Supply chain strategies and configurations for globalisation

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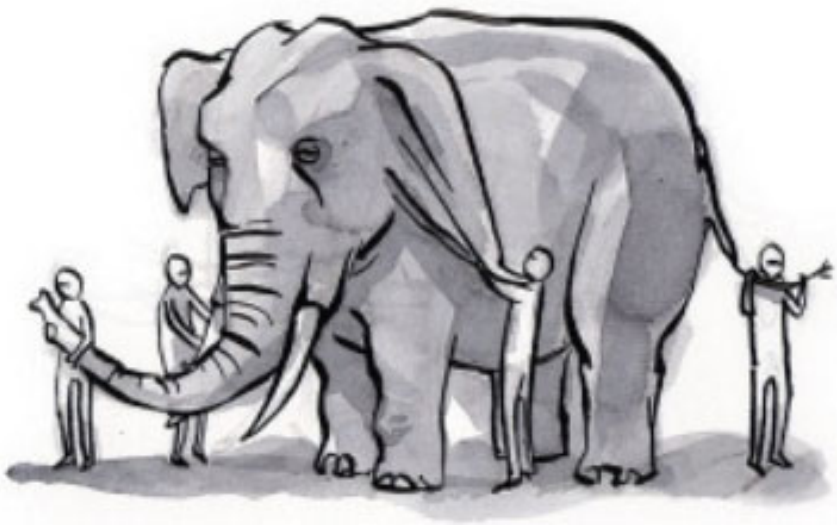
Today's Topics

Supply chain strategies and configurations for globalisation

- SCM and the strategy hierarchy
- Supply chain design considerations
- Supply chain strategic levers & decision-making components



The Basics & Warm Up

Strategy & Configuration

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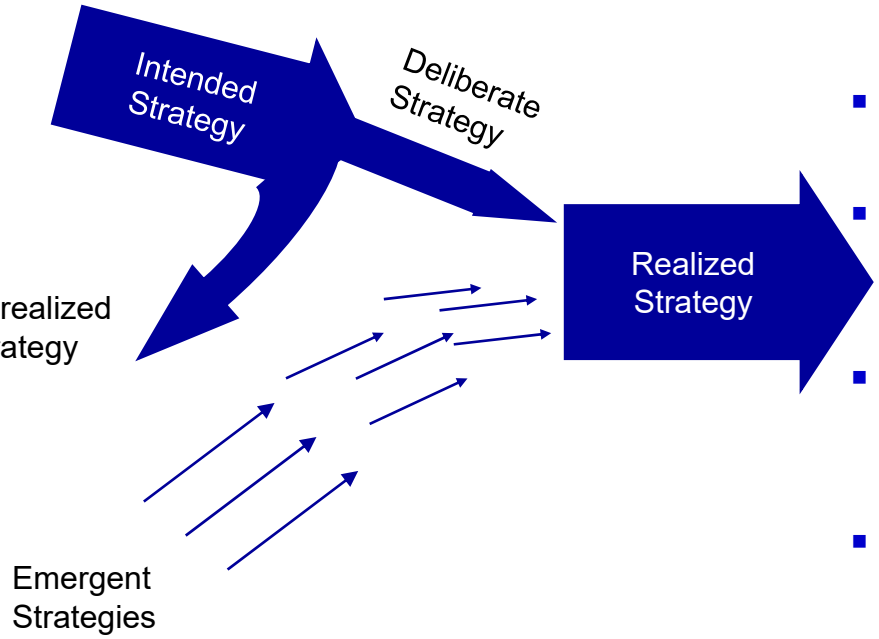
Quick Excurse: What is it – A Strategy



- Strategy as
  - Plan: sort of consciously intended course of action, a guideline (or set of guidelines) to deal with a situation..
  - Ploy: just a specific maneuver intended to outwit an opponent or competitor
  - Pattern: intended vs. realised: encompasses the resulting behavior: specifically, a pattern in a stream of actions.
  - Position: locating an organisation in an "environment – e.g. chosen Product-market combination.
  - Perspective: an ingrained way of perceiving the world - entering the realm of the collective mind - individuals united by common thinking and / or behaviour.

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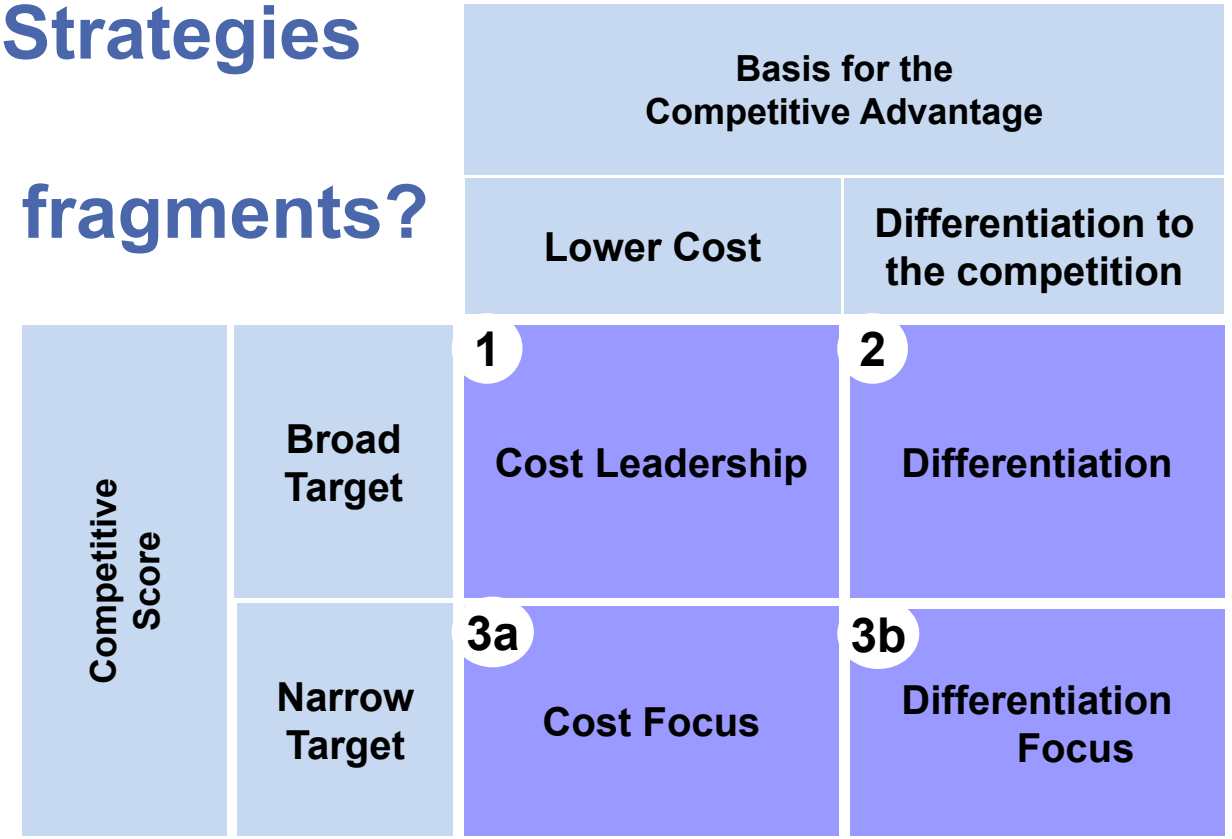
Generic Strategies or Strategy fragments?



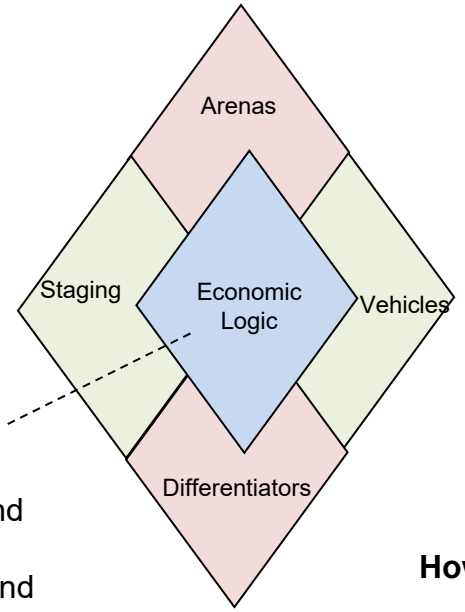
E.g. Hambricks View on Strategy

Where will we be active?
(and with how much emphasis?)

- Which product categories?
- Which market segments?
- Which geographic areas?
- Which core technologies?
- Which value-creation stages?

What will be our speed and sequence of moves?

- Speed of expansion?
- Sequence of initiatives?



How will we get there?

- Internal development?
- Joint ventures?
- Licensing/franchising?
- Acquisitions?

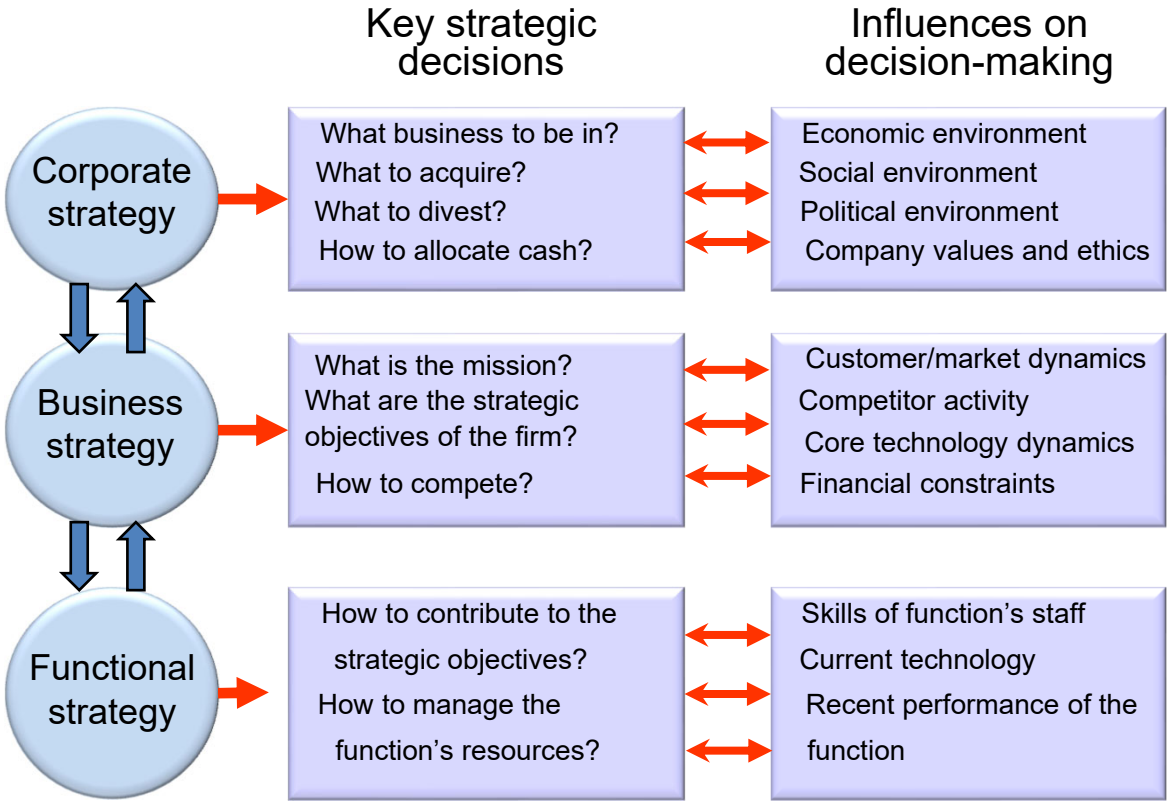
How will we obtain our returns?

- Lowest costs through scale and advantages?
- Lowest costs through scale and replication advantages?
- Premium prices due to unmatchable service?
- Premium prices due to proprietary product features?

How will we win?

