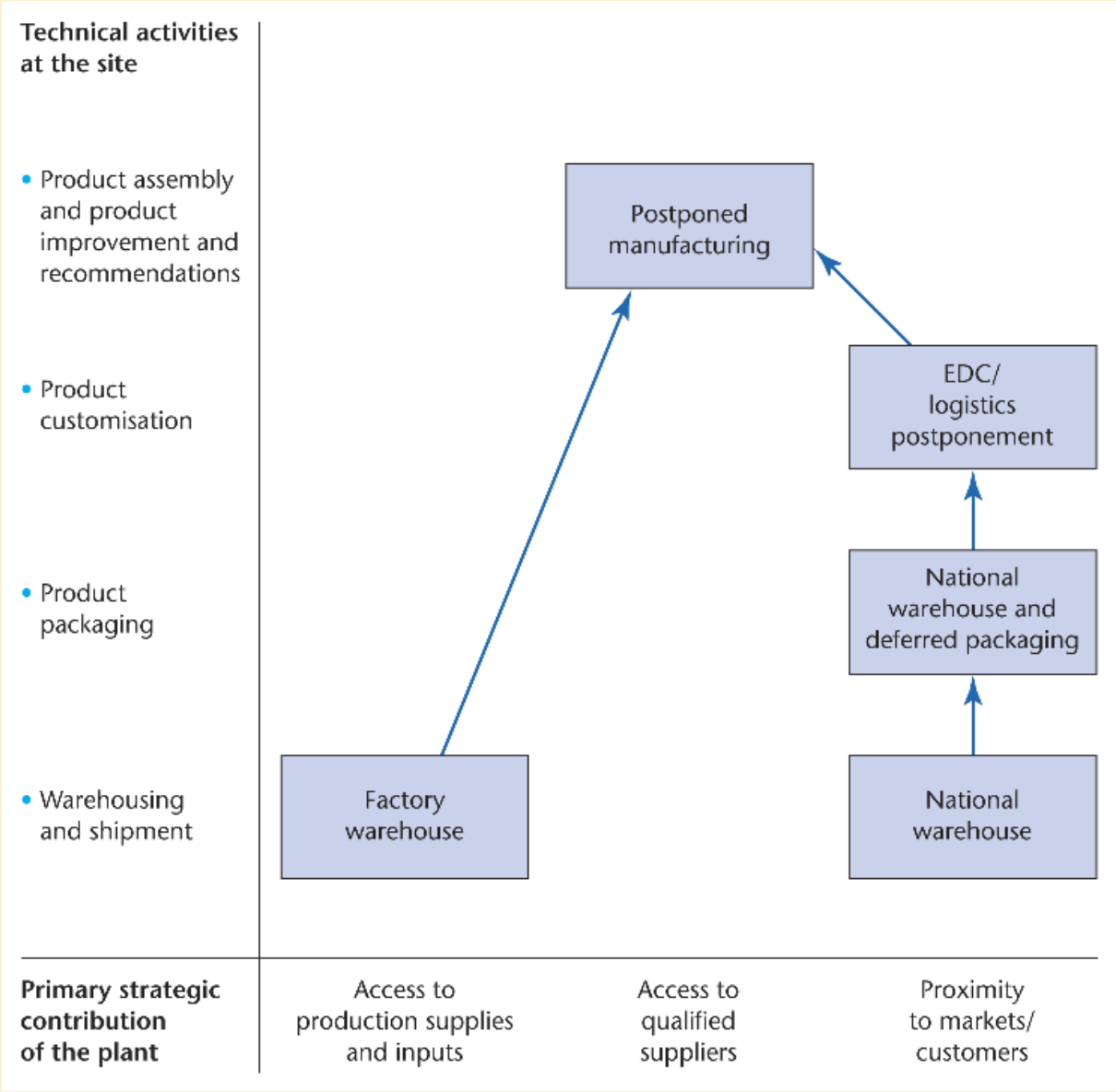


Figure 4.10 Changing role of distribution centres

Starting point	Global structure	Localised structure
Heritage in market	Little, greenfield approach	Extensive, brownfield approach
Supply chain scope	Narrow, involving inventory and final manufacturing	Broad, involving inventory, manufacturing, and sourcing
Focus	Decentralising final manufacturing and inventory into market	Centralising inventory and final manufacturing at continental level and globalising manufacturing and sourcing
Tendency	Single, placing activities into market	Multiple, relocating within market and moving outside market
Timetable	Short (1–10 months)	Long (number of years)
Authority	Global, top-down directions	Local, bottom-up iterative process

