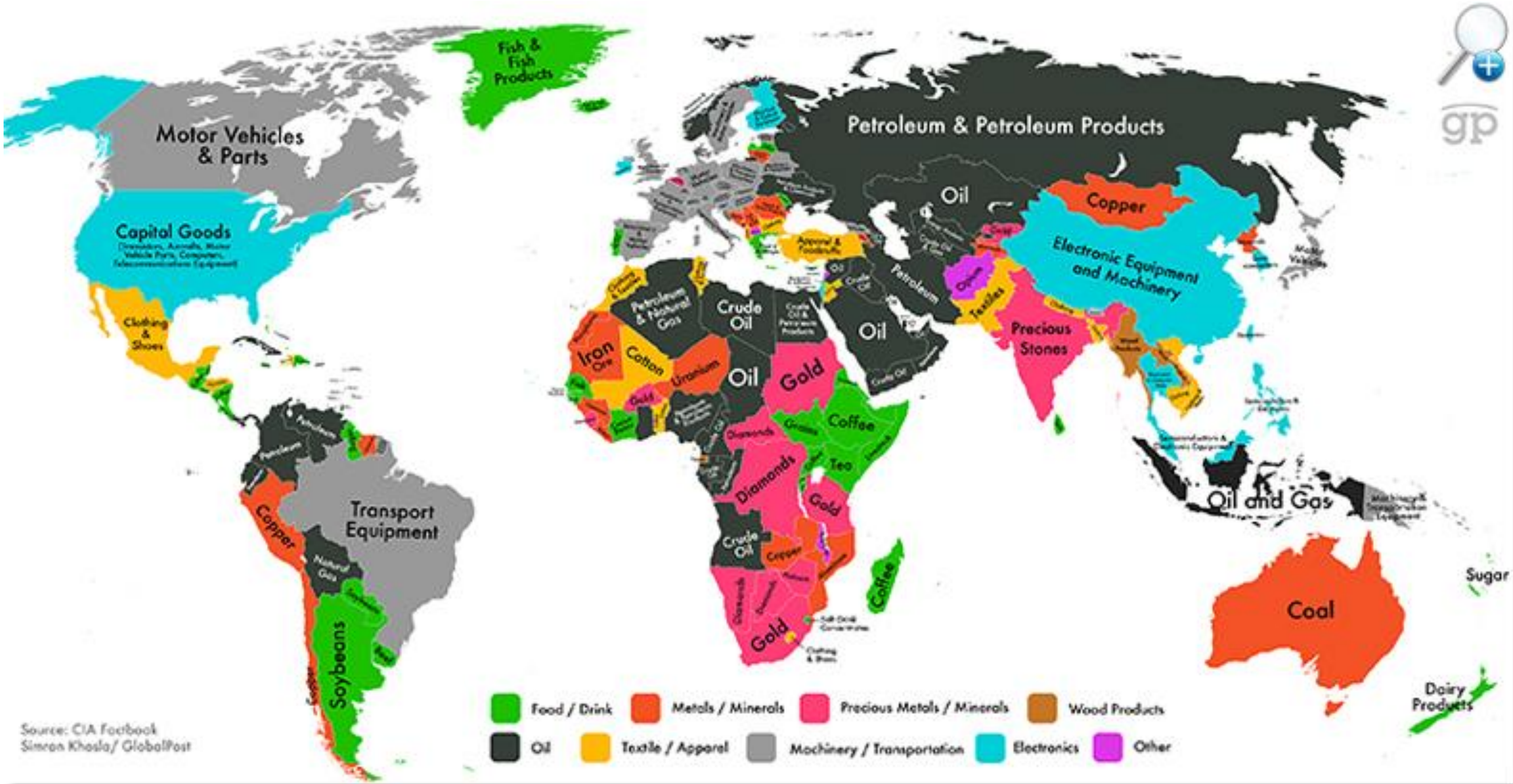
GLOBAL LOGISTICS

Frédéric Gauthier

PART 1 – INTERNATIONAL LOGISTICS SCOPE

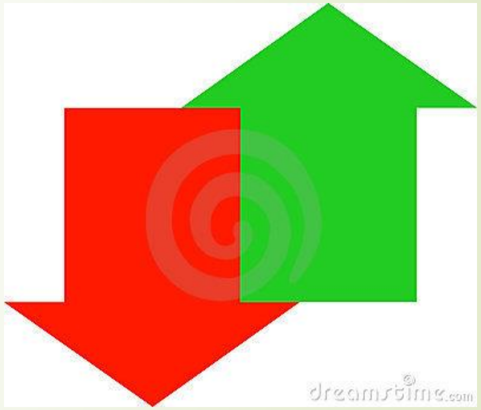
- For ages
  - Physical flows
  - From order information and financial flows
- Within the company
- Supply chain
- Worldwide

