

Supply chain design and production systems

Lesson 4: Production

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Variety Management

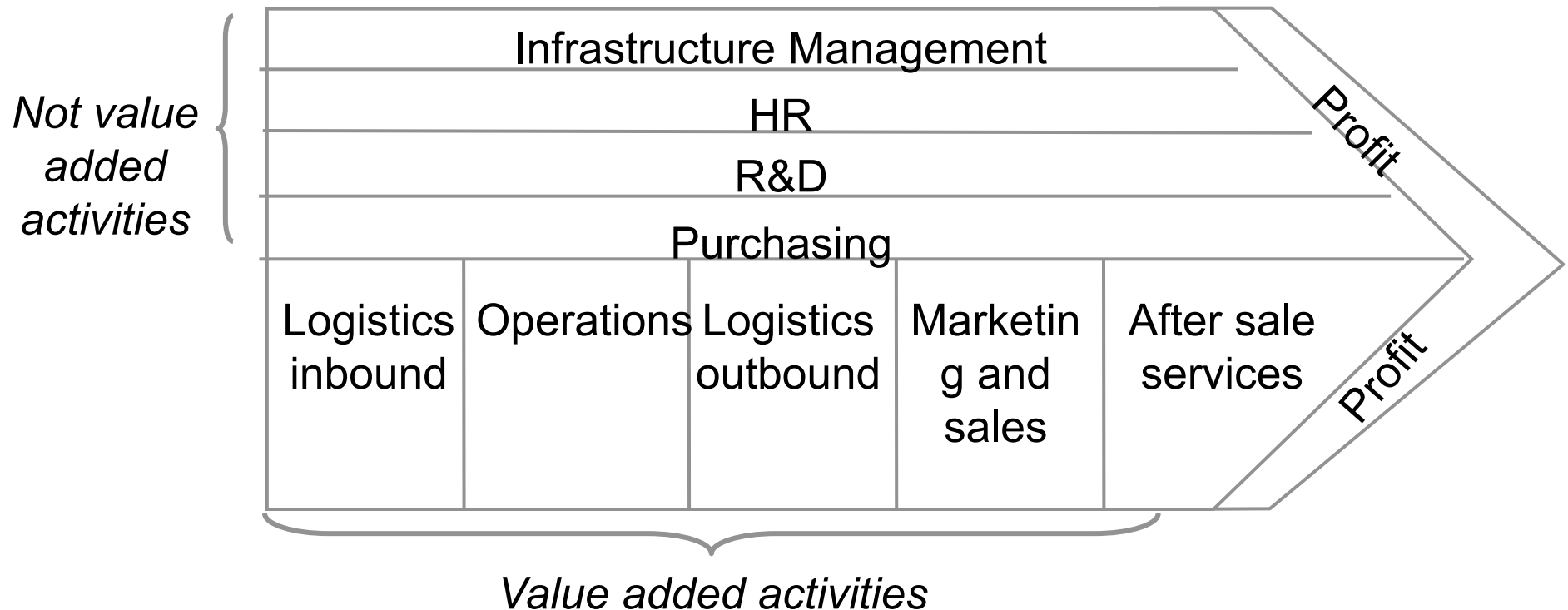
Agenda

- The firm, the value and the competition
- Operations Management
- Fashion Industry
- Wortmann model

The firm and the performances

The firm is a complex organization
focused on value added

Value Chain



The firms are different about...

... Product

- Raw materials
- Capital goods
- Durable good
- FMCG
- Fashion
- Services

... Core activity

- Production
- Assembly
- Sales
- Finance
- Services

... Industry

- Textile
- Automotive
- Food and beverage
- Leisure
- Consumer electronics
- Apparel

... Structure

- Mono/multi product
- Mono/multi markets
- Mono/multi technology
- Mono/multi plant
- National/multinational company 6

The firms are different about...