Table 4.6 Differences in reconfiguration processes for companies depending upon starting point (global or local)

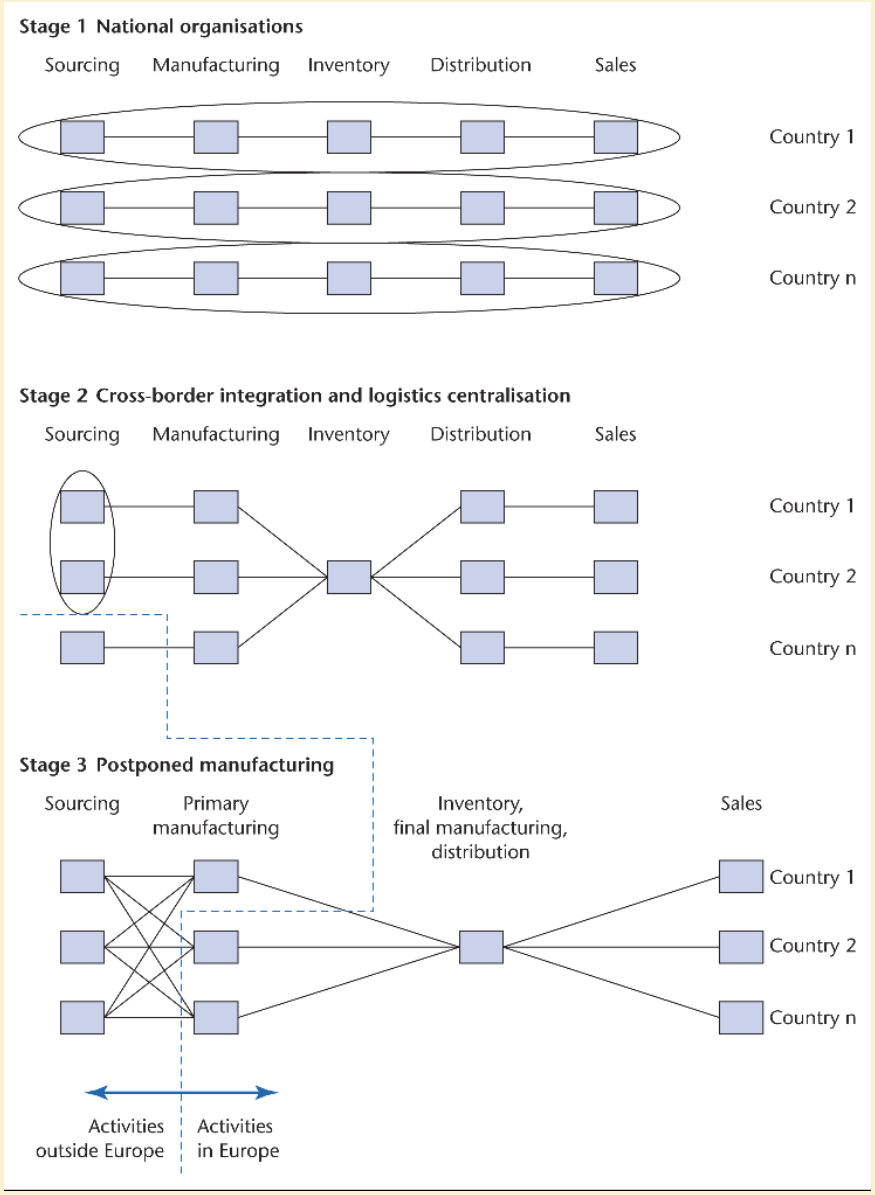


Figure 4.11 Stages in the implementation of postponed manufacturing: local starting point

(*Source*: van Hoek, 1998)