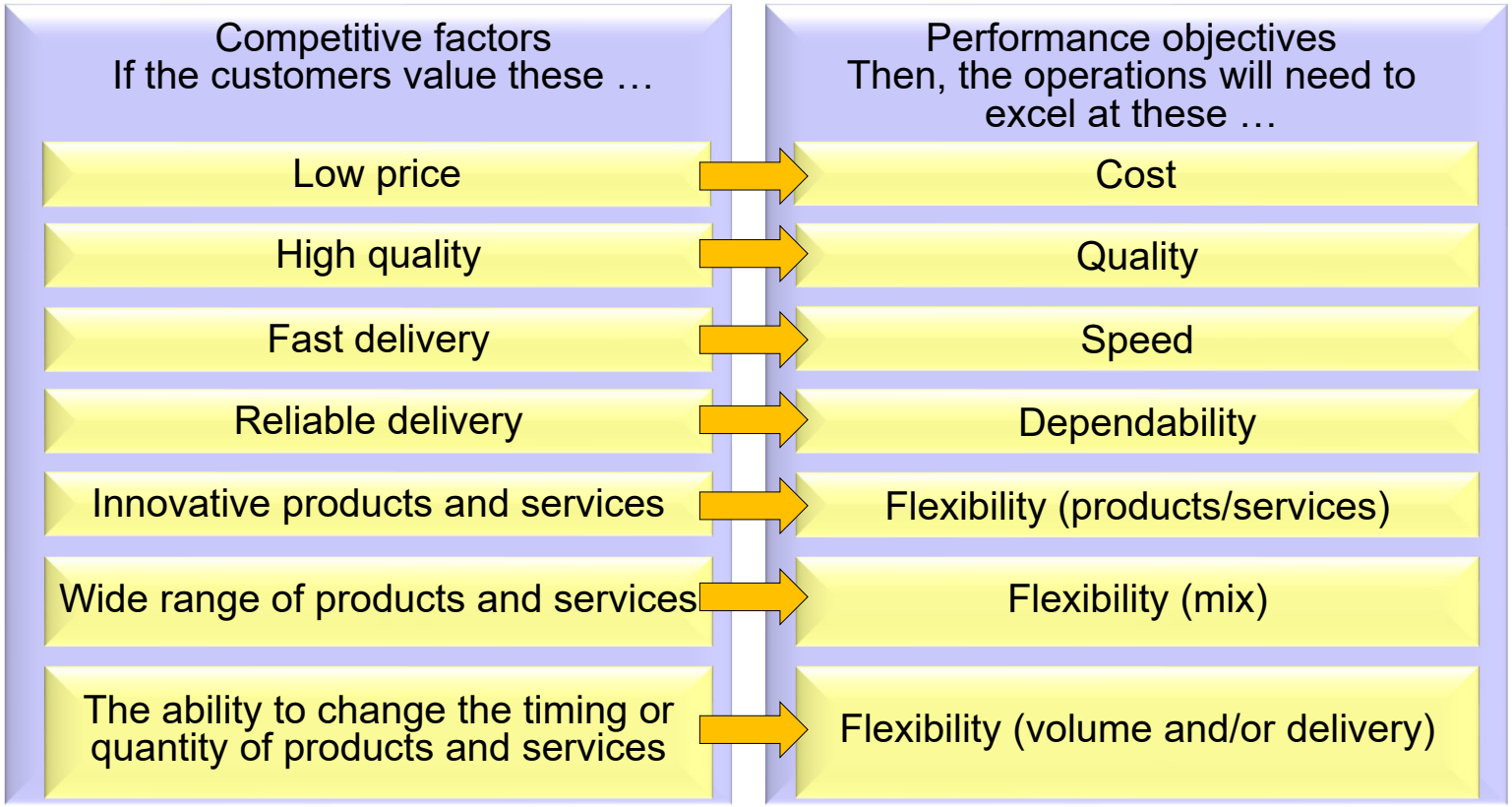
- Image?
- Customization?
- Price?
- Styling?
- Product reliability?

Scope – The strategic hierarchy??

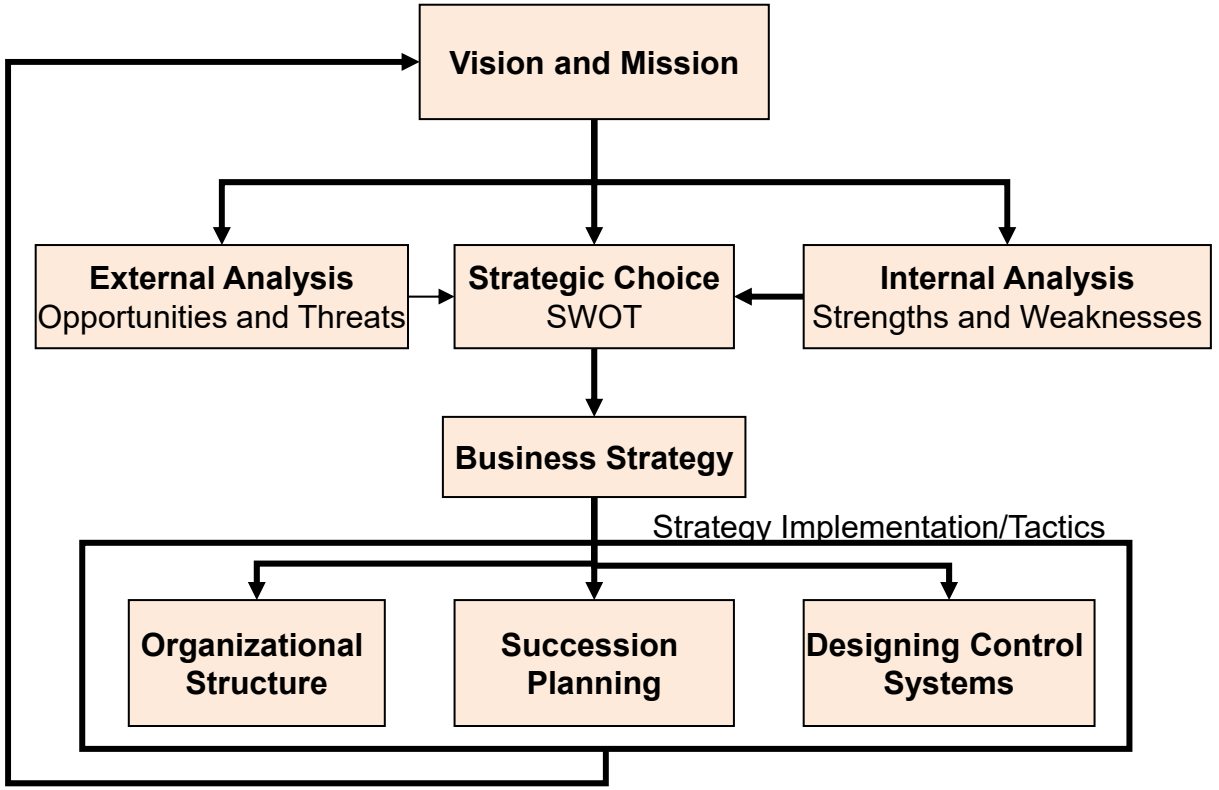


Slack et al. 2007

What propostion and how to “operationalize“



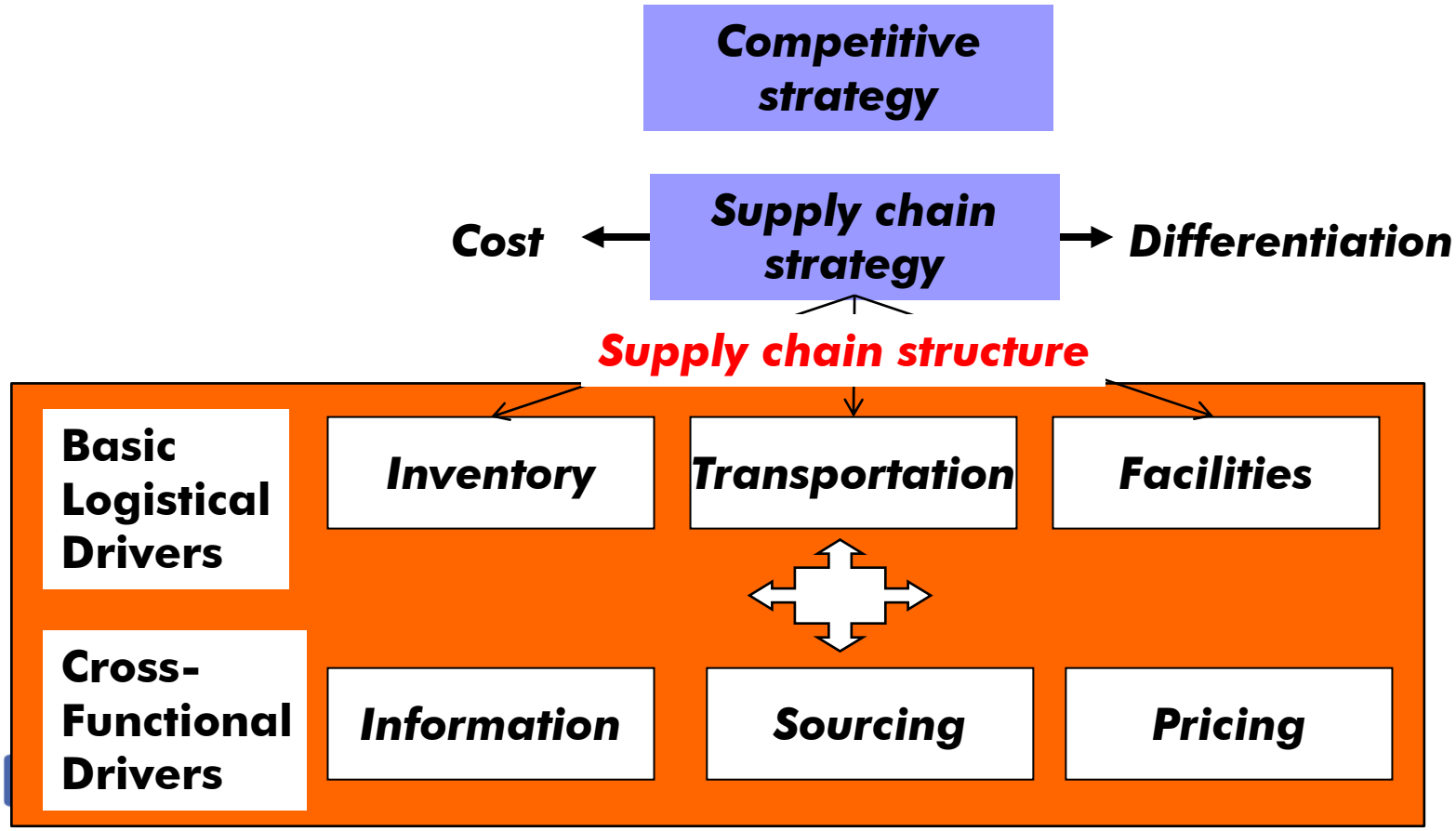
Where is the Supply Chain??



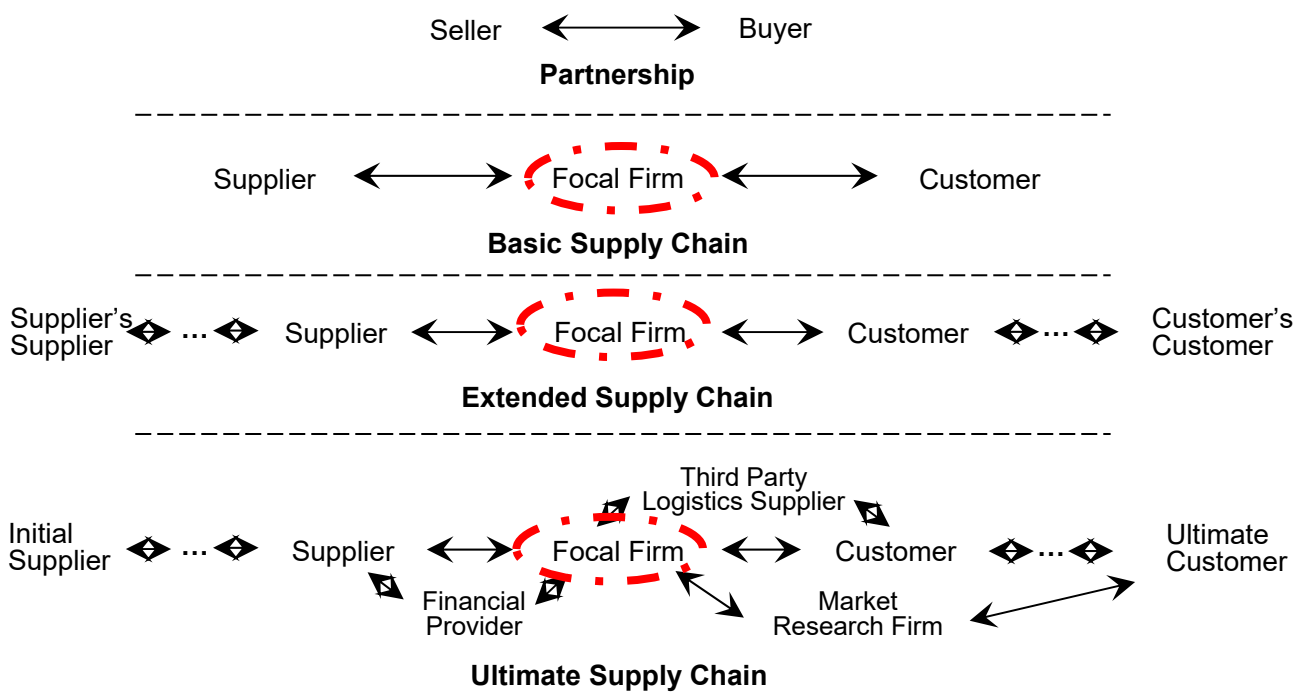
What are the strategic tasks within Supply Chain Management