... Size

- Small
-
- Big

... Entrepreneurship

- Owner
- Management

... Structure

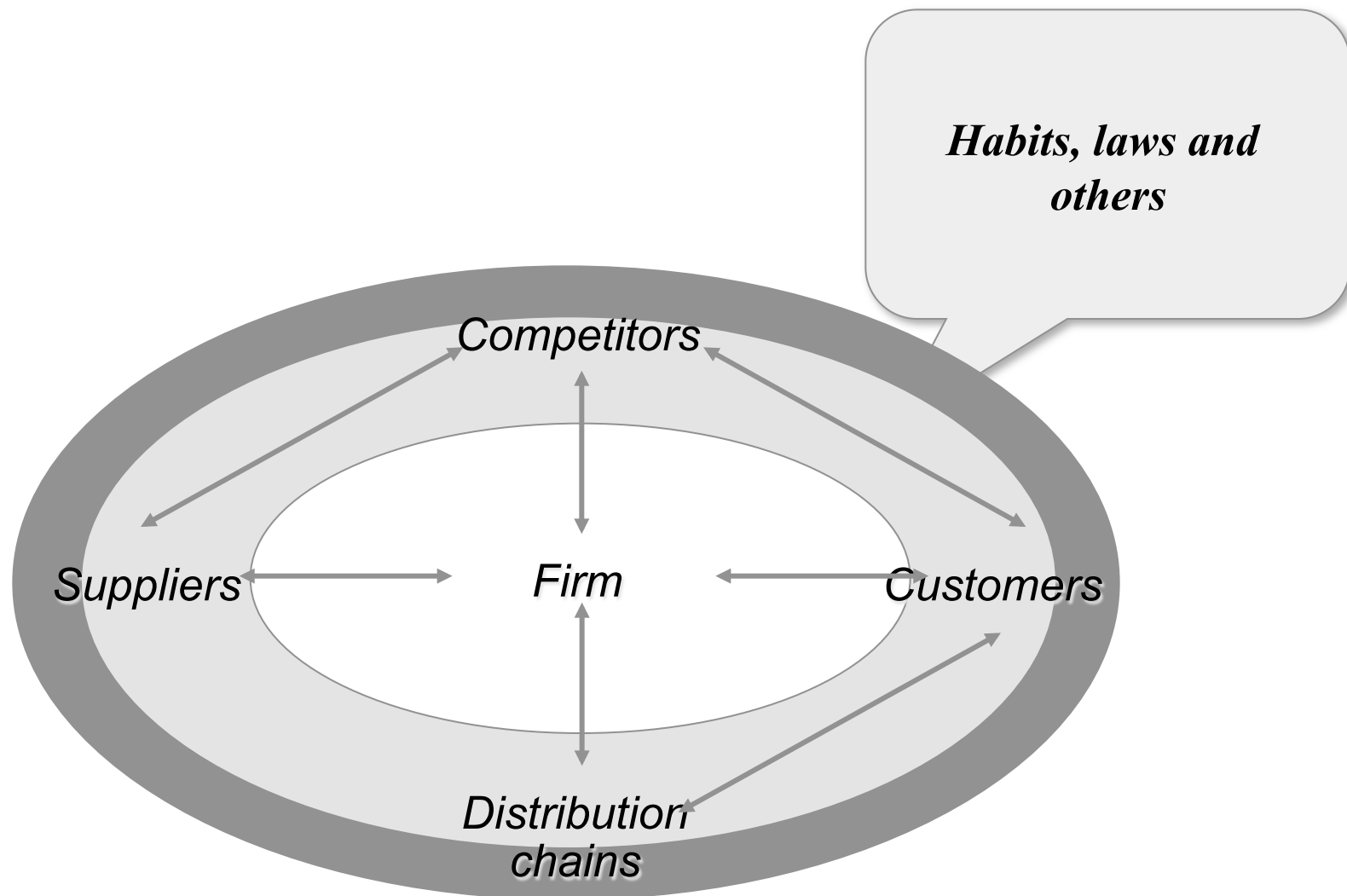
- Handcraft
- Function
- Matrix
- Lean

... Ownership

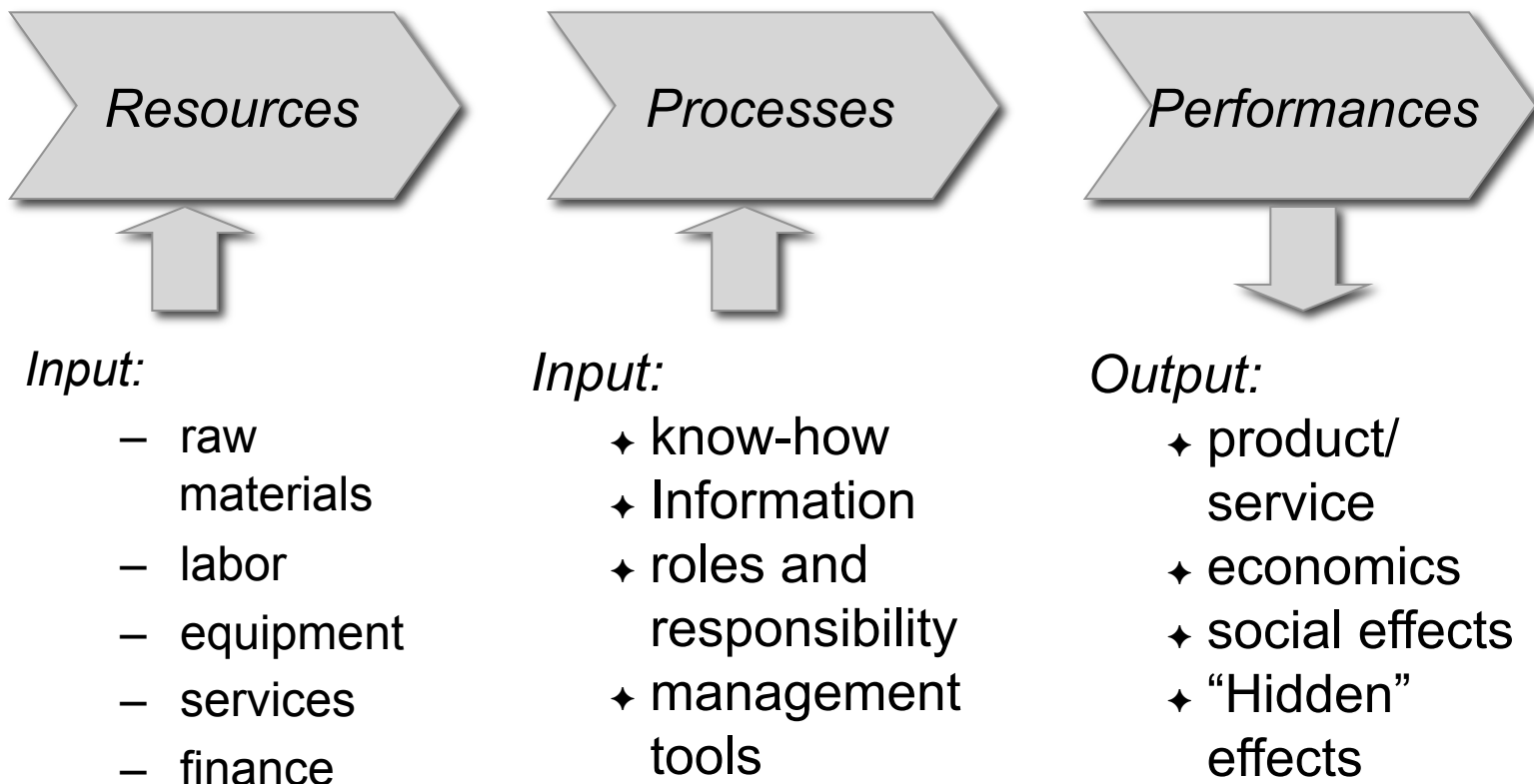
- Family
- Public company
- Government

*... So no standard solutions but
customised solutions ⁷*

The firm is linked to different actors



The inputs are not goods only and the outputs are not economics only



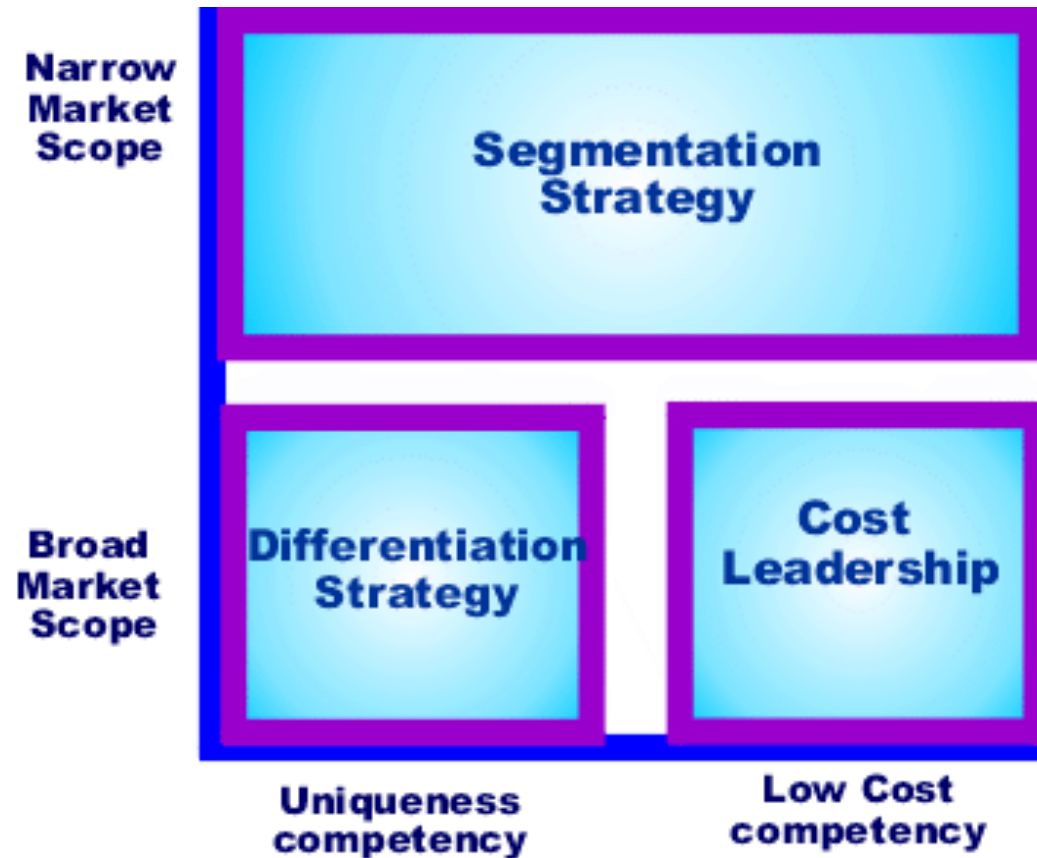
The are many social effects...