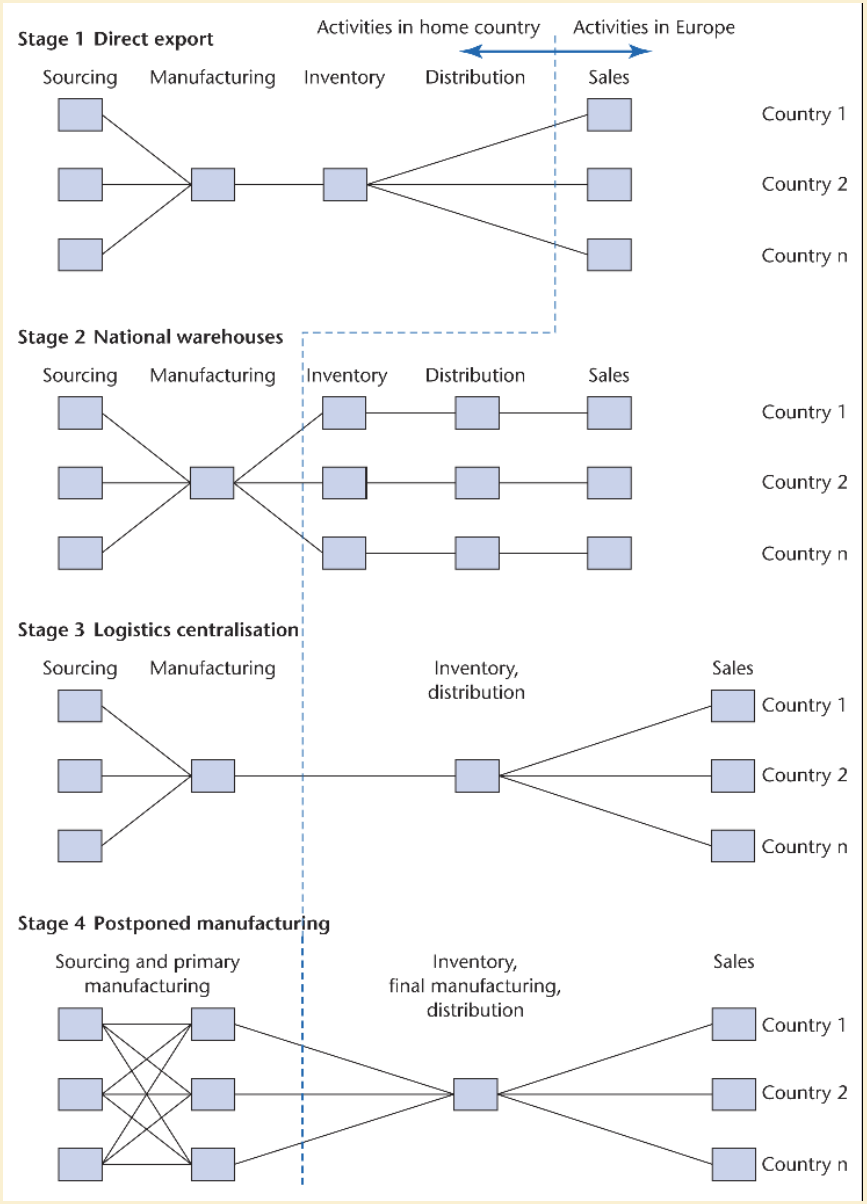


Figure 4.12 Stages in the implementation of postponed manufacturing: global starting point

(*Source*: van Hoek, 1998)