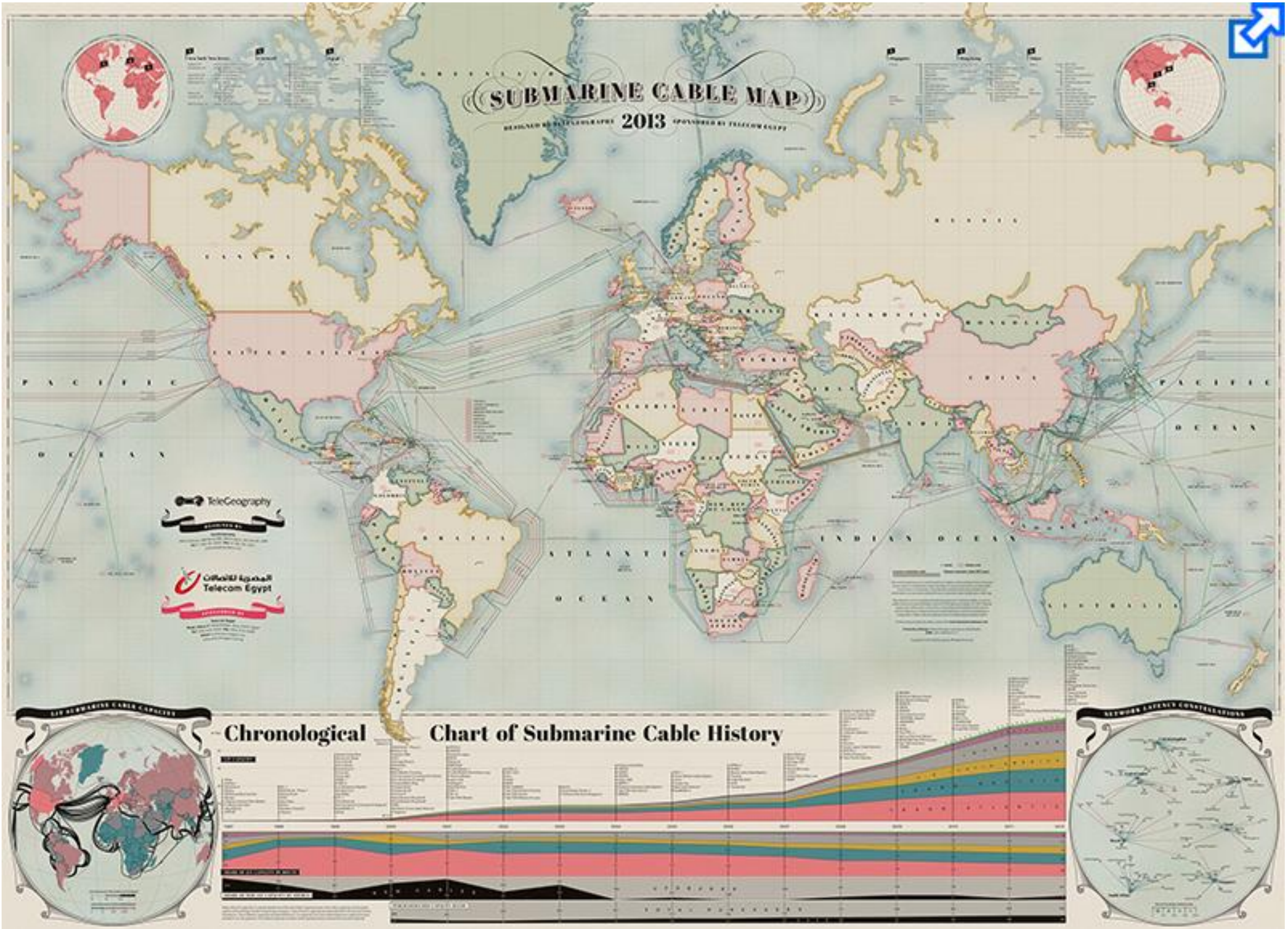


Fish & Fish Products
Motor Vehicles & Parts
Petroleum & Petroleum Products
Capital Goods
Oil
Copper
Electronic Equipment and Machinery
Clothing & Shoes
Petroleum & Natural Gas
Crude Oil
Oil
Iron Ore
Cotton
Uranium
Oil
Gold
Petroleum
Precious Stones
Textiles
Coffee
Tea
Diamonds
Gold
Crude Oil
Copper
Transport Equipment
Copper
Natural Gas
Soybeans
Coffee
Gold
Oil and Gas
Coal
Sugar
Dairy Products
Food / Drink
Metals / Minerals
Precious Metals / Minerals
Wood Products
Oil
Textile / Apparel
Machinery / Transportation
Electronics
Other
Source: CIA Factbook
Simran Khosla/ GlobalPost