- Wellness (economic and psychological) of workers
- Investor satisfaction
- Well relationships with local communities
- Environmental
- Reputation and values

..and hidden effects

- Core competencies
- Customer loyalty
- Supplier cooperation
- Motivation of HR

The competitive strategy is the key decision of the firm (M. Porter)



The 5 forces of strategy framework (M.Porter)



The competitive advantage is due to ...

resources

- ☐ Distribution channel control
- ☐ Finance
- ☐ Manufacturing and Logistics cost/performance
- ☐ ...

skills and knowledge

- ☐ Market knowledge
- ☐ Focus on customer service
- ☐ Technical Know-how (product and process)
- ☐ Accounting and Quality
- ☐ HR

... for reaching performances better than competitors

The physical side of product/service and the soft side: the performances

- The competitive advantage is due to the customer perception of following product/service performances:

♦ *Cost*

♦ *Product innovation*

♦ *Quality*

♦ *Service*

Strategic priorities



***Each firm must define the key performance
for achieving a competitive advantage***

Achieving the competitive advantage means optimizing the key performances for customers (1)

Exemples:

Cost

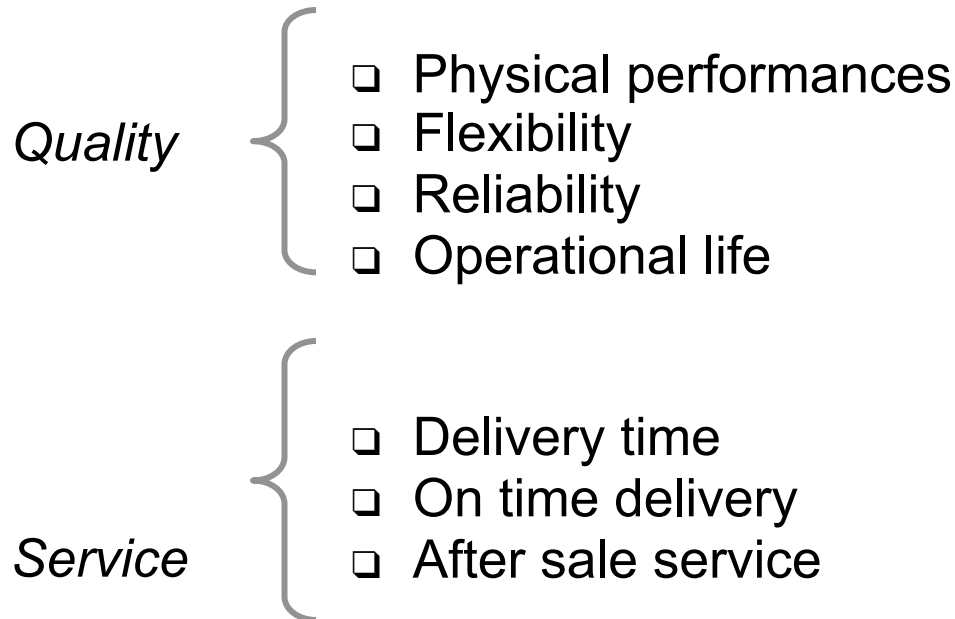
- ❑ Purchasing cost
- ❑ Manufacturing cost
- ❑ Distribution cost

*Product
Innovation*

- ❑ New product development time
- ❑ Portfolio of new products
- ❑ Portfolio of Breakthrough products

Achieving the competitive advantage means optimizing the key performances for customers (2)

Examples:



***The key performances are due
to Operations Management***

Operations

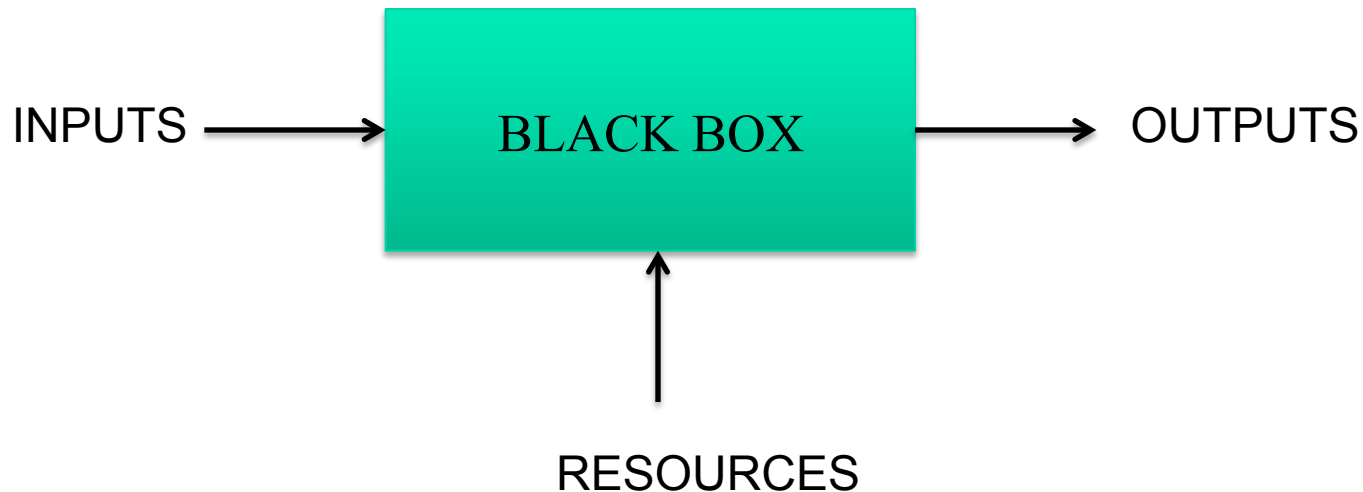
Operations management

Operations management (OM) is defined as the design, operation, and improvement of the systems that create and deliver the firm's primary products and services.

- strategic decisions
- tactical decisions
- operational

What is a production system?