NOW, THE SUPPLY CHAIN

Competitive Strategy and Supply Chain

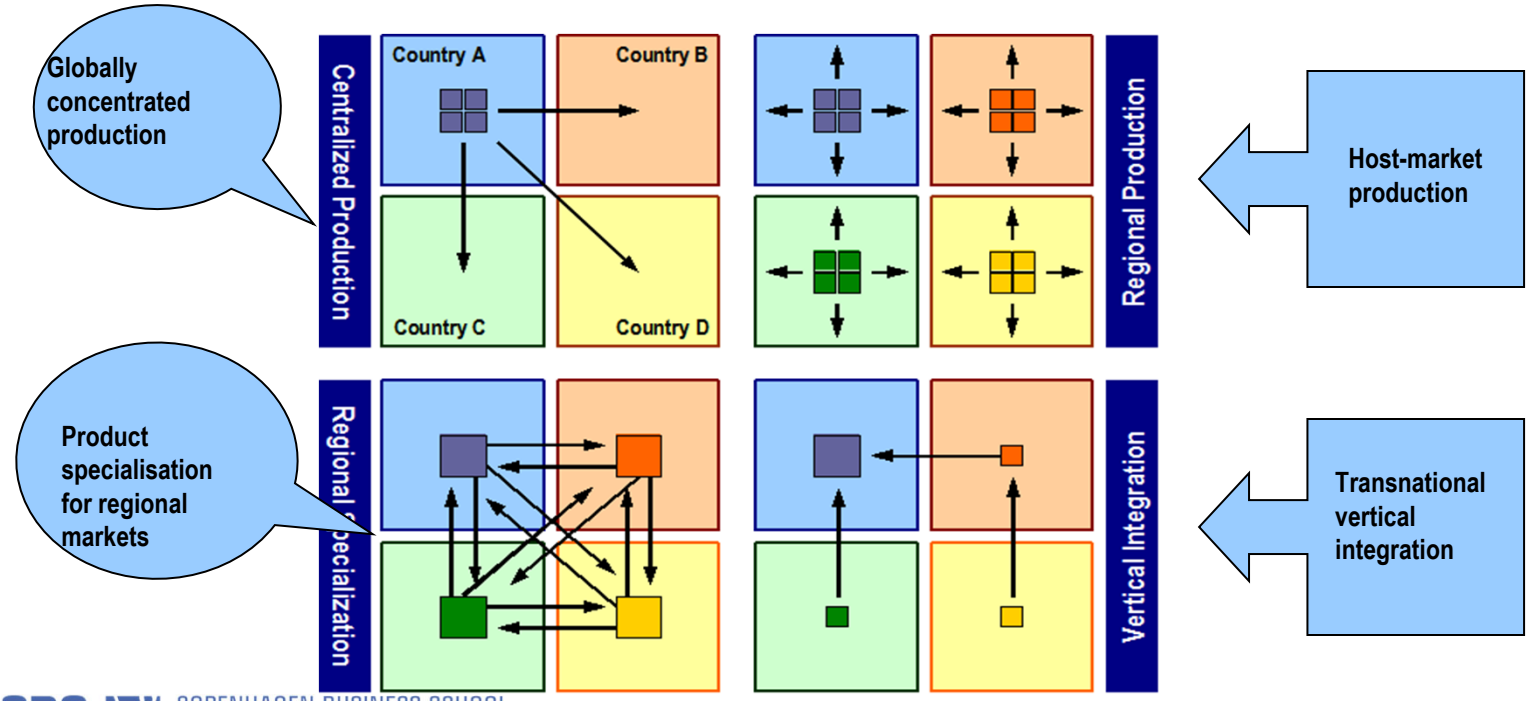


WHAT Scope? Basic – Extended - Ultimate

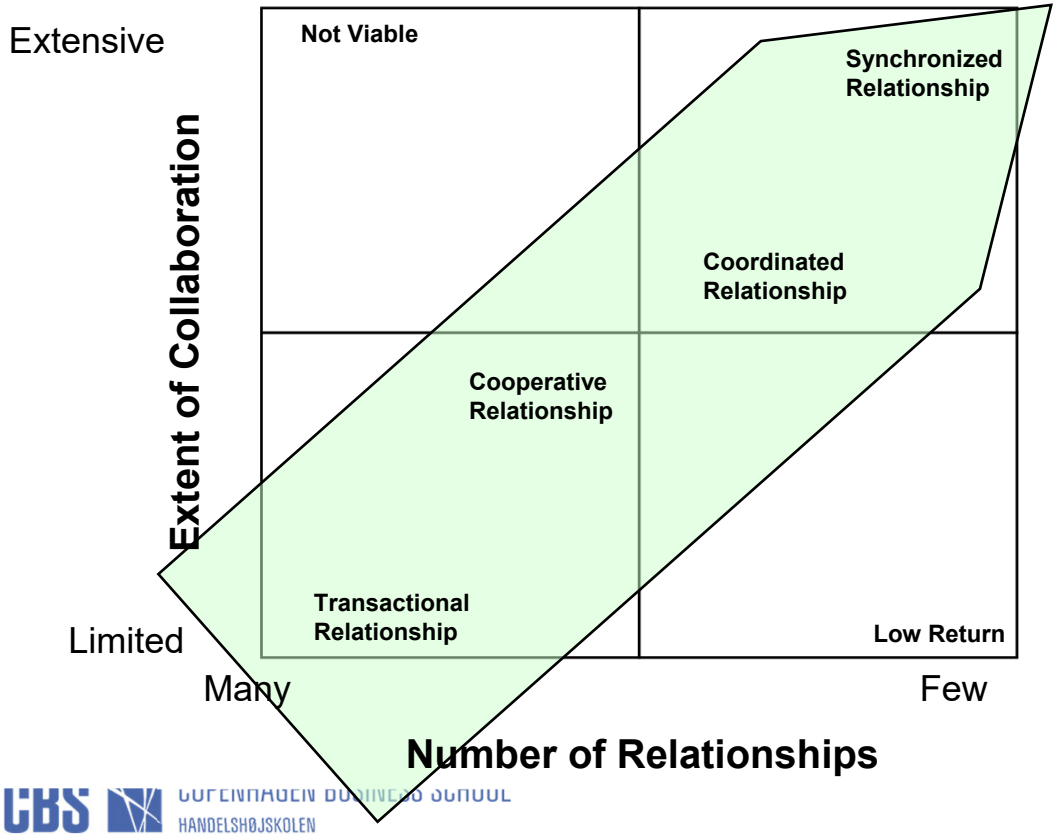


Source: Mentzer u.a. (2001), S. 7

e.g. Broad production location strategies Dicken (2003) see lessons 2 and 4



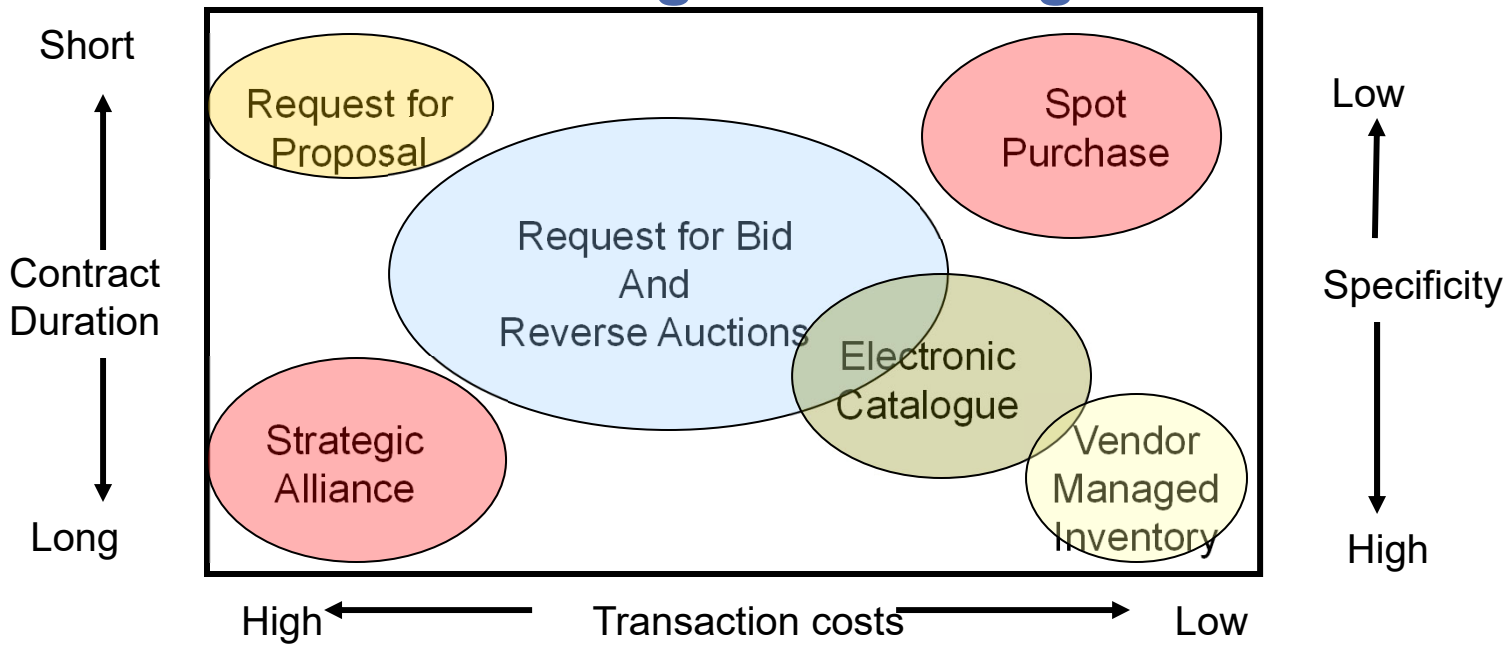
e.g. Supply Chain Relation Spectrum see lesson 3



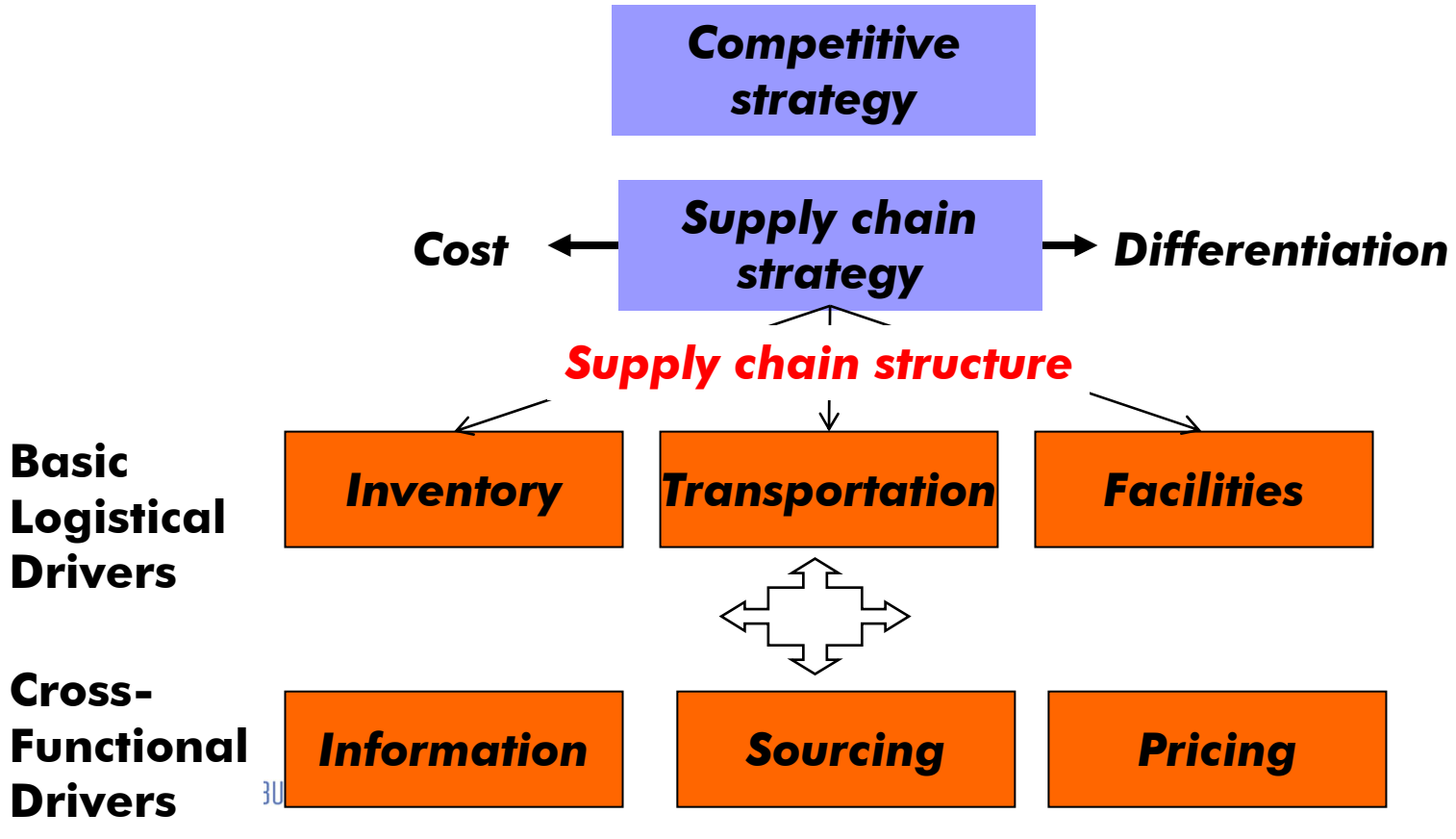
- The green arrow describes increasing complexity and sophistication of:
  - Information systems
  - Systems infrastructure
  - Decision support systems
  - Planning mechanisms
  - Information sharing
  - Process understanding
- Higher levels of collaboration imply the need for both trading partners to have equivalent (or close) levels of supply chain maturity
- Synchronized collaboration demands joint planning, R&D and sharing of information and processing models
  - Movement to real-time customer demand information throughout the supply chain

Source: Adapted from Cohen & Roussel

Or e.g. like you have it in the book Sourcing/Purchasing-System Design Matrix: Framework Describing Purchasing Processes



Competitive Strategy and Supply Chain



SCM – e.g. Simchi Levi's Key Issues

ISSUE	CONSIDERATIONS
Network Planning	• Warehouse locations and capacities • Plant locations and production levels • Transportation flows between facilities to minimize cost and time
Inventory Control	• How should inventory be managed? • Why does inventory fluctuate and what strategies minimize this?
Supply Contracts	• Impact of volume discount and revenue sharing • Pricing strategies to reduce order-shipment variability
Distribution Strategies	• Selection of distribution strategies (e.g., direct ship vs. cross-docking) • How many cross-dock points are needed? • Cost/Benefits of different strategies
Integration and Strategic Partnering	• How can integration with partners be achieved? • What level of integration is best? • What information and processes can be shared? • What partnerships should be implemented and in which situations?
Outsourcing & Procurement Strategies	• What are our core supply chain capabilities and which are not? • Does our product design mandate different outsourcing approaches? • Risk management
Product Design	• How are inventory holding and transportation costs affected by product design? • How does product design enable mass customization?