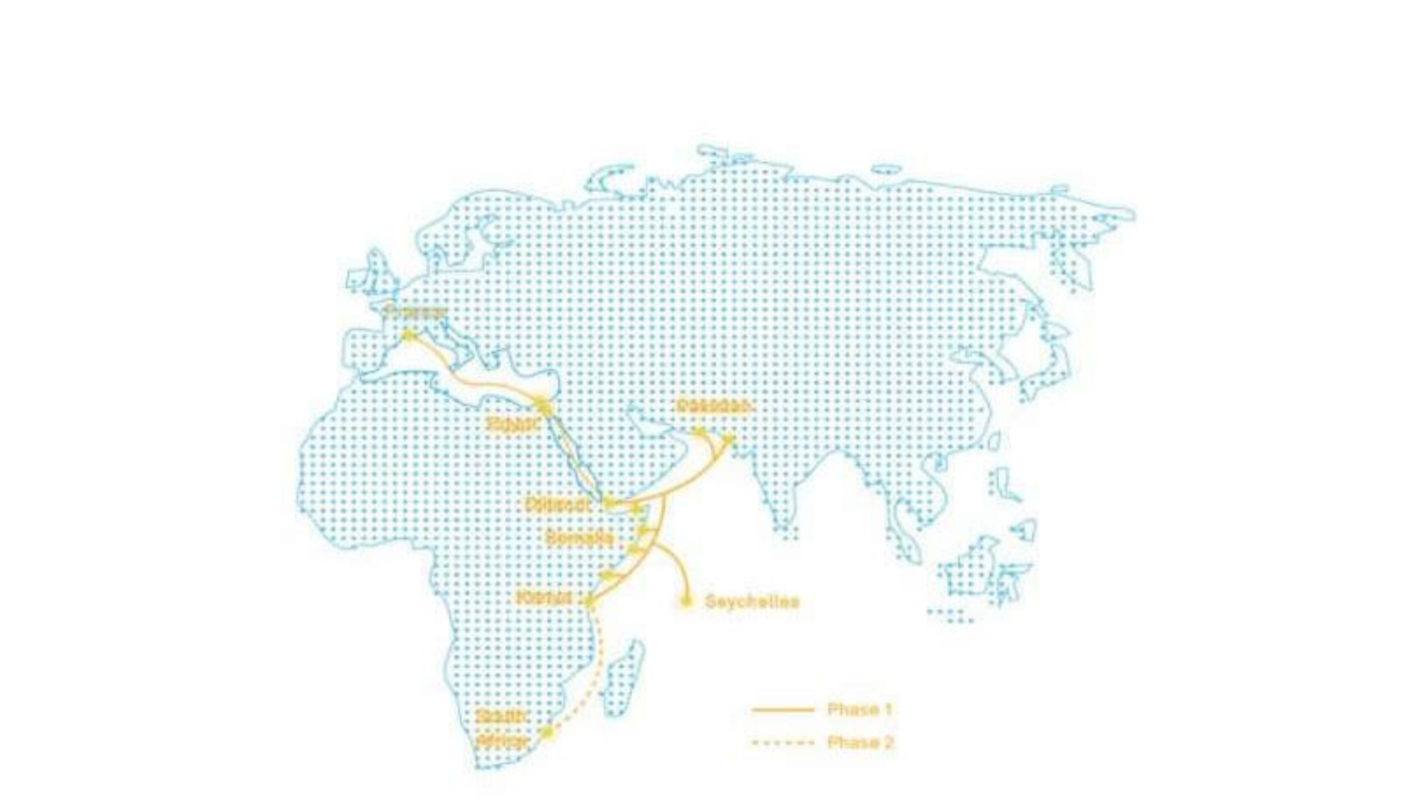
PART 1 –
INTERNATIONAL LOGISTICS SCOPE

- Economy, demand and fluctuation
  - Depending on products
  - Population : age and culture
  - Freer trade or … not
- Competition throughout the world
- The right …. what ????
  - Quantity, time, place, quality…
- Market location is changing
- Transportation and worldwide communication make it possible
  - Sea way cheapest cost
  - Communication cost
  - And poles ….





SUBMARINE CABLE MAP
2013
TeleGeography
Telecom Egypt
المصرية للاتصالات
P A C I F I C
O C E A N
A T L A N T I C
O C E A N
I N D I A N   O C E A N
Chronological
Chart of Submarine Cable History



12,000 kms long

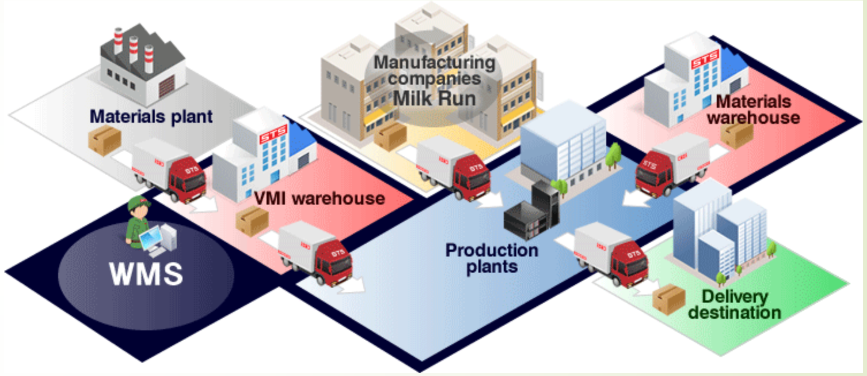
PART 1 –
INTERNATIONAL LOGISTICS SCOPE

- Customers, what they expect
  - A fair price