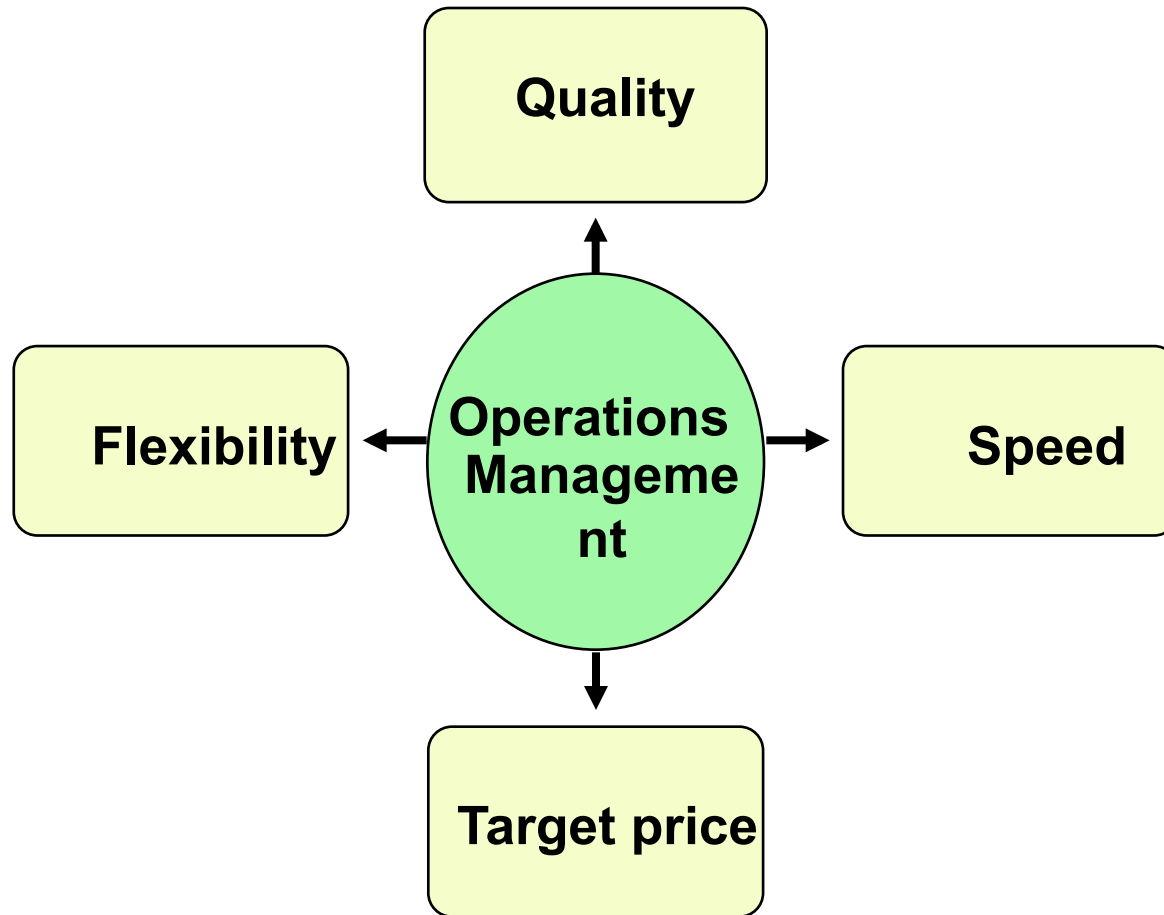
A production system is defined as a “transformation process” that uses resources to transform inputs into some desired outputs



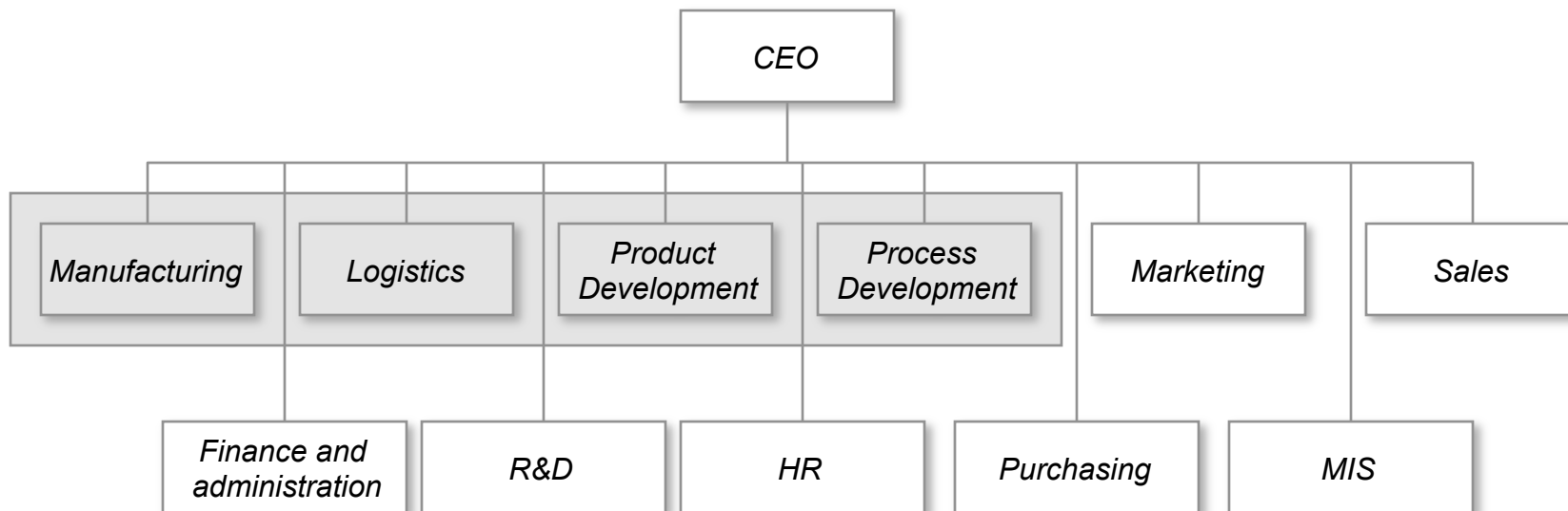
Transformations

- Physical--manufacturing
- Locational--transportation
- Exchange--retailing
- Storage--warehousing
- Physiological--health care
- Informational--telecommunications