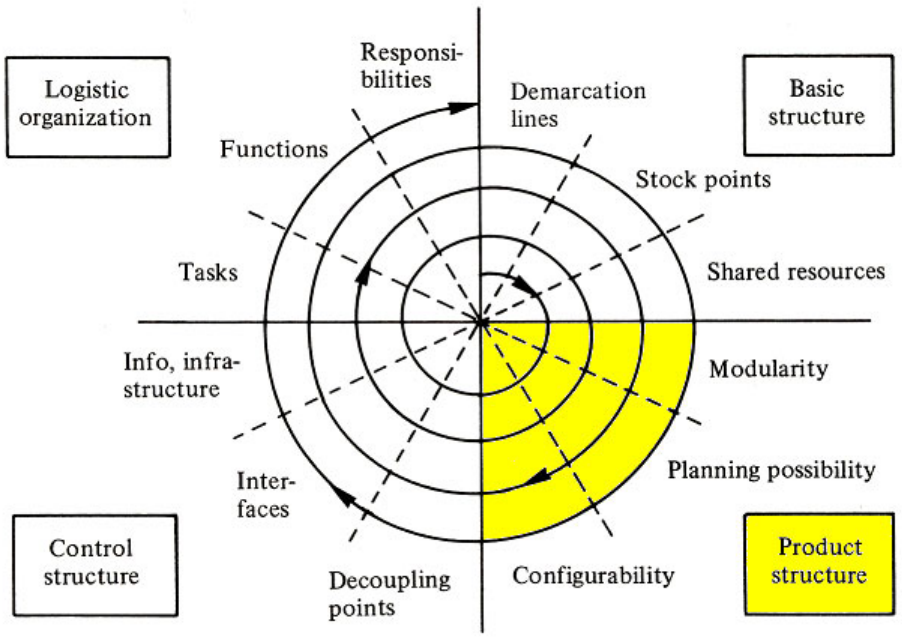
Even a bit deeper – Some basic question on the design of logistics (flow) systems - e.g. the model of Hoekstra/Romme

Some basic questions:

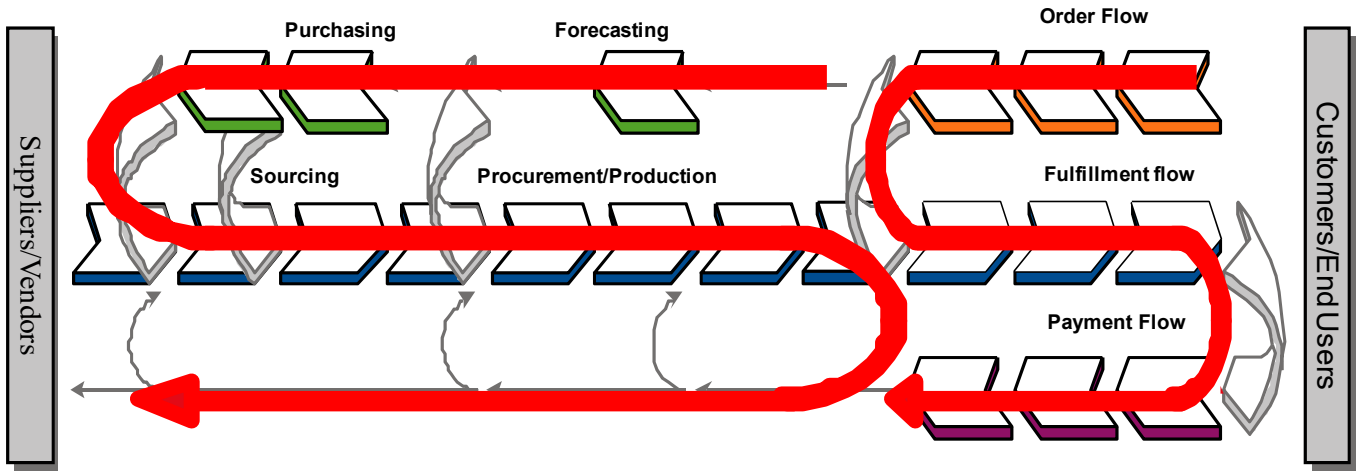
- Centralize or Decentralize
- Direct or Indirect (stages)
- Speculate or Wait
- Tight or loose coupling, linking

Basis tasks of logistics:

- Bundling, Structuring, Securing, and splitting, Rearrange,
- Segment; Classify
- Specialize and Diversify
- Create flexibility and synchronize

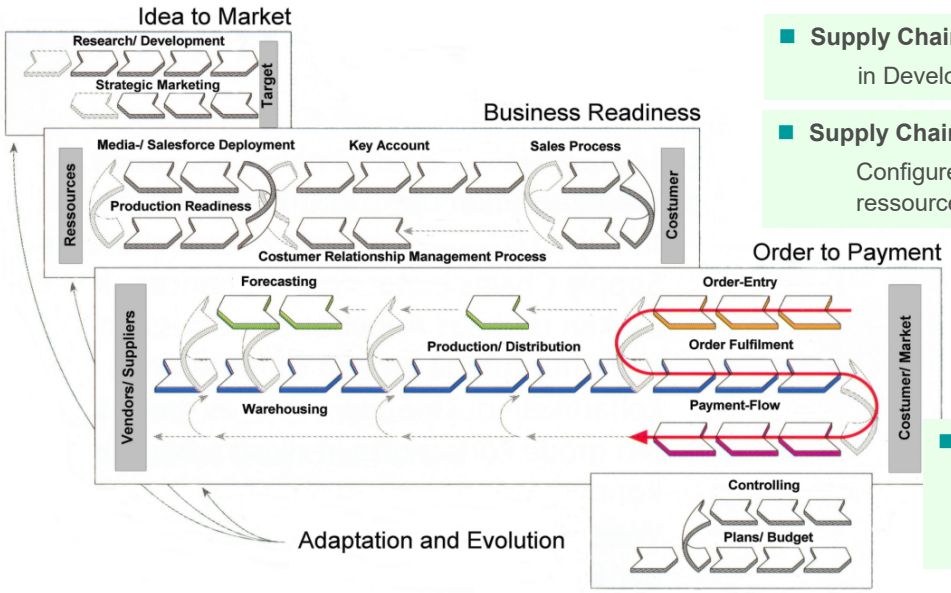


At the Core: The Order-to-Payment Flow



... how to integrate activities in the Supply-Chain „S“?

SCM – e.g. Flow Oriented Thinking based on the „S“-model: four generic Processes and related main Challenges



- **Supply Chain Awareness**
  in Developing new Business/Supply Chain Ideas, Develop Products
- **Supply Chain Structure**
  Configure your physical network and optimize ressource allocation and facility location
- **Integrated Processes**
  Integrate organizations, information systems and human ressources into effective and efficient flows
- **Adaptation and Development**
  Keep your supply chain „state-of-the-art“ and adopt emerging technologies and ideas

Strategic Scope of the single actor in the Supply Chain – ONLY some thoughts!

	Objectives Strategic Themes??	With different Scope Chain/Function??	Concepts, Instruments??
Supply Chain Awareness			
Supply Chain Configuration			
Supply Chain Execution			
Supply Chain Adaptation			

Strategic Scope of the single actor in the Supply Chain – ONLY some thoughts!

	Objectives Strategic Themes??	With different Scope Chain/Function??	Concepts, Instruments??
Supply Chain Awareness	Efficient Responsive	Total system Transportation flow Batch size	Total Cost Landed Cost EOQ
Supply Chain Configuration			
Supply Chain Execution			
Supply Chain Adaptation			

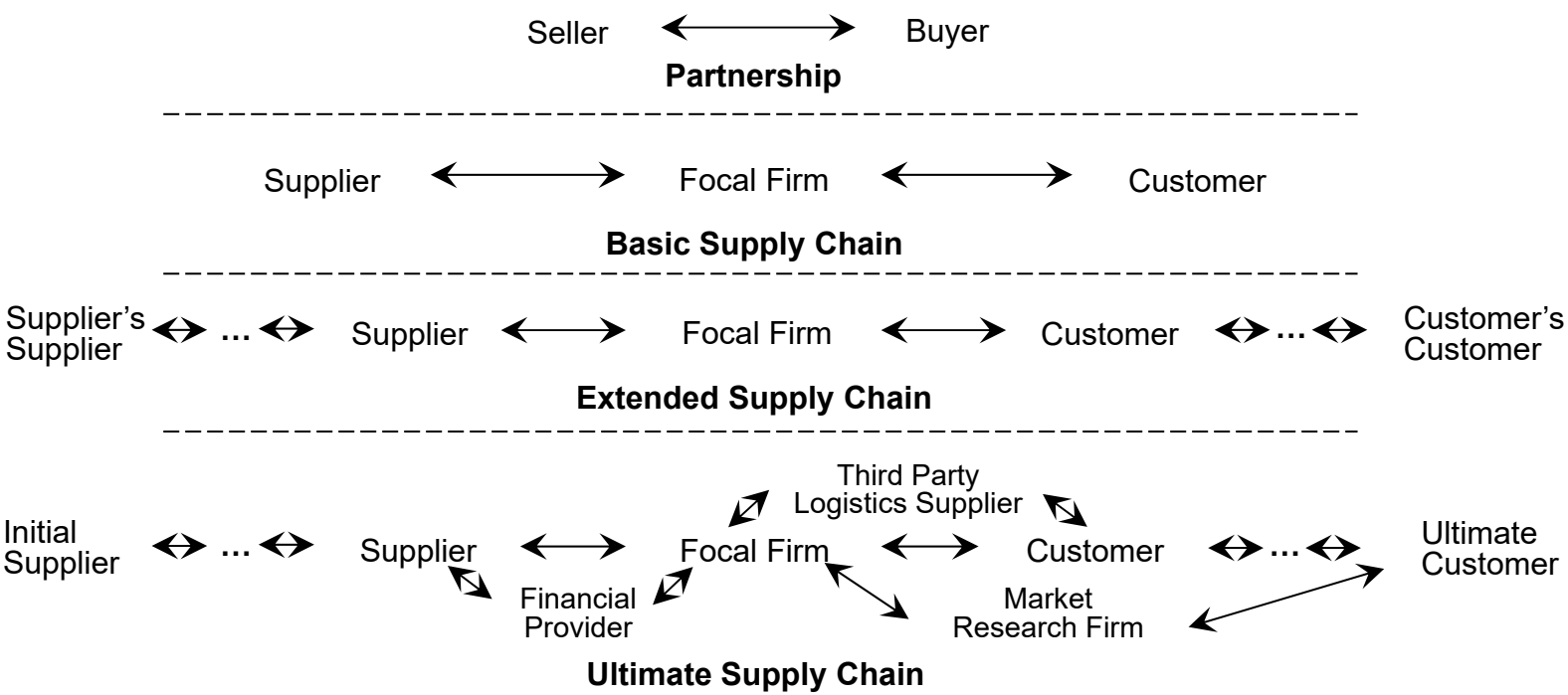
Strategic Scope of the single actor in the Supply Chain – ONLY some thoughts!

	Objectives Strategic Themes??	With different Scope Chain/Function??	Concepts, Instruments??
Supply Chain Awareness	Efficient Responsive Holistic???	Total system Transportation flow Batch size	Total Cost Landed Cost EOQ
Supply Chain Configuration	"Optimal" Allocation Proximity, Control	The Global Production Network; The Micro Layout; The single relationship	Outsource/ Offshoring; factory layouting; Vendor Manag. I.
Supply Chain Execution	Integration Transparency, Visibility,	External, internal	No Bullwhip Relationships IT: SCEM, RFID
Supply Chain Adaptation	Scalability Innovation Resilience	Product; develop.; clockspeeds; life cycles	Adaptivity; Technology assessment

Strategic Scope of the single actor in the Supply Chain – ONLY some thoughts!

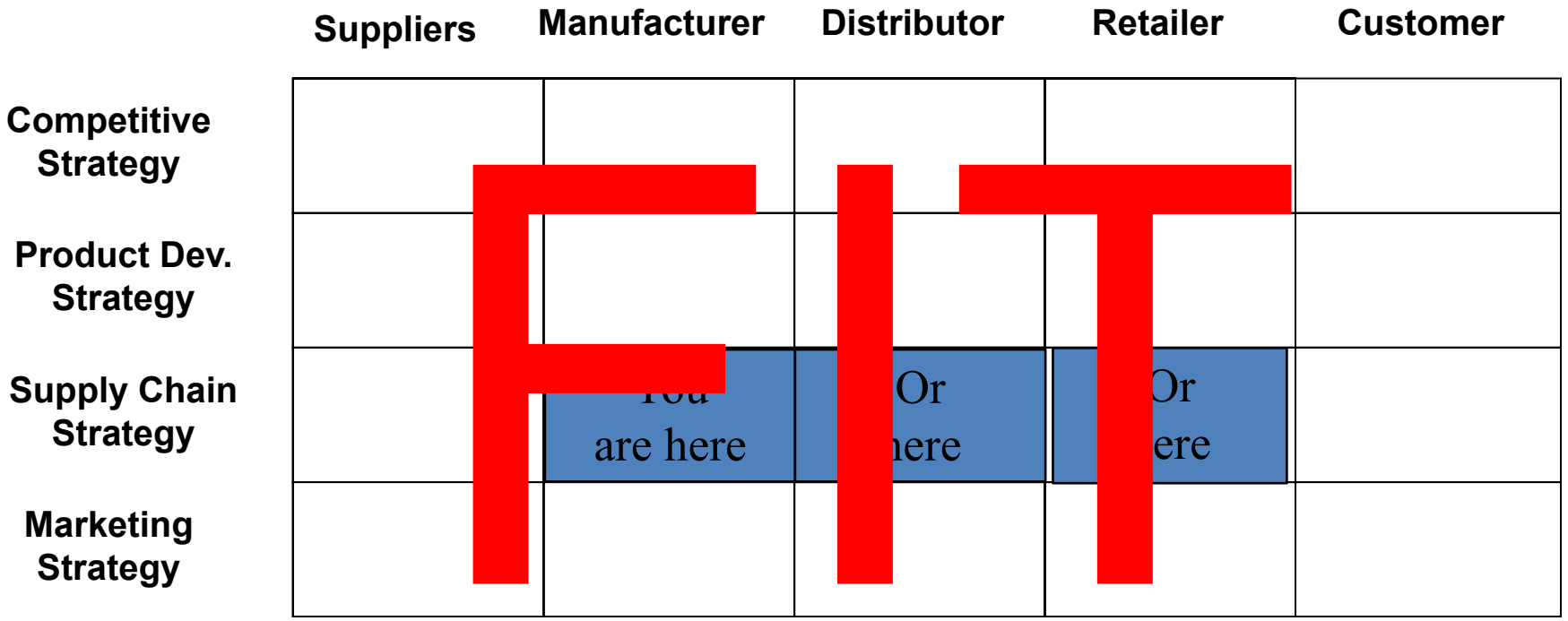
	Objectives Strategic Themes??	With different Scope Chain/Function??	Concepts, Instruments??	Risks and "Drawbacks"?
Supply Chain Awareness	Efficient Responsive Holistic???	Total system Transportation flow Batch size	Total Cost Landed Cost EOQ	
Supply Chain Configuration	"Optimal" Allocation Proximity, Control	The Global Production Network; The Micro Layout; The relationship	Outsource/ Offshoring; factory layouting; Vendor Managed Inventory	
Supply Chain Coordination	Integration Transparency, Visibility,	External, internal	No Bullwhip Relationships IT: SCEM, RFID	
Supply Chain Adaptation	Scalability Innovation Resilience	Product; develop.; clockspeeds; life cycles	Adaptivity; Technology assessment	