  - Quality looking for exceeding custome expectations
  - Delivery lead time
  - Better pre sale after sale service
  - flexibility
- Order qualifiers
  - You need them
- and order winners
  - You select them
  - Depending on
    - Life cycle
    - country


Supply chain Apple iPhone
kaiphilipsen Oct 15, 2014
Canada
United States
Warhouse HQ
HQ
Mexico
Russia
NO
SE
UK
FR
PL
UA
ES
IT
KZ
MN
UZ
IR
PK
India
DZ
LY
EG
SA
ML
NG
SD
ET
KE
HUB middenoosten lucht
Indonesia
Brazil
VE
CO
PE
BO
upstream
downstream
powered by
sourcemap

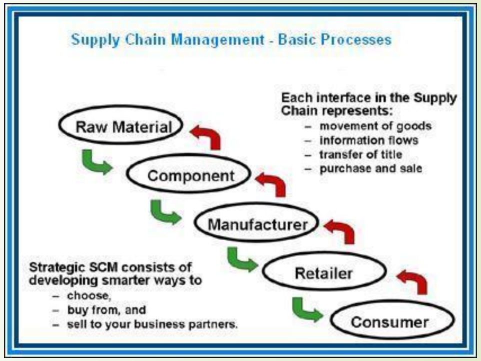
PART I

- Manufacturing strategy
  - Delivery lead time
  - Engineer to order
    - At the product design stage
  - Make to order
    - Raw material is available
  - Assemble to order
    - Parts are available
  - Make to stock
    - From finished goods inventory