Core Services Performance Objectives



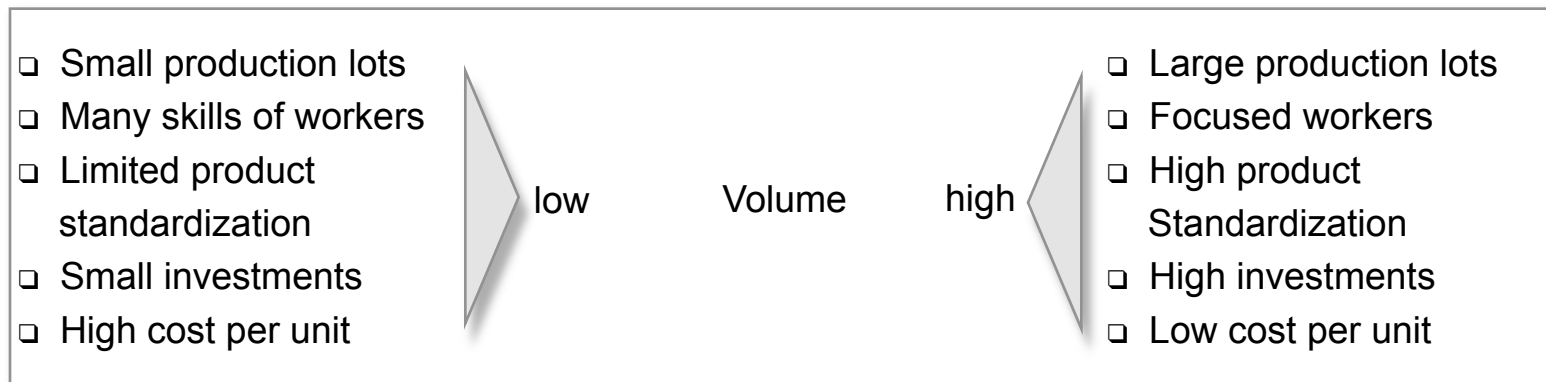
Operations management



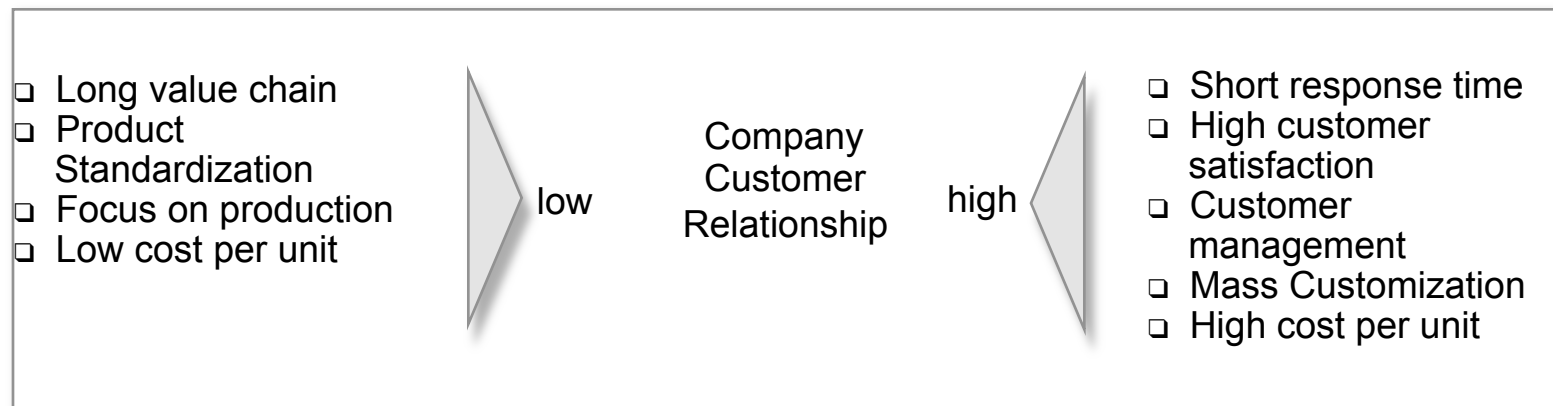
The Operations structure is due to following four variables

- Volume
- Variety
- Demand variability
- Company-customer relationship

The features of manufacturing systems are due to four variable value (1)



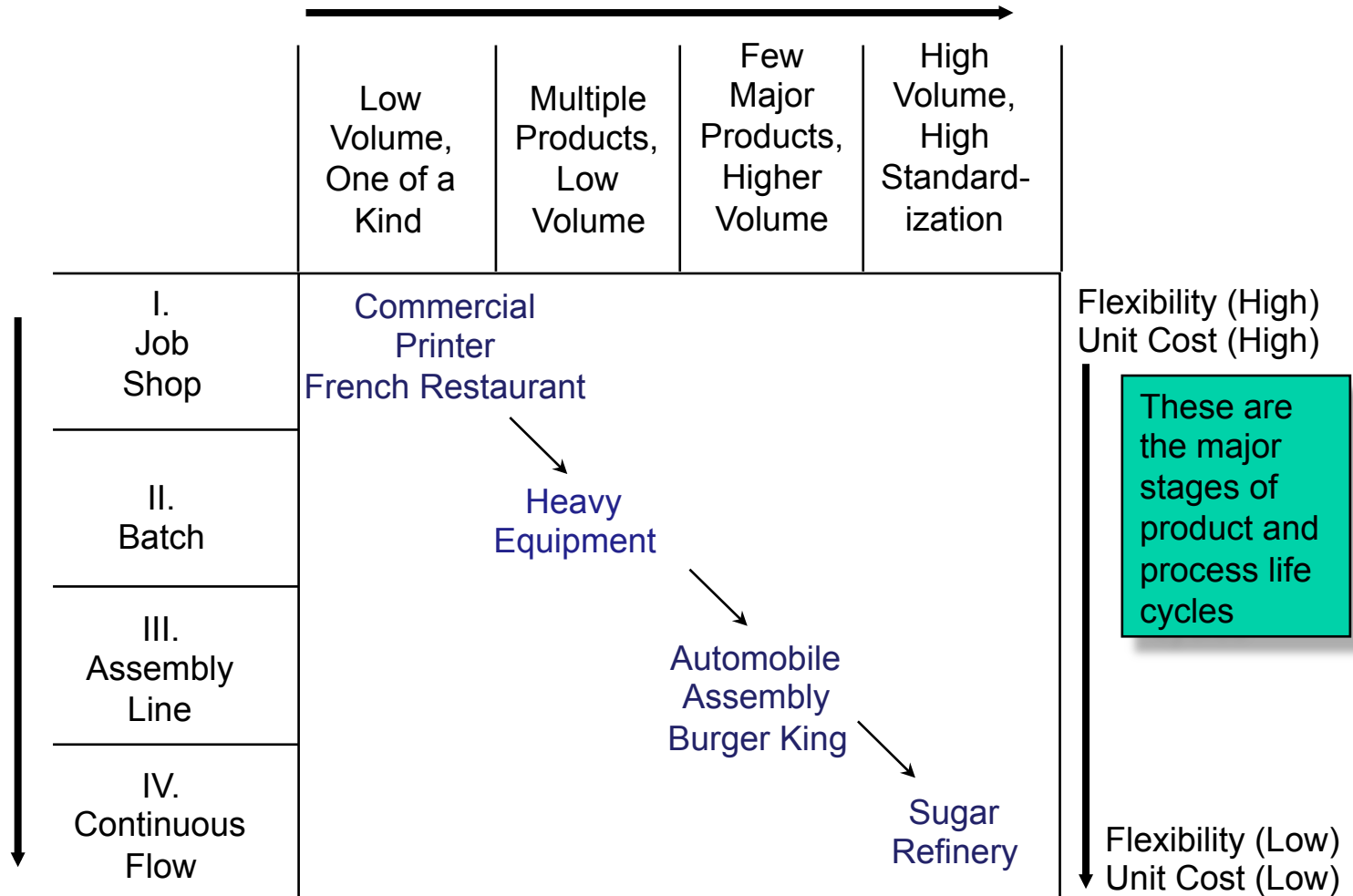
The features of manufacturing systems are due to four variable value (2)