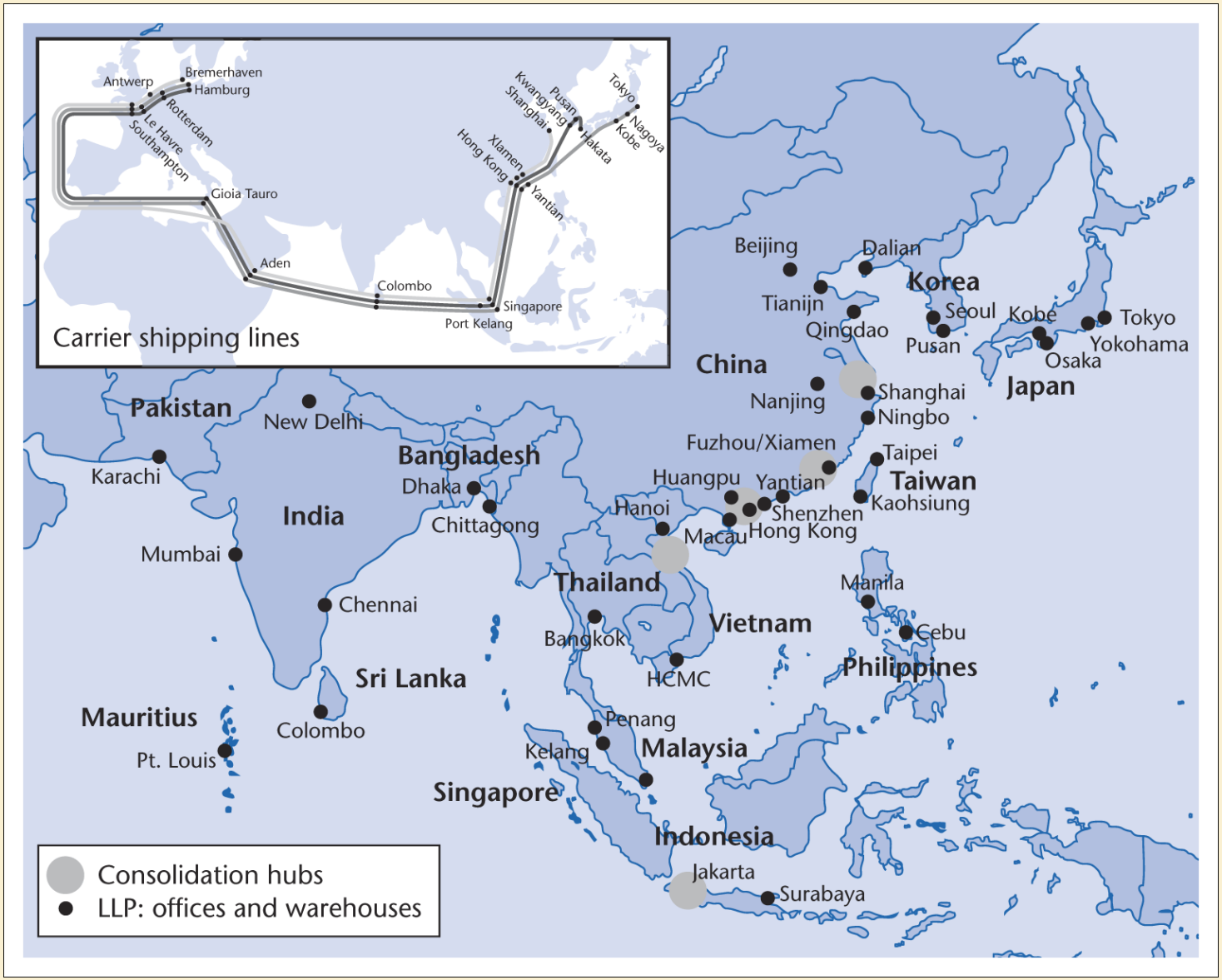


Figure 4.13 Example of physical infrastructure set-up with LLP origin in Asia
(*Source*: Leeman, 2007)