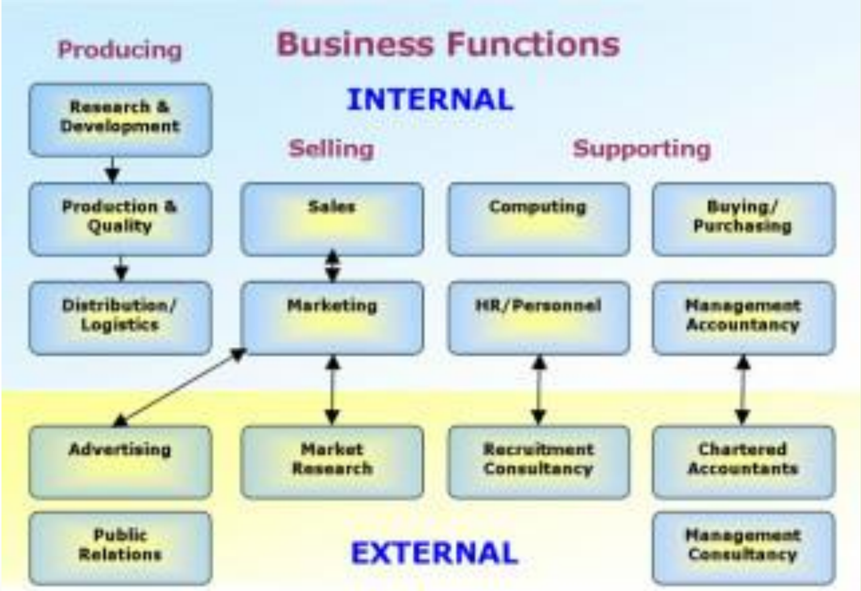
PART I

- The supply chain concept
  - Raw materials, manufacturing, finished goods
  - Several companies within the supply / demand relationship
  - Several suppliers as well as several customers
  - A number of intermediaries
- From the past to today
  - Internal management
  - Suppliers as business adversaries
  - The supplier partnership within the Just in Time management
    - Mutual analysis for cost reduction
    - Mutual product design
    - The speed of accurate information flow



PART I

- Conflicts in traditional systems
  - Before separate functions
    - Best customer service
    - Lowest production cost
    - Lowest inventory investment
    - Lowest distribution costs
  - To
    - Marketing
    - Finance
    - Production…
    - Against Finance
  - Driven to conflicts
    - Connections with goals
    - To balance conflicting objectives



Sum up …

- *What are the three logistics flows*
- *What is logistics main goal*
- *What is the main problem logistics has to solve*

Supply chain metrics

- A performance measure qualitative or quantitative,
  - Control by superior
  - Reporting of data
  - Communication
  - Learning to …
    - Improve

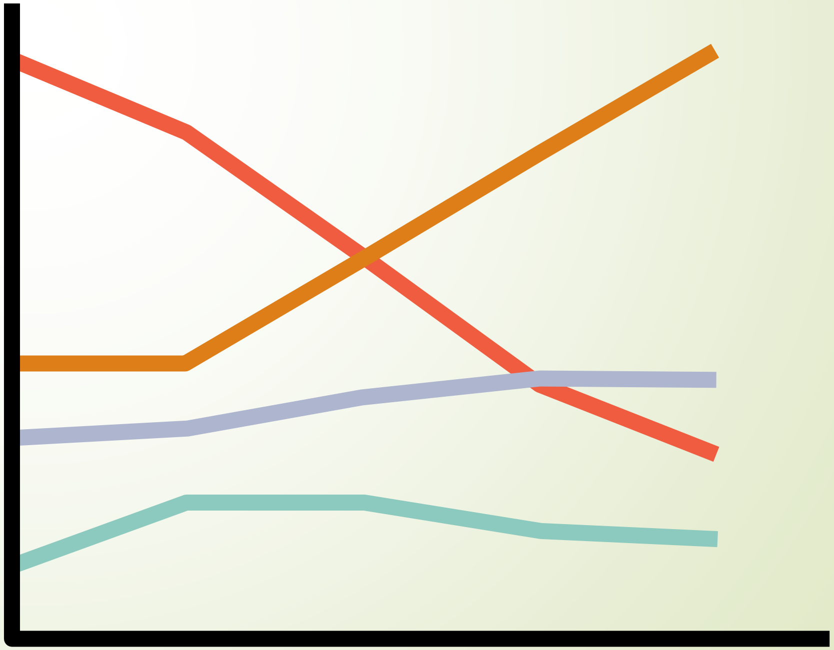
Today major challenges

- Customers are never satisfied
- A supply chain might be easily large
- A vast amount of data
- Product life cycle is shorter and shorter
- Profit margin are more squeezed
- By the way an increasing number of alternatives