Process Flow Structures

- Job shop (ex. Copy center making a single copy of a student term paper)
- Batch shop (ex. Copy center making 10,000 copies of an ad piece for a business)
- Assembly Line (ex. Automobile manufacturer)
- Continuous Flow (ex. Petroleum manufacturer)

Manufacturing Systems vs. variety, flexibility and volume



Three key decision making of Operations Management

Process

Key decision making

1. Capacity planning

- Facility localization (plants, warehouses etc)
- Capacity sizing
- Supply chain control
- Process/technology definition
- Plant Layout
- Organization

2. New product introduction

- Product industrialization
- Manufacturing tools and methods
- Key performance indicators
- Purchasing of new resources

3. Manufacturing Management

- Master Production planning
- Supplier network
- Material management
- Production planning
- Shop floor control

Operations Manager Objectives

- Understand the company strategy
- Develop the Operations Strategy
- Design the operation processes and the performance indicators
- Plan the activities
- Check the performances

Improving the Operations performances

Historical Development of Operation Management

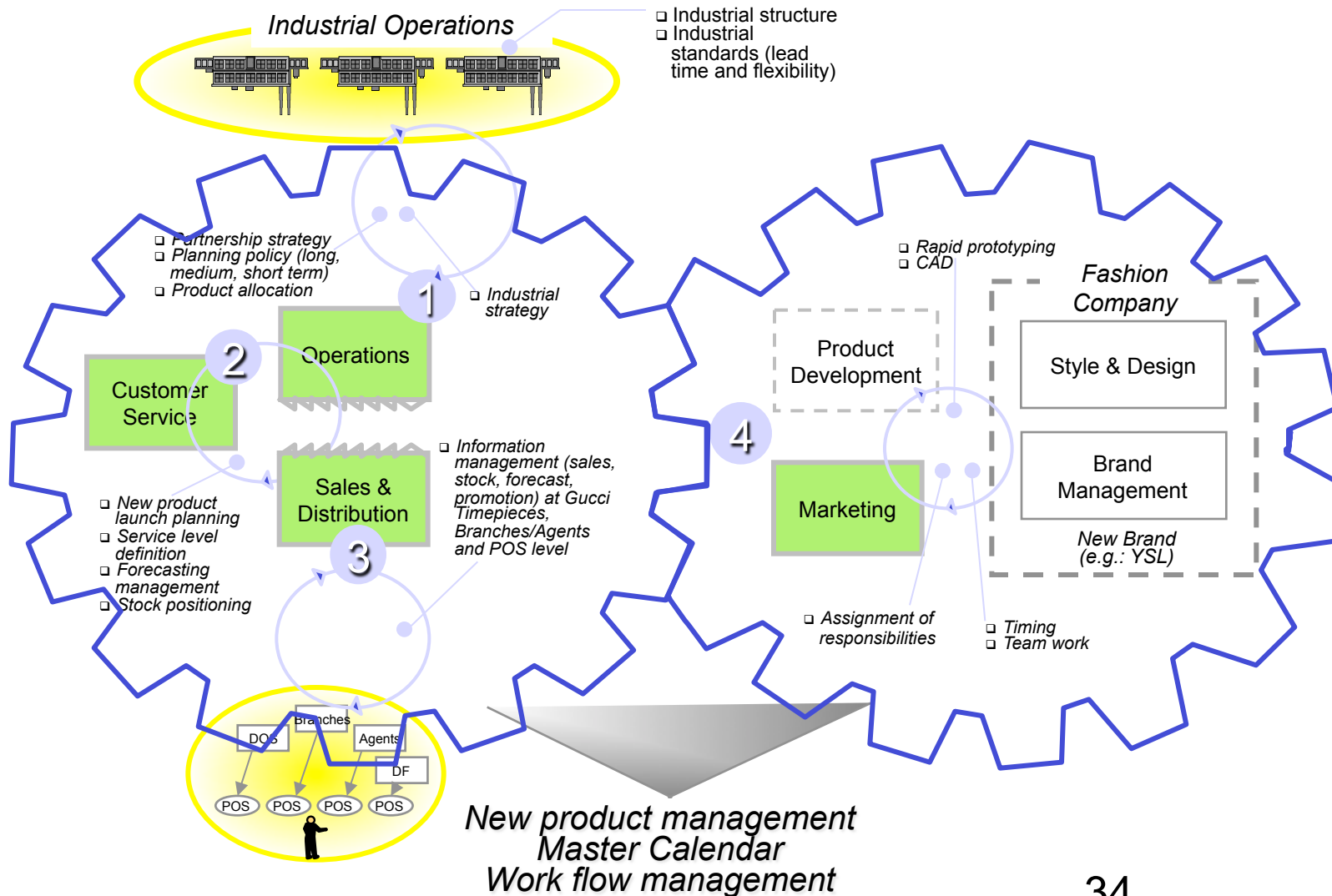
- JIT and TQC
- Manufacturing Strategy Paradigm
- Service Quality and Productivity
- Total Quality Management and Quality Certification
- Business Process Reengineering
- Supply Chain Management
- Electronic Commerce