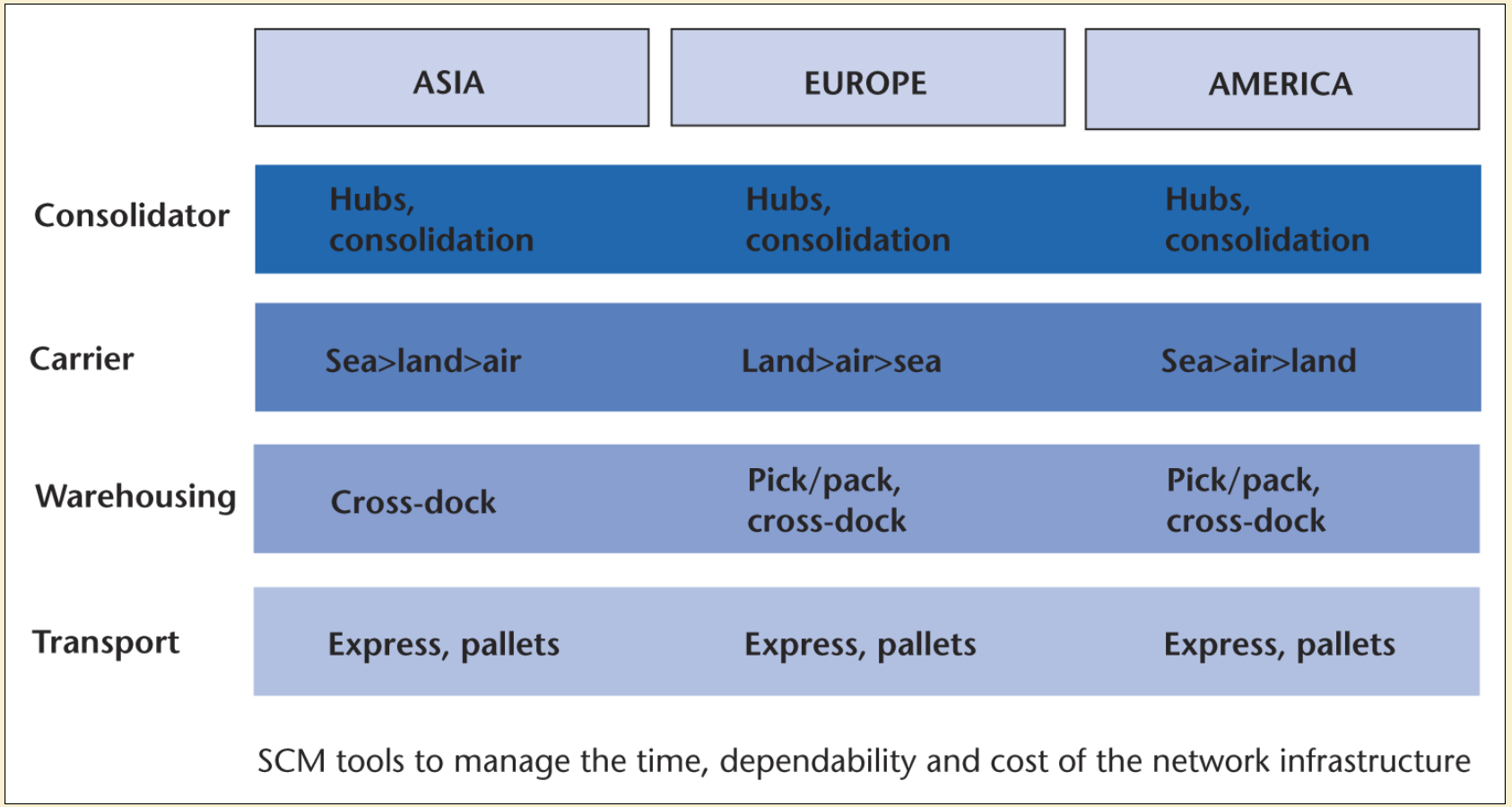


Figure 4.14 SCM tools and trade-offs in the supply chain

Forward logistics	Reverse logistics
Forecasting relatively straightforward	Forecasting more difficult
One to many distribution points	Many to one distribution points
Product quality uniform	Product quality not uniform
Product packaging uniform	Product packaging often damaged
Destination/routing clear	Destination/routing unclear
Pricing relatively uniform	Pricing dependent on many factors
Importance of speed recognised	Speed often not considered a priority
Forward distribution costs easily visible	Reverse costs less directly visible
Inventory management consistent	Inventory management not consistent
Product lifecycle manageable	Product lifecycle issues more complex
Negotiation between parties straightforward	Negotiations complicated by several factors
Marketing methods well known	Marketing complicated by several factors
Visibility of process more transparent	Visibility of process less transparent

Table 4.7 Comparing forward and reverse logistics

(*Source*: Reverse Logistics Executive Council, http://www.rlec.org)