WHAT Scope? Basic – Extended - Ultimate



Source: Mentzer u.a. (2001), S. 7

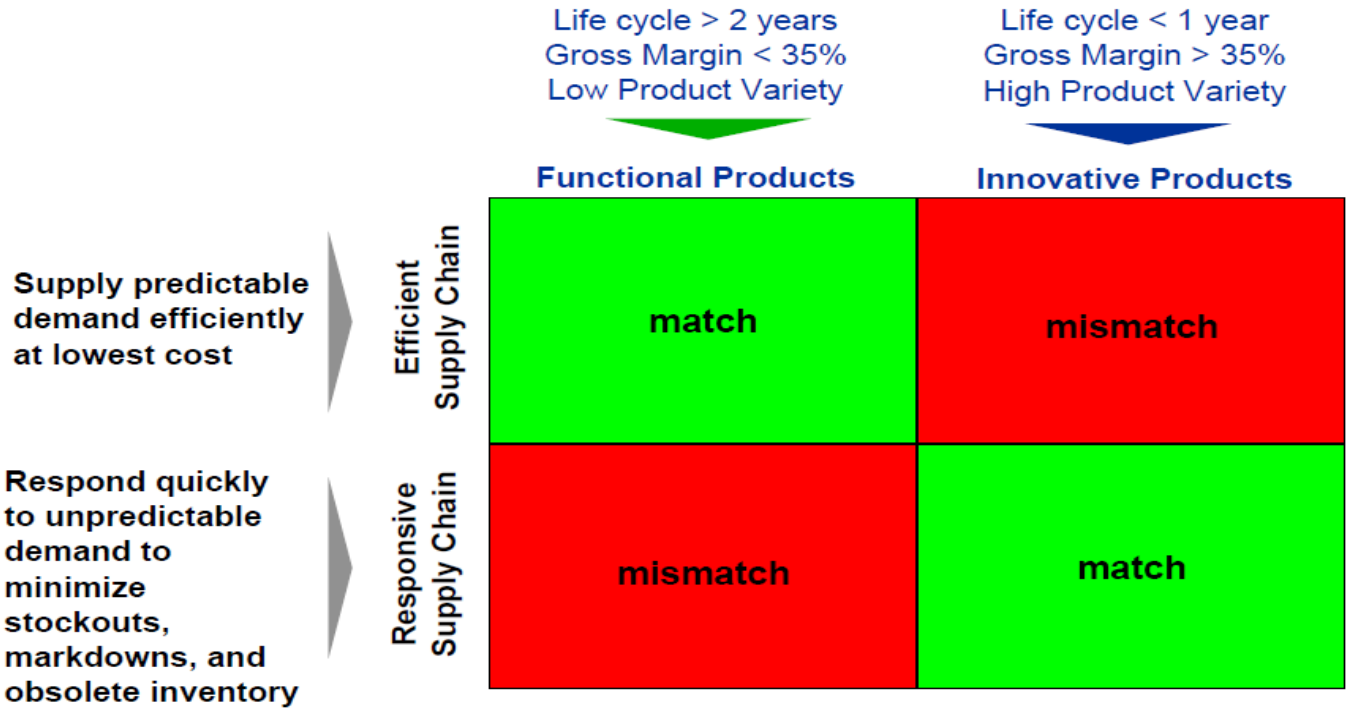
Strategic Scope across the total supply chain



Archetypes of Supply Chain Configurations
The push/pull boundary
Related concepts; Postponement,

LOOKING FOR DOMINANT THEMES
SOME BASIC PATTERNS
SOME "CONFIGURATIONS"

Environment and Contingencies
- Fishers Typology based on the products

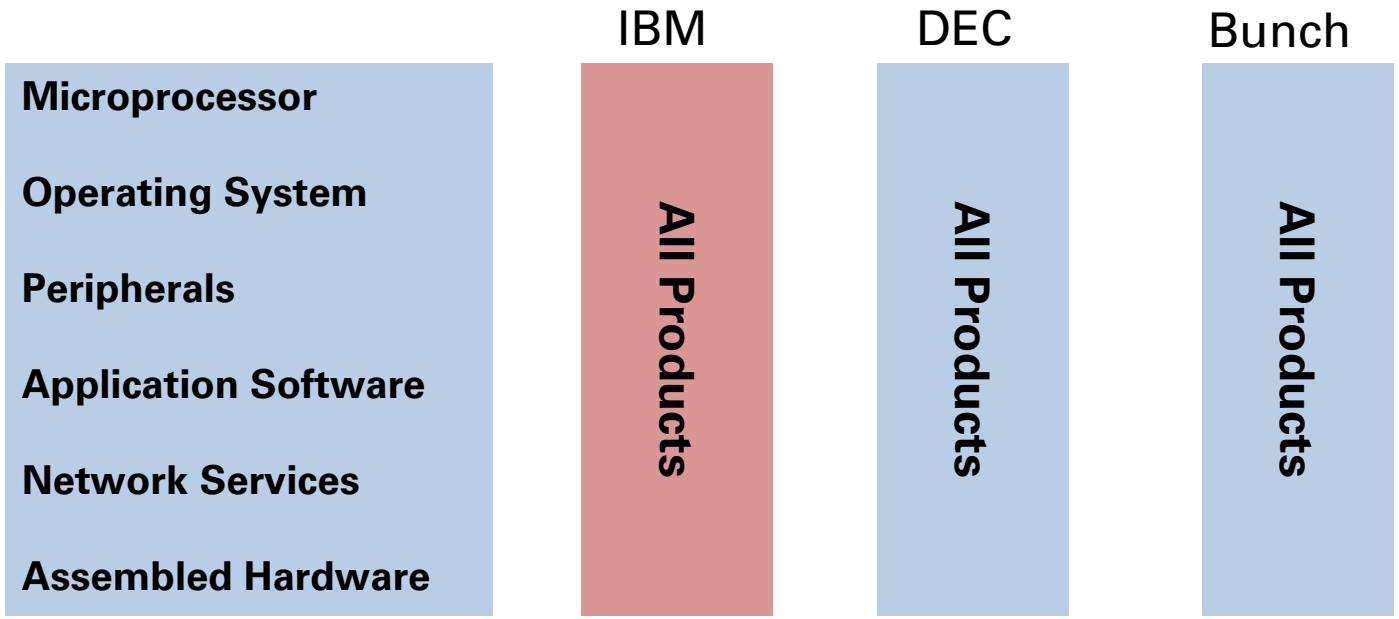


… and the related Supply Chains

	Physically Efficient process	**Market-Response Process**
Primary purpose	Supply predictable Demand efficiently at the lowest possible cost	Respond quickly to unpredictable demand to minimize forced markdowns, obsolete inventories
Manufacturing focus	Maintain high average utilization rate	Deploy excess buffer capacity
Inventory strategy	Generate high returns & minimize inventory throughout the SC	Deploy significant buffer stocks of parts or finished goods
Lead-time focus	Shorten lead times as long as it does not increase cost	Invest aggressively in ways to reduce lead times
Approach to choosing suppliers	Select primarily for cost & quality	Select primarily for speed, flexibility and quality
Product design strategy	Maximize performance & minimize cost	Use modular design to postpone product differentiation as long as possible

E.G. Computer Industry Structure 1975 – 1985

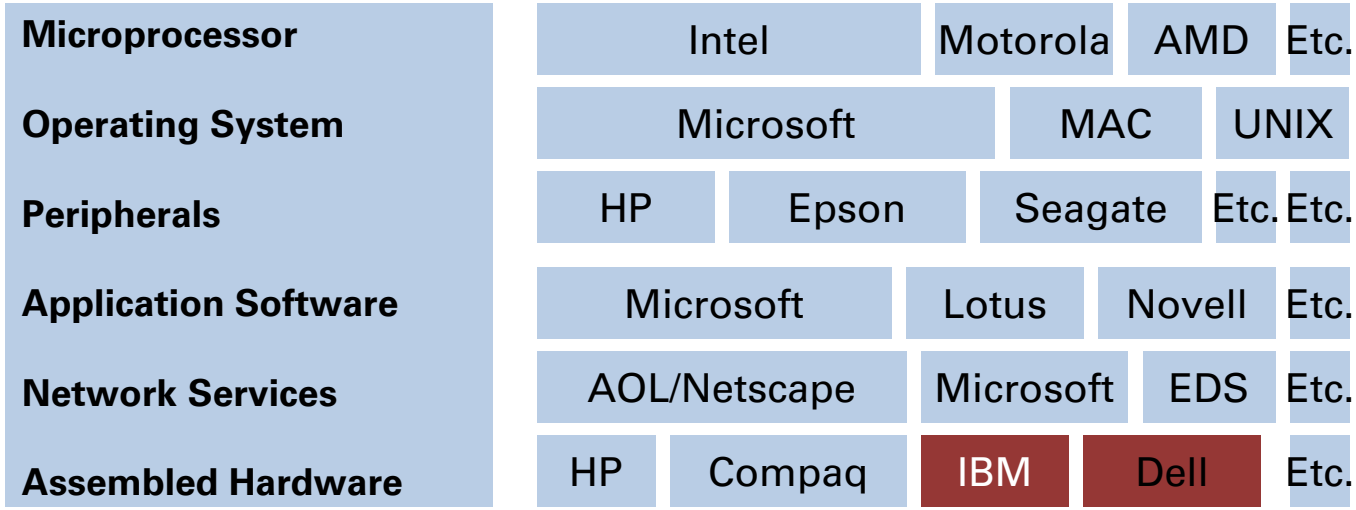
Showing changes in the product architecture -



Quelle: Grove et. al.

… and consequences on the Network – example – Computer Industry Structure 1985 - 1995

Modularization instead vertically integrated supply chains



Quelle: Grove et. al.

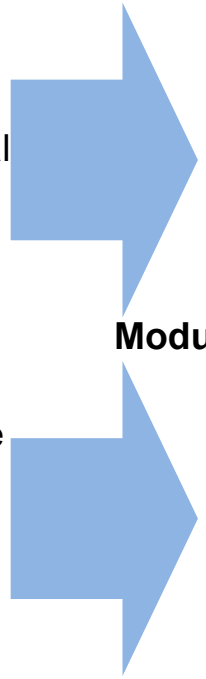
e.g. Fine: Integral vs. Modular

Integrated Products

- Components are tightly coupled
- Components perform several functions
- Components are in close physical proximity or strong relationship
- Components are closely synchronized

Modular Products

- Components are loosely coupled
- Components are interchangeable
- Components are individually optimized (improved)
- Components have standard interfaces



Integrated Supply Chain

- Closely coupled elements
- Elements are not interchangeable
- Strong geographical proximity
- Shared responsibility
- Tightly synchronized processes
- Similar cultures
- Coordinated information systems