Fashion Industry

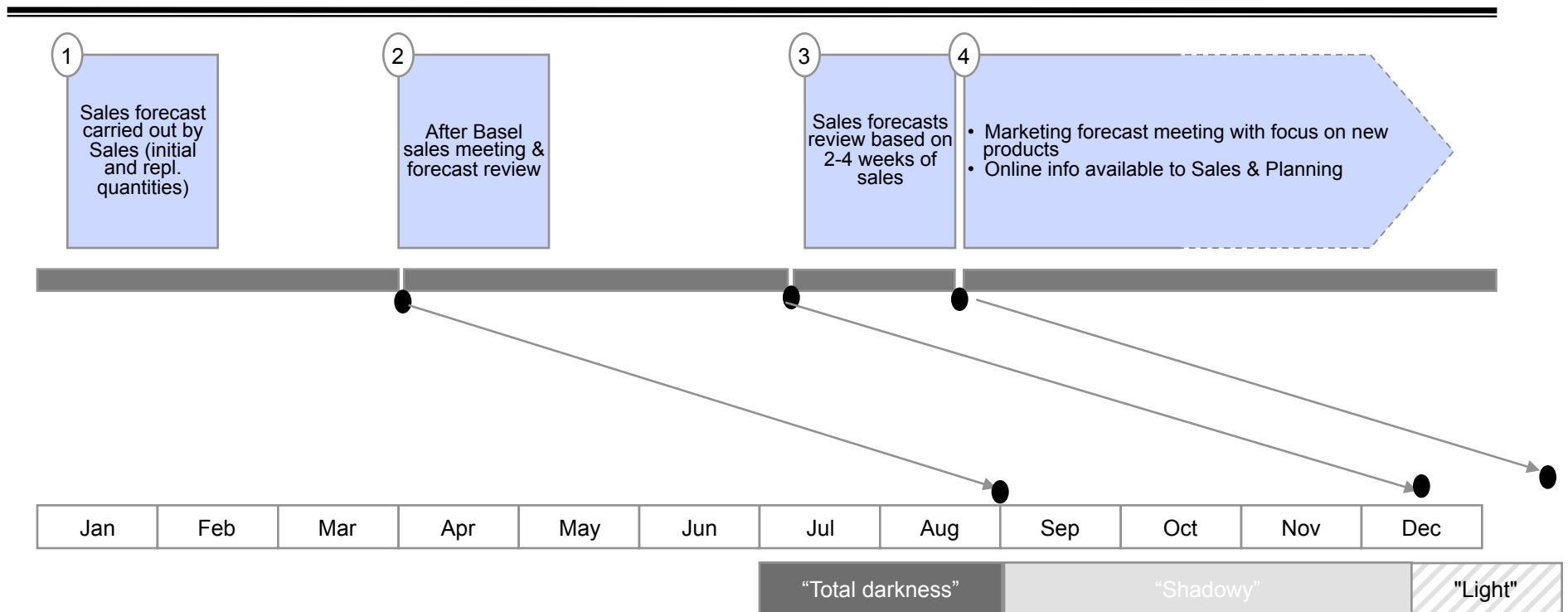
Old and new features of Fashion Industry

- Seasonal cycle
- Target price by merchandising plan
- Collection needs
- Supplier response time
- Push (retailer) and pull (customer)
- Best seller identification
- Back orders and discount
- Product Customization