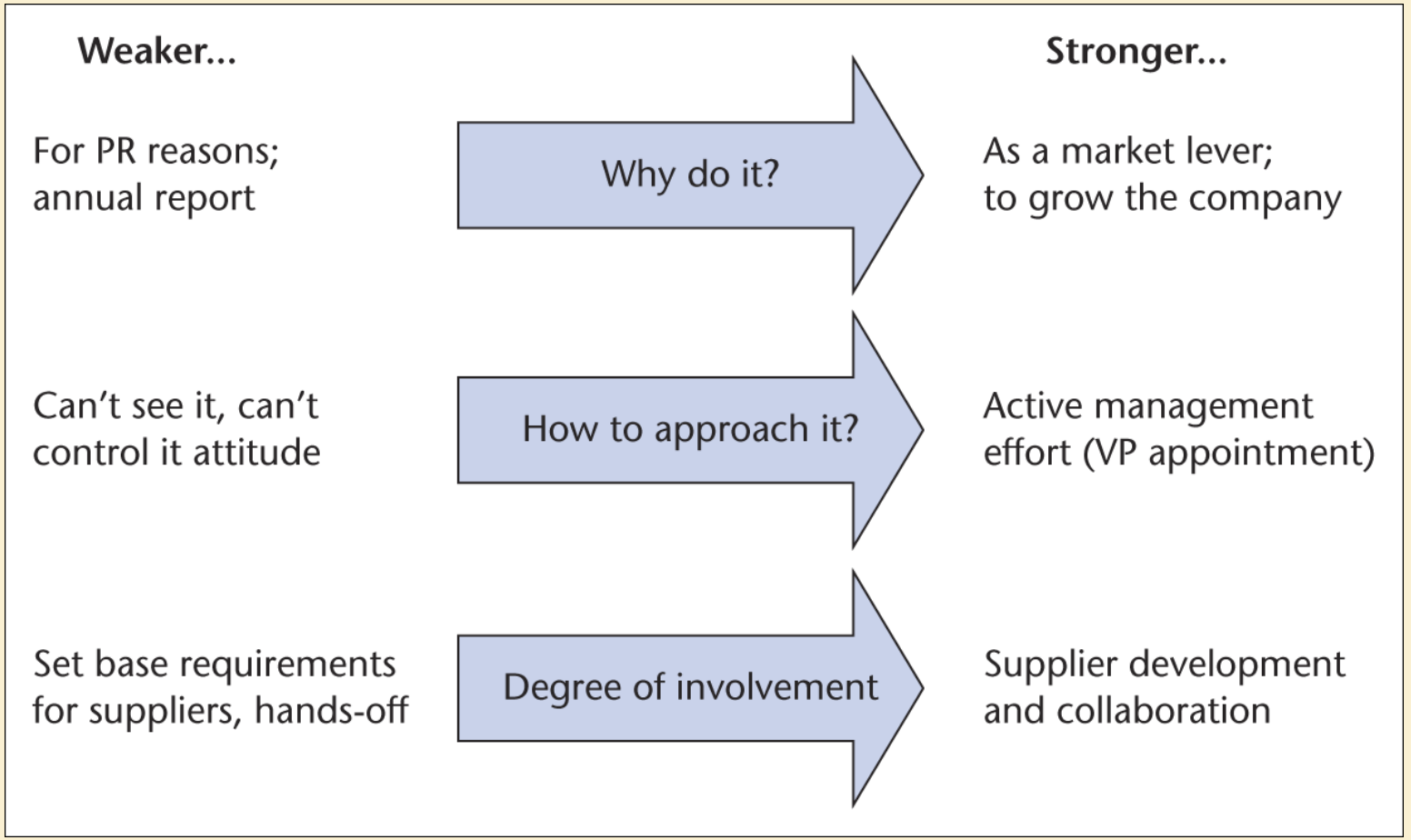


Figure 4.15 CSR practices in the supply chain

Risk management priority	Action item
CSR general requirement	Promote positive CSR activities Contribute to the society and community
Product quality and safety	Ensure product safety Establish and apply a quality management system
The environment	Control hazardous chemicals in products Control hazardous chemicals in manufacturing Establish and apply an environmental management system Minimise environmental pollution (water, soil, air) Obtain environmental permits Promote resource and energy saving by reusing, reducing and recycling Promote greenhouse gas reduction Promote waste reduction Disclose environmental preservation activities
Information security	Secure computer networks against threats Prevent the leakage of personal information Prevent the leakage of confidential information of the customer and third party

Table 4.8 NEC CSR supplier requests

(Source: NEC Group CSR Guideline for Suppliers, http://www.nec.co.jp/purchase/pdf/sc_csr_guideline_e.pdf)

Risk management priority	Action item
Fair trading	Prohibit corruption and bribery Prohibit abuse of a superior position Prohibit the offering and receiving of inappropriate profit and advantage Prohibit impediment to free competition Provide correct information on products and services Respect intellectual property Use appropriate company information Detect injustice promptly
Occupational health and safety	Apply safety measures for equipment and instruments Promote safe activities in the workplace Promote hygiene in the workplace Apply appropriate measures for occupational injuries and illnesses Properly manage disasters and accidents Be careful about physically demanding work Promote safety and hygiene in all company facilities Promote health maintenance programmes for employees
Human rights	Prohibit forced labour Prohibit inhumane treatment and infringements of human rights Prohibit child labour Prohibit discrimination Pay appropriate wages Control working hours Respect the right to freedom of association

Table 4.8 NEC CSR supplier requests (Continued)

(Source: NEC Group CSR Guideline for Suppliers, http://www.nec.co.jp/purchase/pdf/sc_csr_guideline_e.pdf)