Modular supply chains

- Loosely coupled elements
- Interchangeable elements
- Low geographic proximity
- Autonomous responsibility
- Hardly synchronized processes
- Different cultures
- Disparate information systems

e.g. Christopher: Environmental dynamics Agility vs. Lean Supply Chains

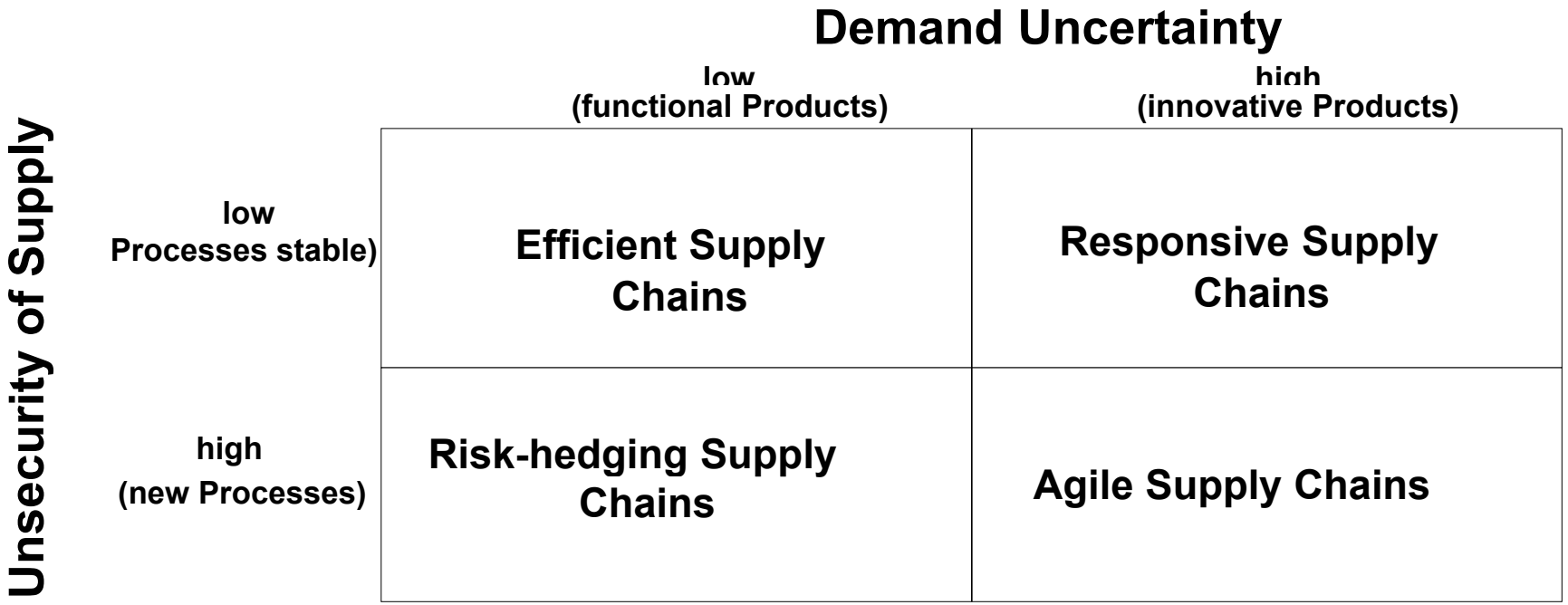
▪„Lean“ works best in **high volume, low variety and high predictable** environments)

- Primary forces: efficiency
- Product features: standard
- Product life cycles: long
- Order winners: cost
- Supply chain emphasis: economies of scale
- Capacity utilization: level scheduling
- Supplier selection criteria: Price and quality

Agility“ is needed in **less predictable environments I.e. demand is volatile and requirement for variety is high**

- Primary forces: effectiveness
- Product features: high variety
- Product life cycles: short
- Order winners: time
- Supply chain emphasis: flexibility
- Capacity utilization: deploy buffer capacity
- Supplier selection criteria: speed, flexibility and quality·

Or Hau Lee's : Typology of Supply Chains

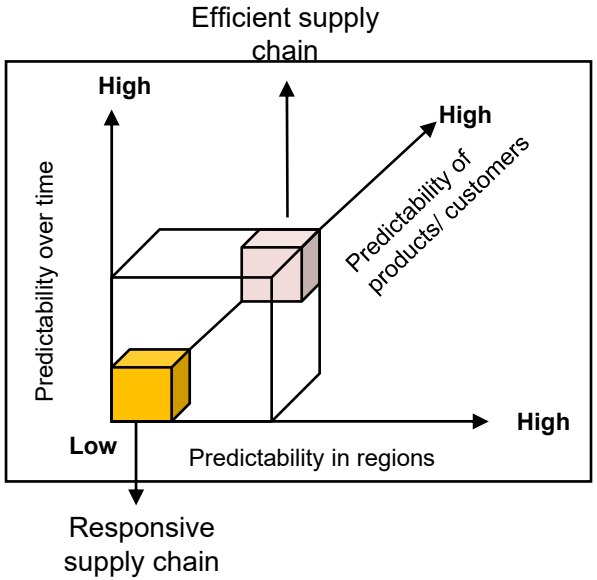


Lee (2002), California Management Review

Approaches are using different dimensions and variables and focusing on different aspects

Authors	Dimensions	Configurations
Fisher, 1997	- uncertainty of demand - product	- Physically efficient process - Market responsive process
Tan et al., 2000	- uncertainty of demand - product	- Physically efficient process - Market responsive process • *customizable product* • *innovative product*
Christopher, 2000	- Variety/Variability - Volume	- Agile - Lean
Mason-Jones/ Naylor/Towill, 2000	- various	- Leagile
Lee, 2002	- Demand characteristics - Supply characteristics	- Efficient supply chain - Responsive supply chain - Risk-hedging supply chain - Agile supply chain
Corsten & Gabriel, 2002	- Demand uncertainty - Product structure	- Lean Supply Chain - Connected Supply Chain - Agile Supply Chain - Speed Supply Chain
Klaas, 2003	- strategic goal - coordination mechanism	- Tight logistics segment - Agile logistics segment - Modular logistics segment - Individual logistics segment

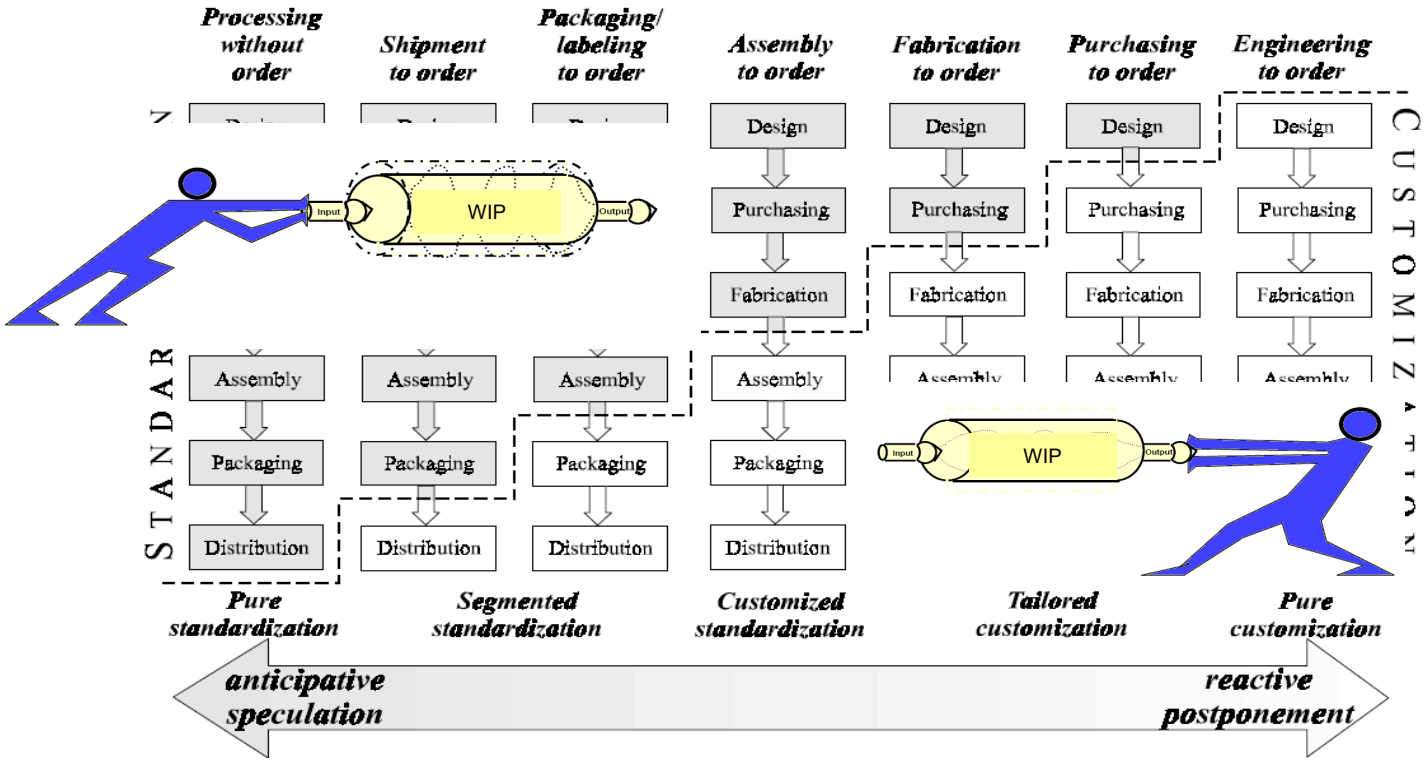
This Needs to Be Addressed With the Appropriate Changes in Supply Chain Design From Efficient to Responsive and Vice Versa – FOR INSTANCE



	Efficient supply chain	Responsive supply chain
Value drivers	Transportation Inventory Warehousing	Stockouts, Markdowns, Obsolescence
Forecasting	Analytics, baseline	Heuristics
Transportation	FTL	LTL
Inventory	Minimise throughout	Buffer close to customer
Sourcing drivers	Quality, cost	Quality, speed, flexibility

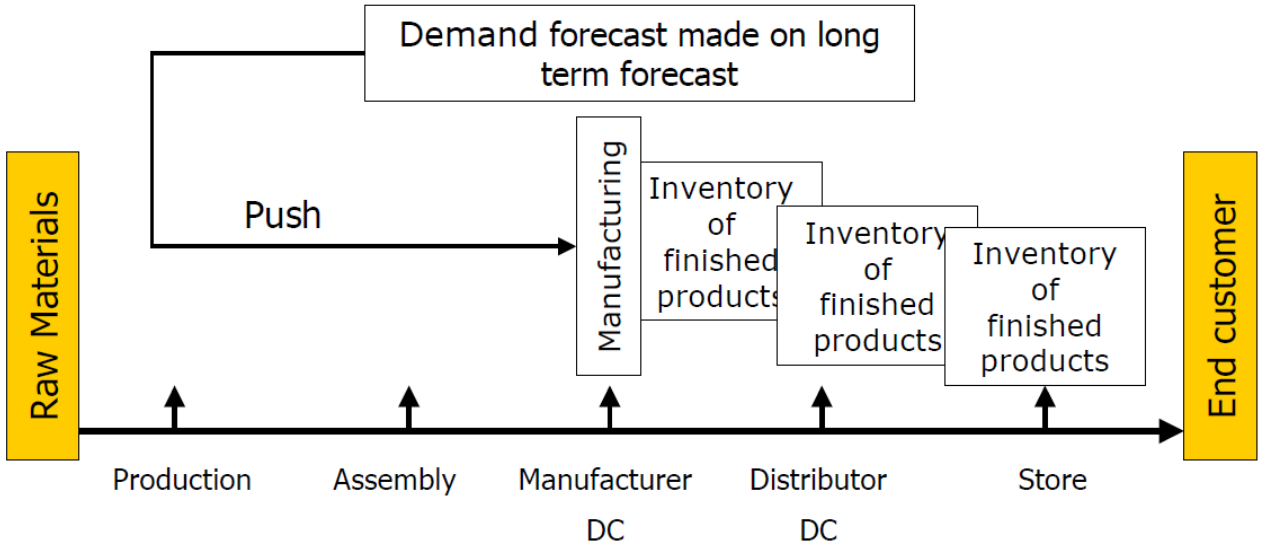
Source: HBR, March-April, 1997, Marshall L. Fisher, Infosys Analysis

Further key patterns
Anticipating vs. Reacting – Push vs Pull



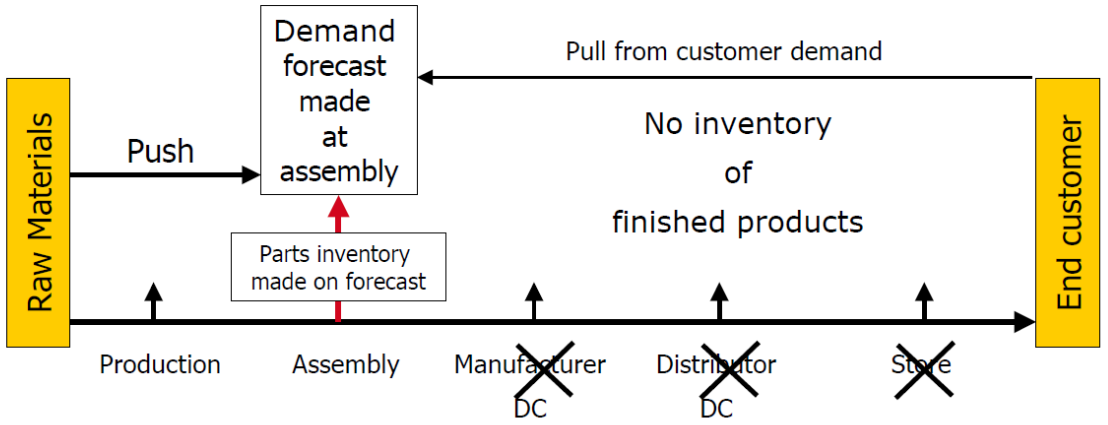
Push/Pull Boundary – traditional Computer industry

- High level of demand uncertainty
- Low delivery cost (% to the unit price)



Push/Pull Boundary – e.g. Dell

- High level of demand uncertainty
- Low delivery cost (% to the unit price)



Where to locate the push/pull boundary?