New product and manufacturing synchronization

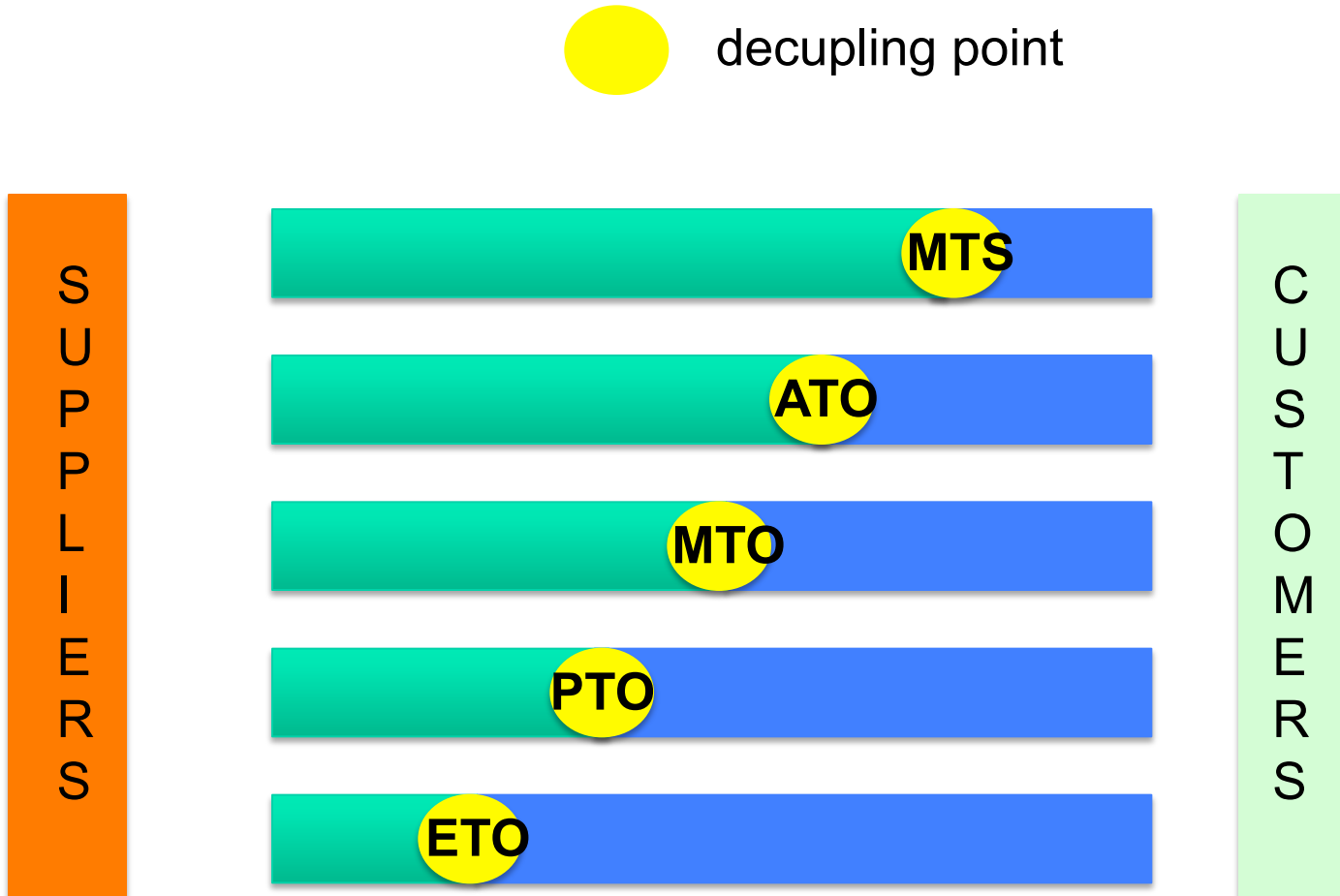


Forecasting and planning



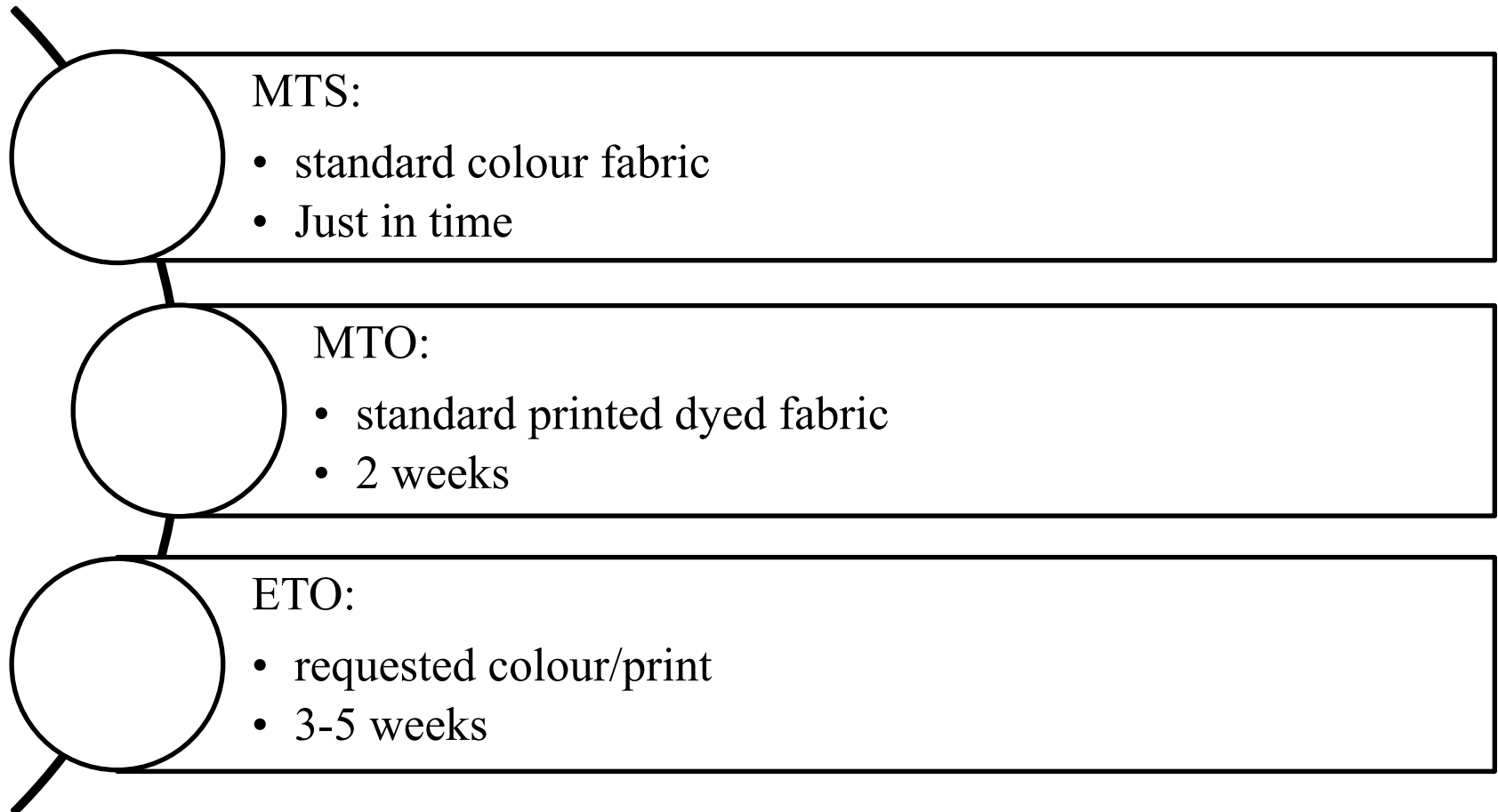
Wortmann classification

Wortmann classification of manufacturing systems



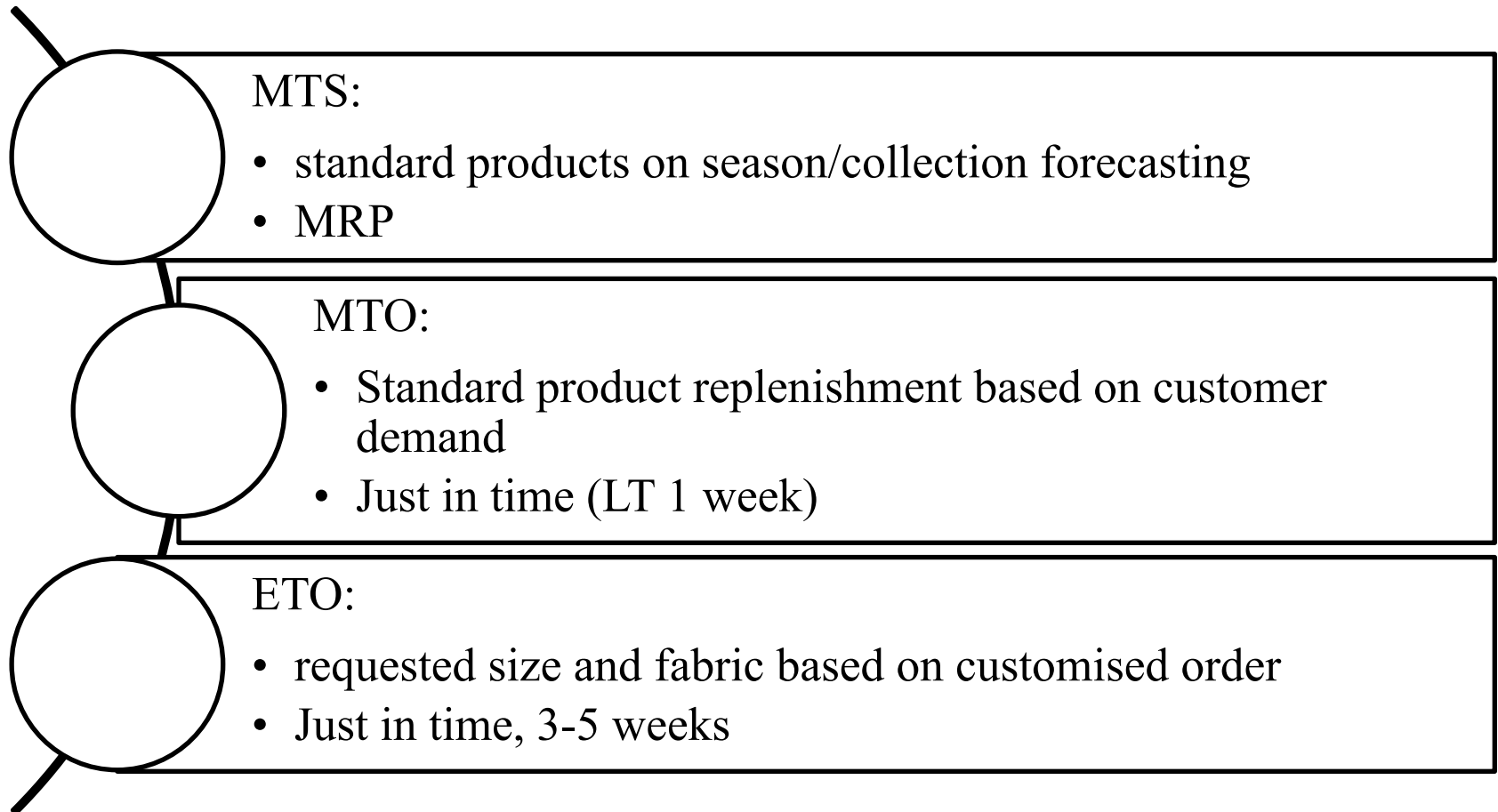
Textile example

An Italian jersey manufacturer is organized as follows:



Apparel example

An apparel manufacturer is organized as follows:



Retailer example

An apparel retailer is organized as follows:

