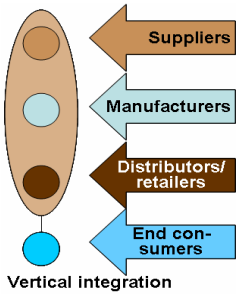
Supply Chains

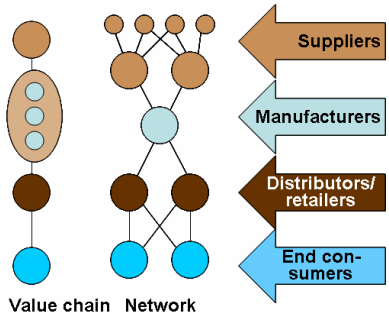
Learning objectives

- *To identify the key elements of international supply chains and the interrelationships, appreciating variations among sectors and environments*
- *To be able to evaluate supply chain strategies in action, from make-or-buy decisions to manufacturing and distribution options*
- *To appreciate the transformation in manufacturing brought about by the principles of lean production and continuous improvement*
- *To understand the increasingly important role of quality in all elements of the supply chain, including the impact of differing national environments*
- *To assess the development of transport and logistics in the context of consumer markets, as well as community and environmental impacts.*

Supply chain management (SCM)



In the traditional 'pipeline' approach, focal company (the original equipment manufacturer: OEM) produced the goods using raw materials from the suppliers that then went 'down-stream' to the distribution centers/retailers and eventually to end-consumer. This got modified to the 'value-chain' and then to the 'network' approaches shown below. Here,



- internalization is owning or controlling all elements of supply chain, instead of transactions with different organizations.
- value chain is the breaking down in to different stages that can be internal or with the other firms/businesses;
- network involves numerous suppliers and customers.
- information sharing leads to cooperative relationships that help firms respond quickly to demand.

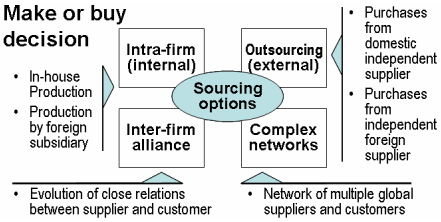
Supply chain strategies

Today's supply chain strategies are guided by the needs of the end consumer, type of product and its phase in its life cycle. Therefore, the supply chains need to be ...

- **efficient**, to shift high volumes of commodity-like products quickly and at lowest cost, e.g.. groceries.
- **agile**, to respond quickly to changing demand; short production life cycles (e.g., fashion clothing); and
- **lean**, as in the car manufacturing that integrates design, sourcing and manufacturing; so as to be agile as well as efficient.

This has made the 'make' or 'buy' decisions crucial, i.e., the firm must ask itself ...

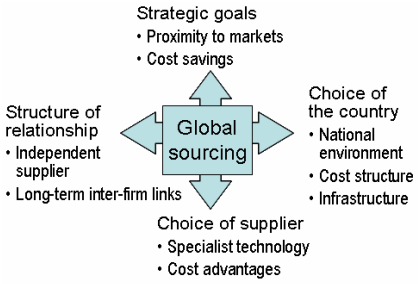
- what is best done by ourselves?
- if we buy from an outsider, what are we looking for in the supplier, and for how long? and
- how would the outside provider fit in with other our other links to suppliers and customers?



Sourcing options depend, of course, on the firm's overall strategy. It may seek internalization to keep the control, outsource to an external provider, with or without retaining total control, or seek the alliance approach.

Global sourcing strategies:

- Global sourcing is based mainly on cost savings.
- Factors to take into account:
  - More challenging for complex products
  - Impact on core competencies
  - Longer and more costly transport
  - Regulatory frameworks, such as import restrictions
  - Exchange rate fluctuations
- As firms interact with low-cost suppliers, adaptations of the products may be made; so long as quality levels are the same as in-house products.



Global manufacturing strategy:

- Early mass manufacturing – exemplified by Ford and now known as Fordism, used assembly lines to make standardized products. Based on production-push, it was an inflexible system – switching to new product lines or even modifying existing ones was slow.
- **Flexible mass production** (mass customization)
  - was based on demand-pull
  - ideas of Deming, but implemented by the Japanese
  - sought to produce a range of products and change to new ones with a minimum of disruption.

	Fordist mass production	Flexible mass production
Processes	Complex, rigid systems	Flexible systems, cells, modules
Inventory implications	Just in case — large stocks, infrequent deliveries	Just in time — minimal stocks, supplier close to the customer
Product diversity	Low — standardized products, difficult to change	High — wide range of products, changes incorporated easily
HR implications	Semi-skilled workers, monotonous work, little involvement	Multi-skilled workers, empowerment, team-working, highly involved

Quality management

- **Quality** – The degree to which a product or service meets the needs and expectations of customers.
- **Continuous improvement** (kaizen) – Principle of striving constantly to resolve problems and improve processes.
- **Total quality management (TQM)** – An approach to quality based on continuous improvement, which involves all staff and extends to supply chain, is linked to the overall business strategy and employee training.