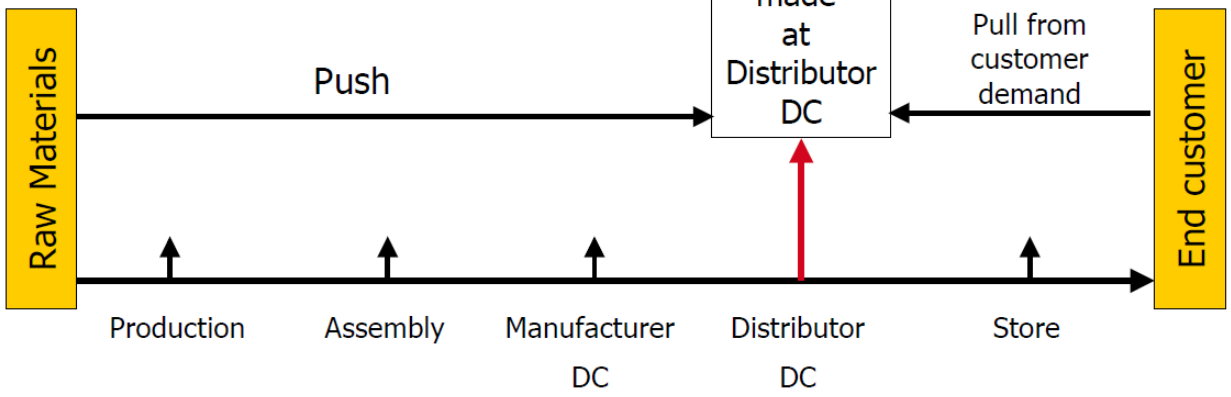
EXAMPLES

Push/Pull Boundary – Groceries

- Low level of demand uncertainty
- High delivery cost (% to the unit price)

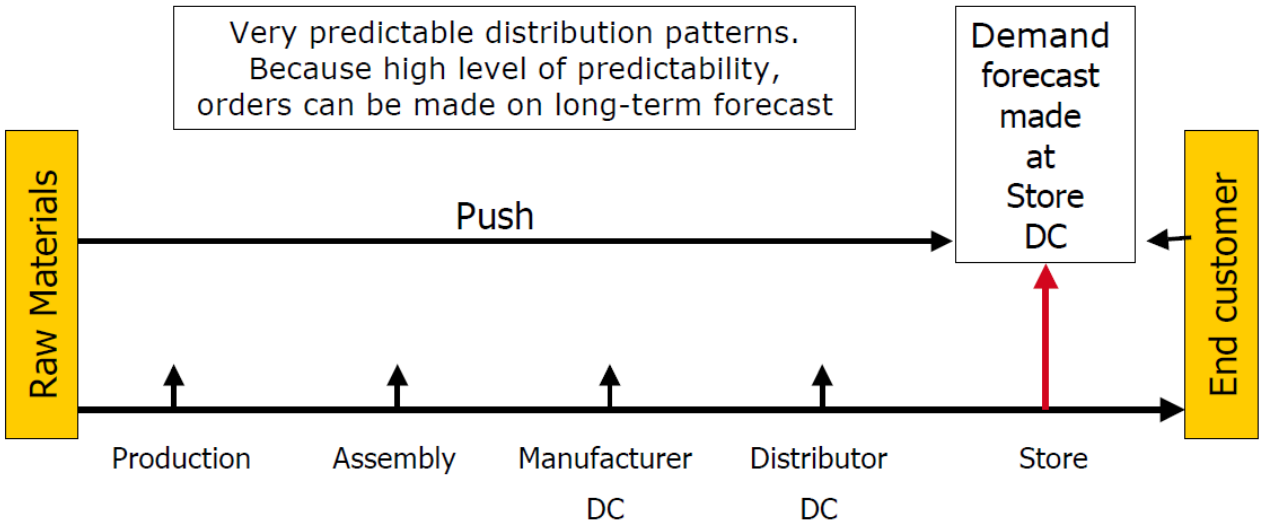
Pasta
Soup
drinks

Very predictable distribution patterns.
Because high level of predictability,
orders can be made on long-term forecast



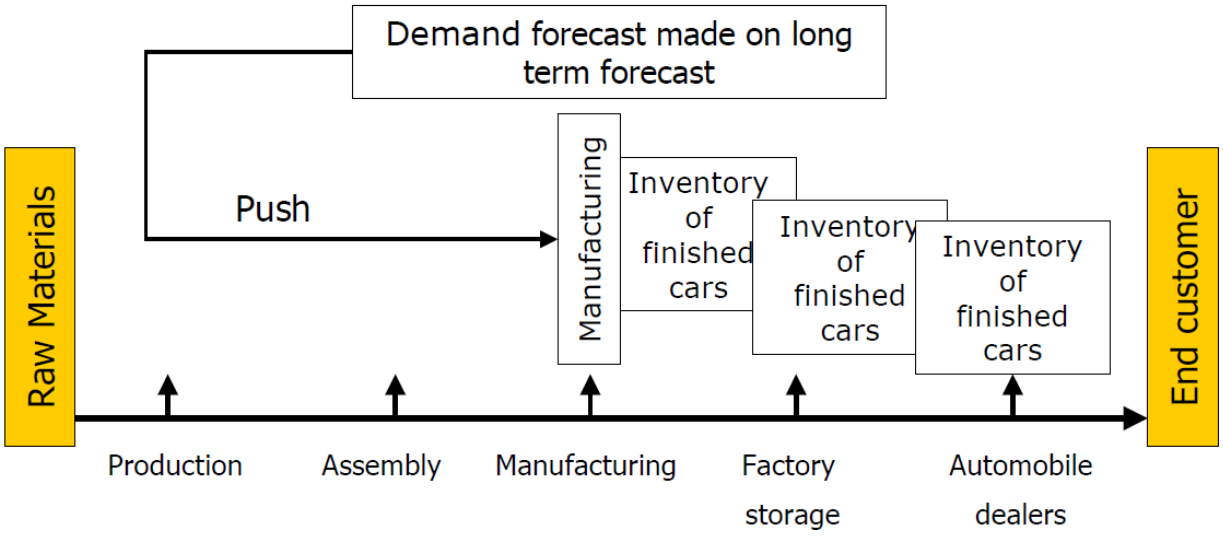
Push/Pull Boundary – Groceries Case 2

- Low level of demand uncertainty
- High delivery cost (% to the unit price)



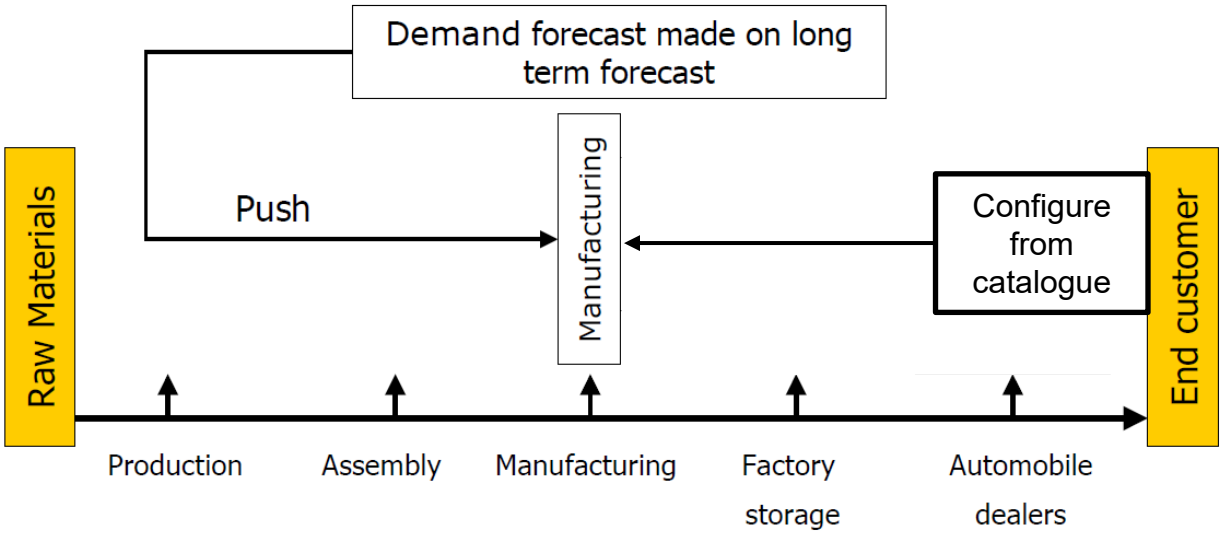
Push/Pull Boundary – Traditional Car Industry (more US)

- High level of demand uncertainty
- High delivery cost (% to the unit price)



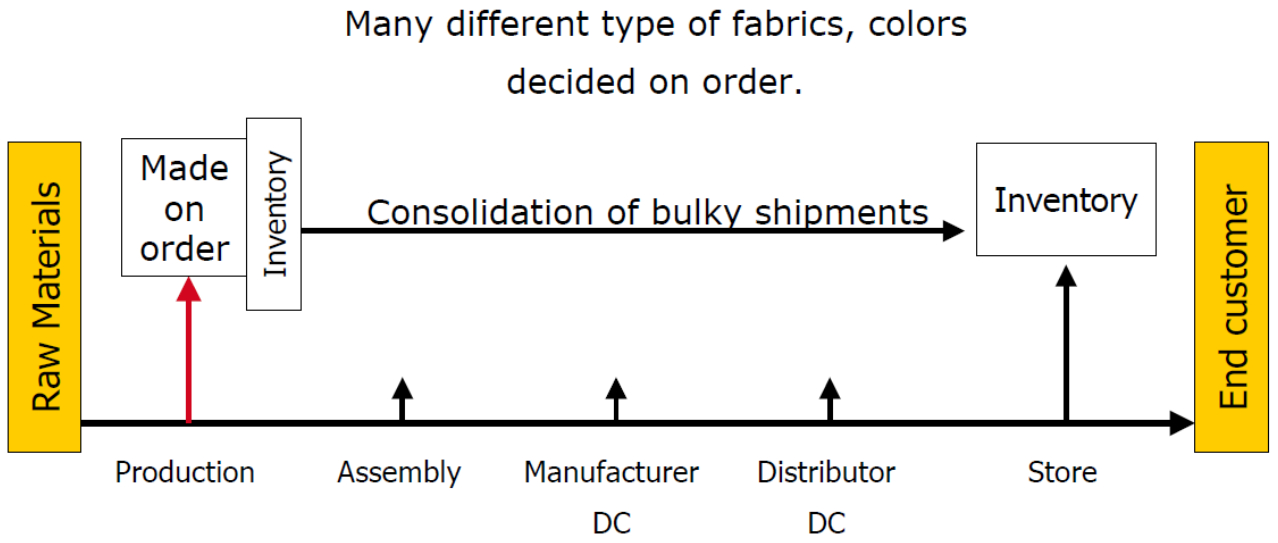
Push/Pull Boundary –Car Industry (more Europe)

- High level of demand uncertainty
- High delivery cost (% to the unit price)

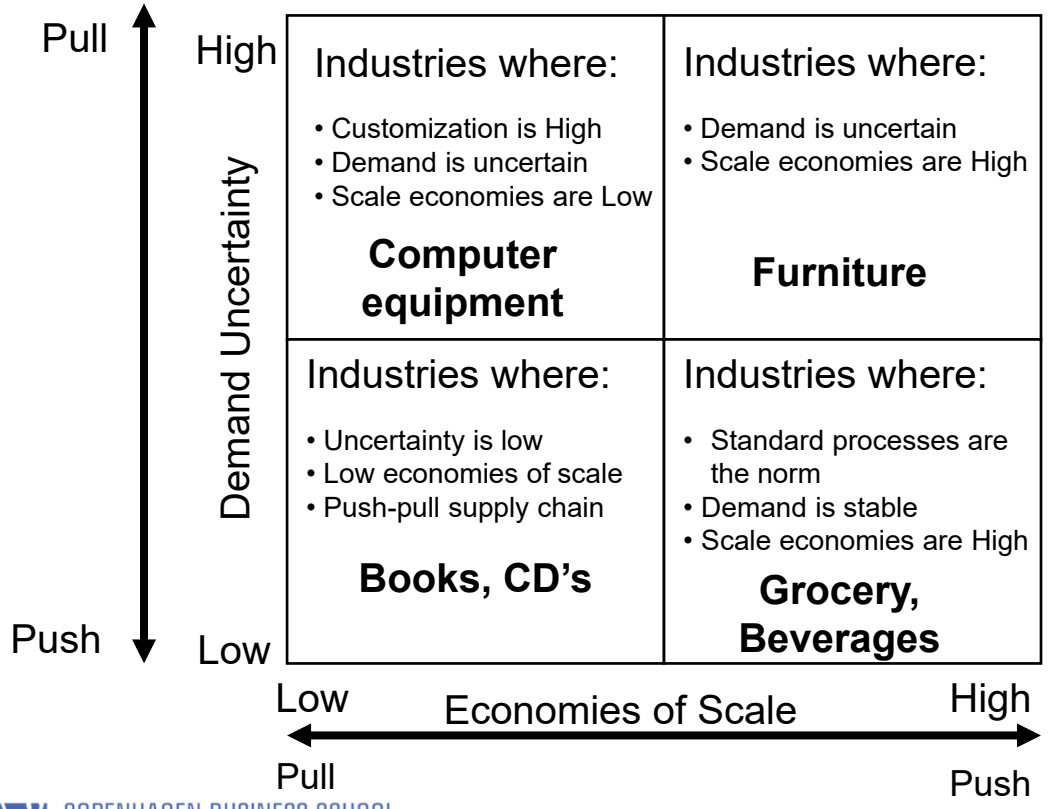


Push/Pull Boundary – e.g. Furniture Industry (not IKEA – how would IKEA look like?)

- High level of demand uncertainty
- High delivery cost (% to the unit price)



Choosing Between Push/Pull Strategies



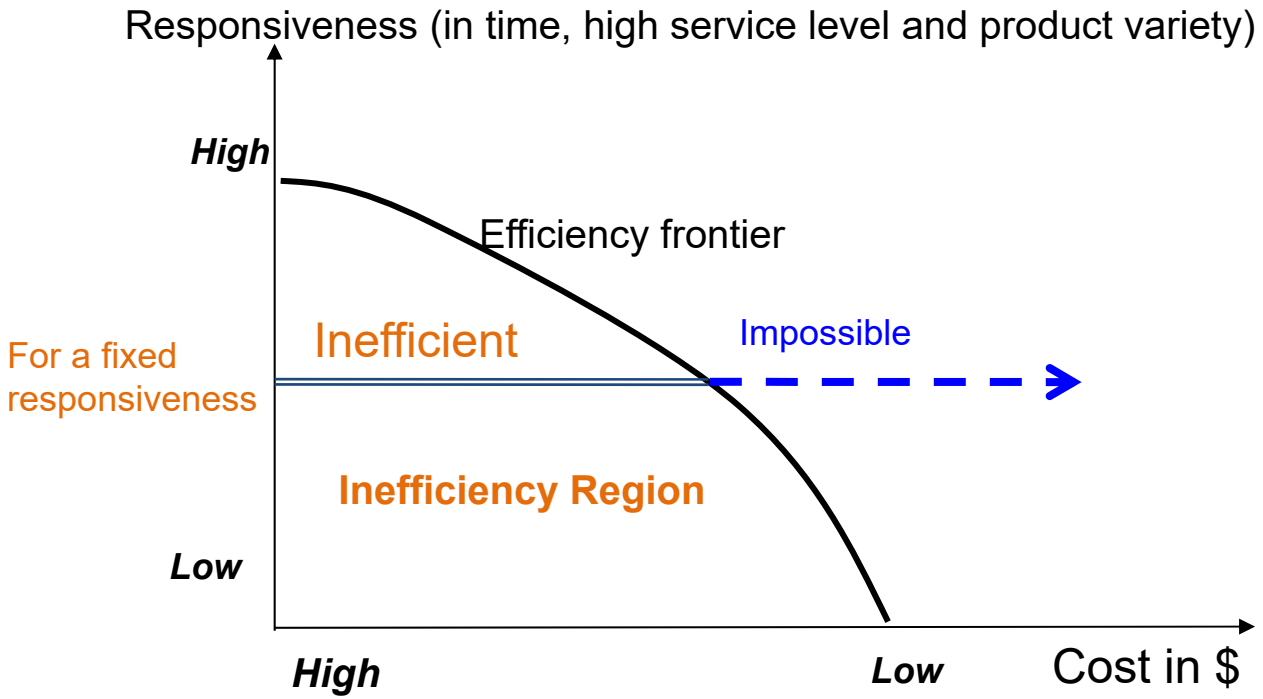
Where do the following industries fit in this model:

- **Automobile?**
- **Aircraft?**
- **Fashion?**
- **Petroleum refining?**
- **Pharmaceuticals?**
- **Biotechnology?**
- **Medical Devices?**

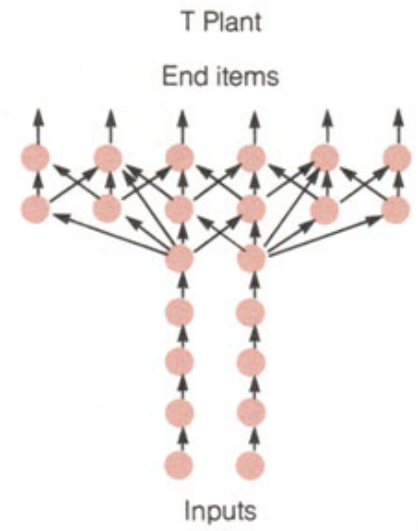
Source: Simchi-Levi

CBS COPENHAGEN BUSINESS SCHOOL HANDELSHØJSKOLEN

Understanding the Supply Chain: e.g. Cost-Responsiveness Tradeoff

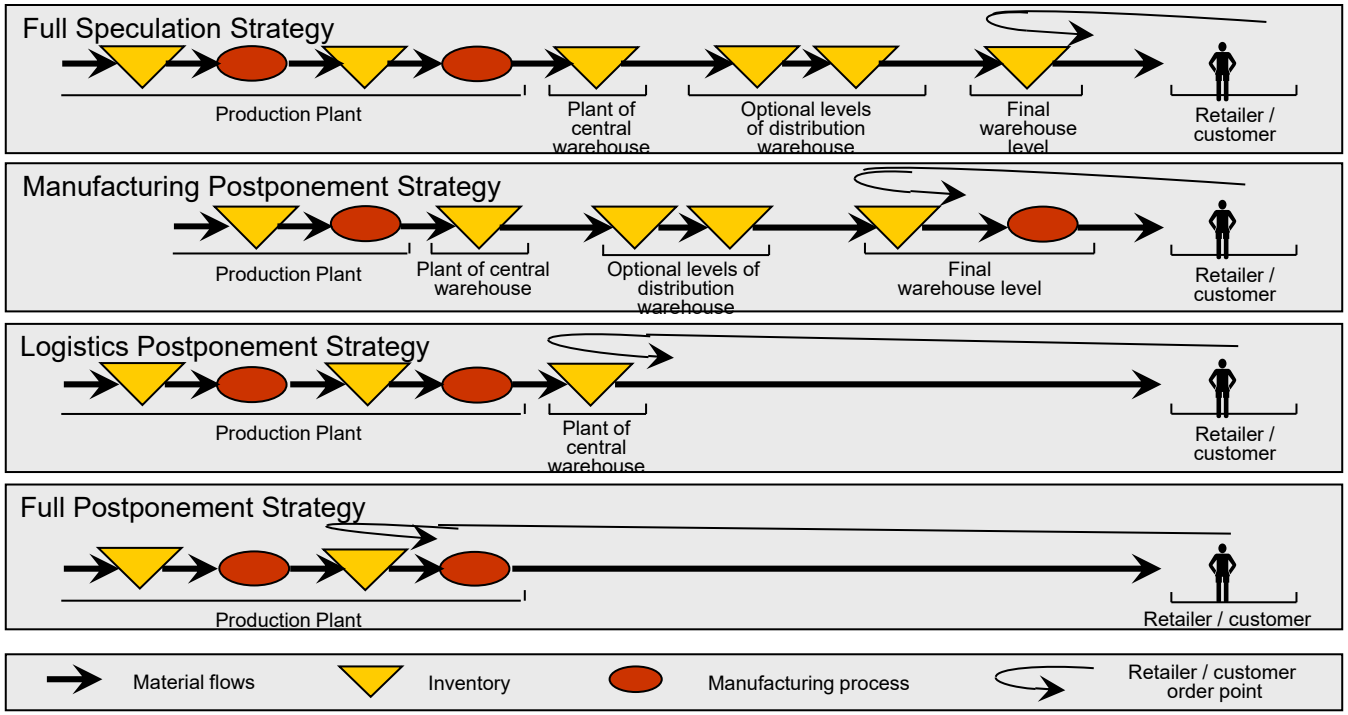


Postpone the moment of variation – The way to hybrids



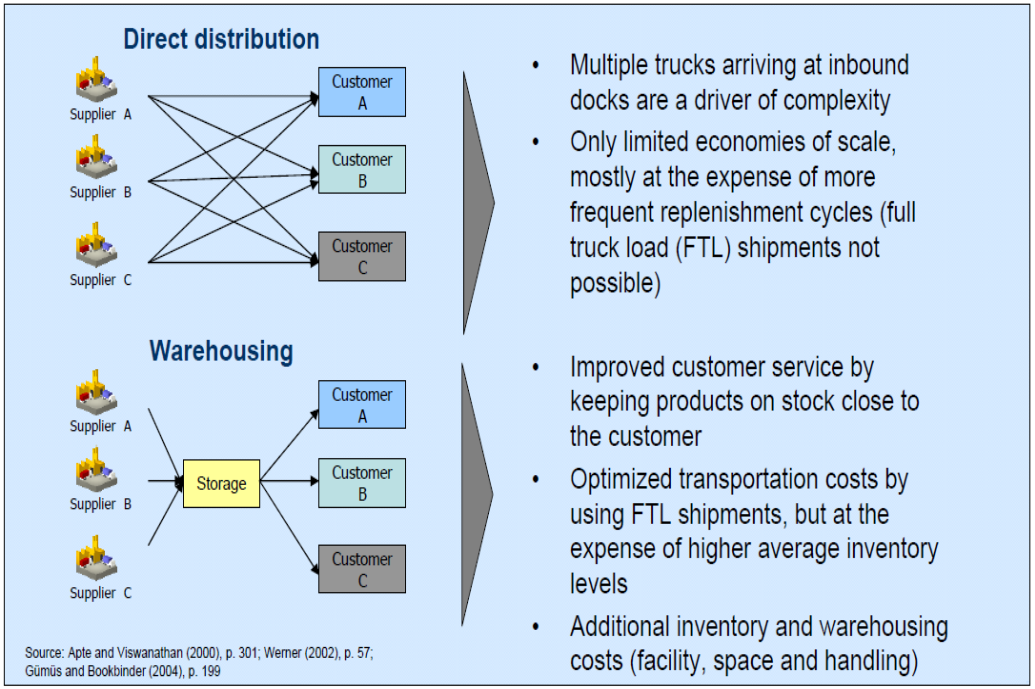
- The Configuration of a Logistics system is the better the further „upstream“ Inventories and Transshipment points and the more „downstream“ value intense, customer specific activities are positioned („Postponement“-Concept),
  - Product (Form) Postponement (Benetton)
  - Geographical Postponement (Cross Docking)
  - Inter-Company Postponement (Dell)

Mason-Jones/Towills
Definitions of Postponement-Strategies



Quelle: Mason-Jones/Towill (1999), S. 18

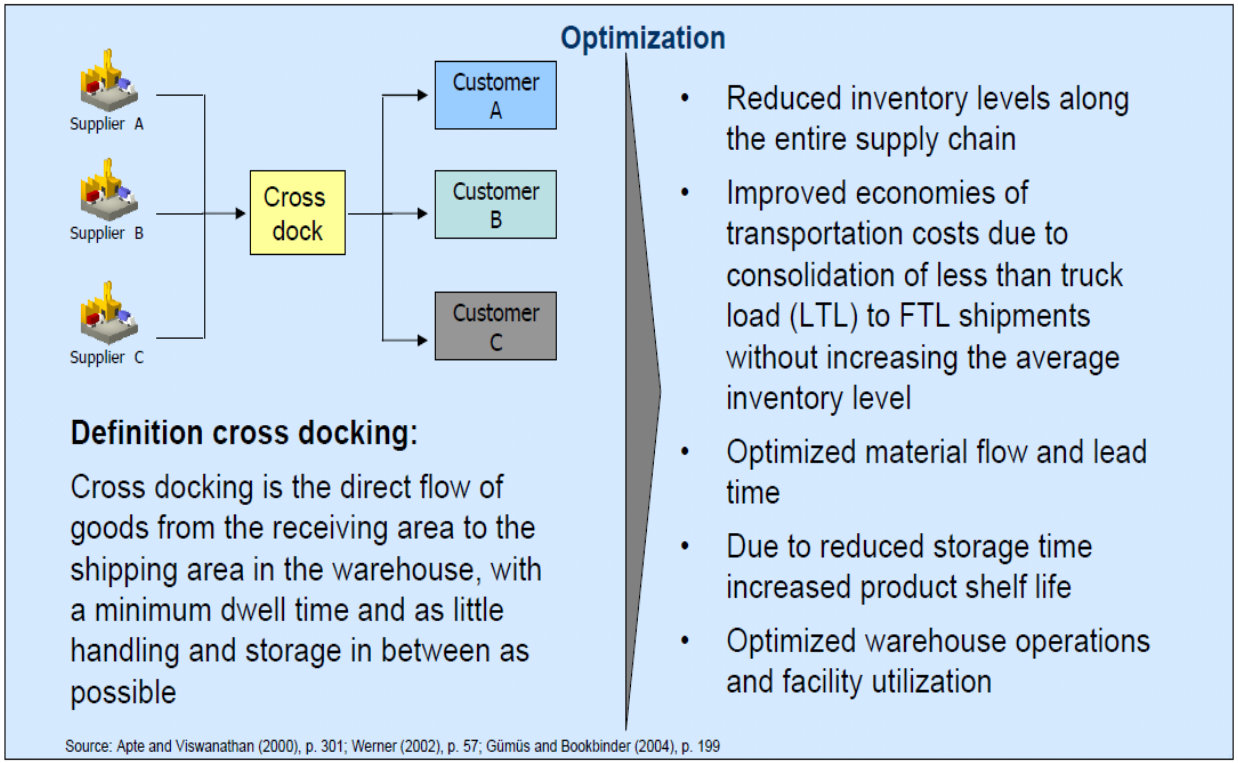
Thy hybrids – e.g. in distribution – see module on Warehousing



- Multiple trucks arriving at inbound docks are a driver of complexity
- Only limited economies of scale, mostly at the expense of more frequent replenishment cycles (full truck load (FTL) shipments not possible)

- Improved customer service by keeping products on stock close to the customer
- Optimized transportation costs by using FTL shipments, but at the expense of higher average inventory levels
- Additional inventory and warehousing costs (facility, space and handling)

The idea of X-Docking



The Strategy of Dell

The Strategy of ZARA (Inditex)

Apple

APPLICATION - DISCUSS

What is the strategic pattern of Dell

DELL

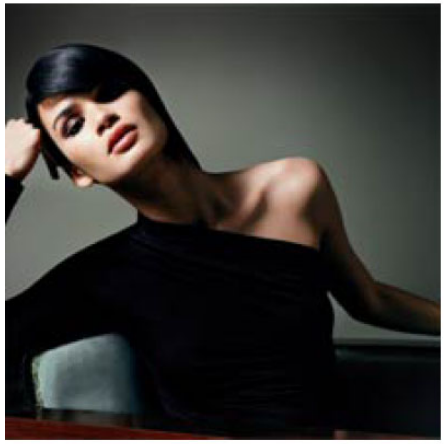
Dell Computer Company

"How can we make the process of buying a computer better?"

- ☑ Sell custom-built PCs directly to consumer
- ☑ Build computers rapidly, at low cost, and only when ordered
- ☑ Integrate the Web into every aspect of its business
- ☑ Focus research on software designed to make installation and configuration of its PCs fast and simple

What is the strategic pattern of Zara

ZARA INDITEX



Zara's mission:

To produce a fashion forward product for the masses