- ***Designing* the flow management**
  - Product design
    - Use, maintenance, analysis, plan, packaging
  - Setting the objectives
    - Assessment of service level, logistics categories
  - Designing the information system
    - Databases, software choice, telecommunication, EDI, codification
  - Design of physical system
    - Network, inventory level, transport alternatives
  - Designing the management system
    - Forecast, ressource allocation, priority rules

- Intensification of trade
  - means concentration

Part II – Competing with Operations (materials management)



COMPETING WITH OPERATIONS Introduction

Operations management deals with processes

Creates departments connection with Operations

accounting, finance, human resources, management information system, marketing, operations…

Inputs, adding value, provide outputs

Cuts across boundaries

Process View of an Ad Agency

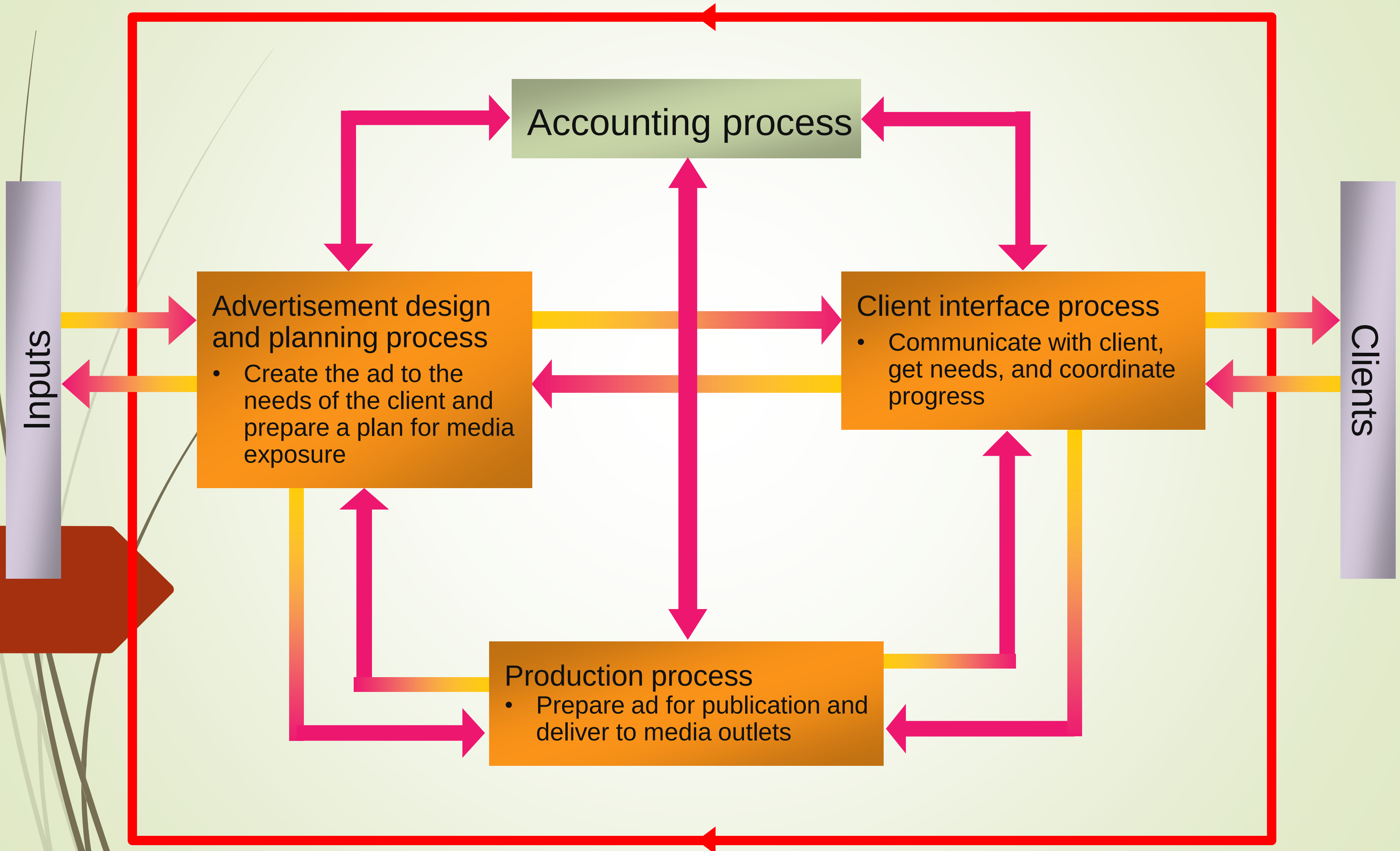


Figure 1

Nested Processes

Advertisement Design and Planning Process

Creative design process

- Receive work request
- Create team
- Prepare several designs
- Receive inputs from Account Executive
- Prepare final concept
- Revise concept per client's inputs

Media planning process

- Receive work request
- Prepare several media plans
- Receive inputs from Account Executive
- Prepare final plan
- Revise plan per client's inputs

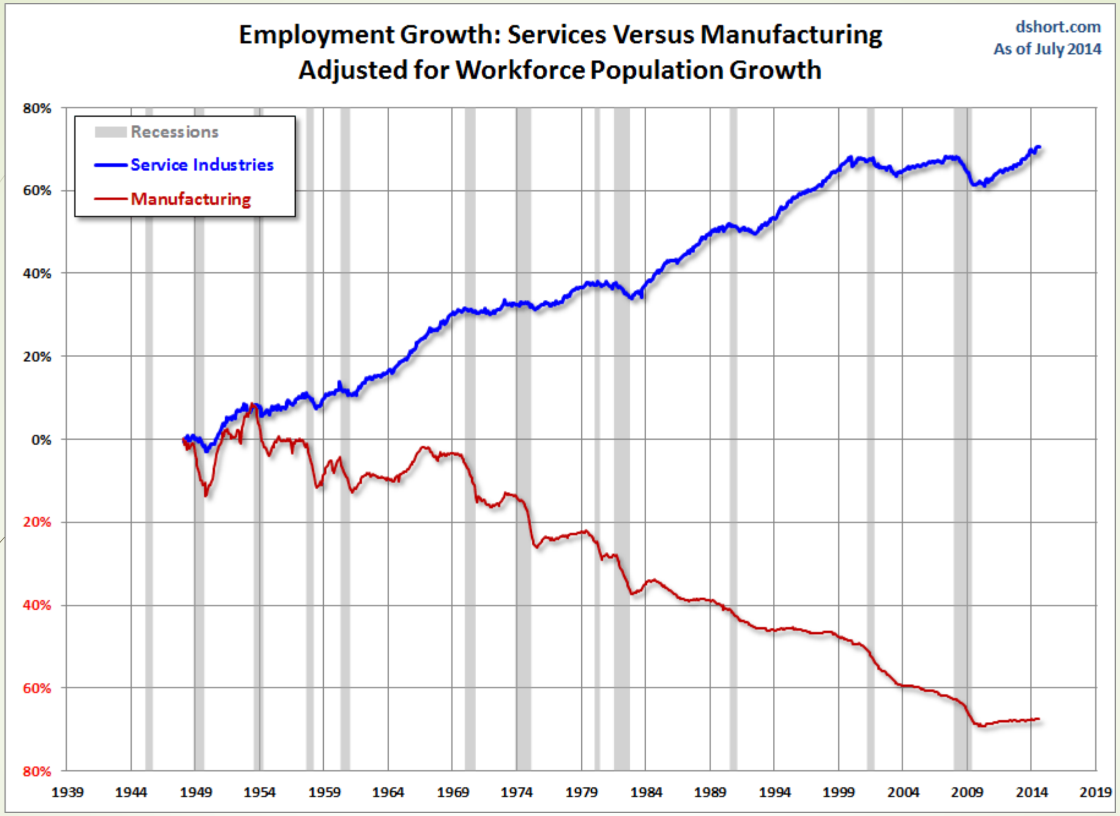
Figure 1.2

- Customer supplier relationships
  - End users and internal customers
  - External suppliers and internal suppliers
- Service and manufacturing processes
  - Services
    - Intangible perishable outputs
    - Finished goods inventory

Degree of customer contact

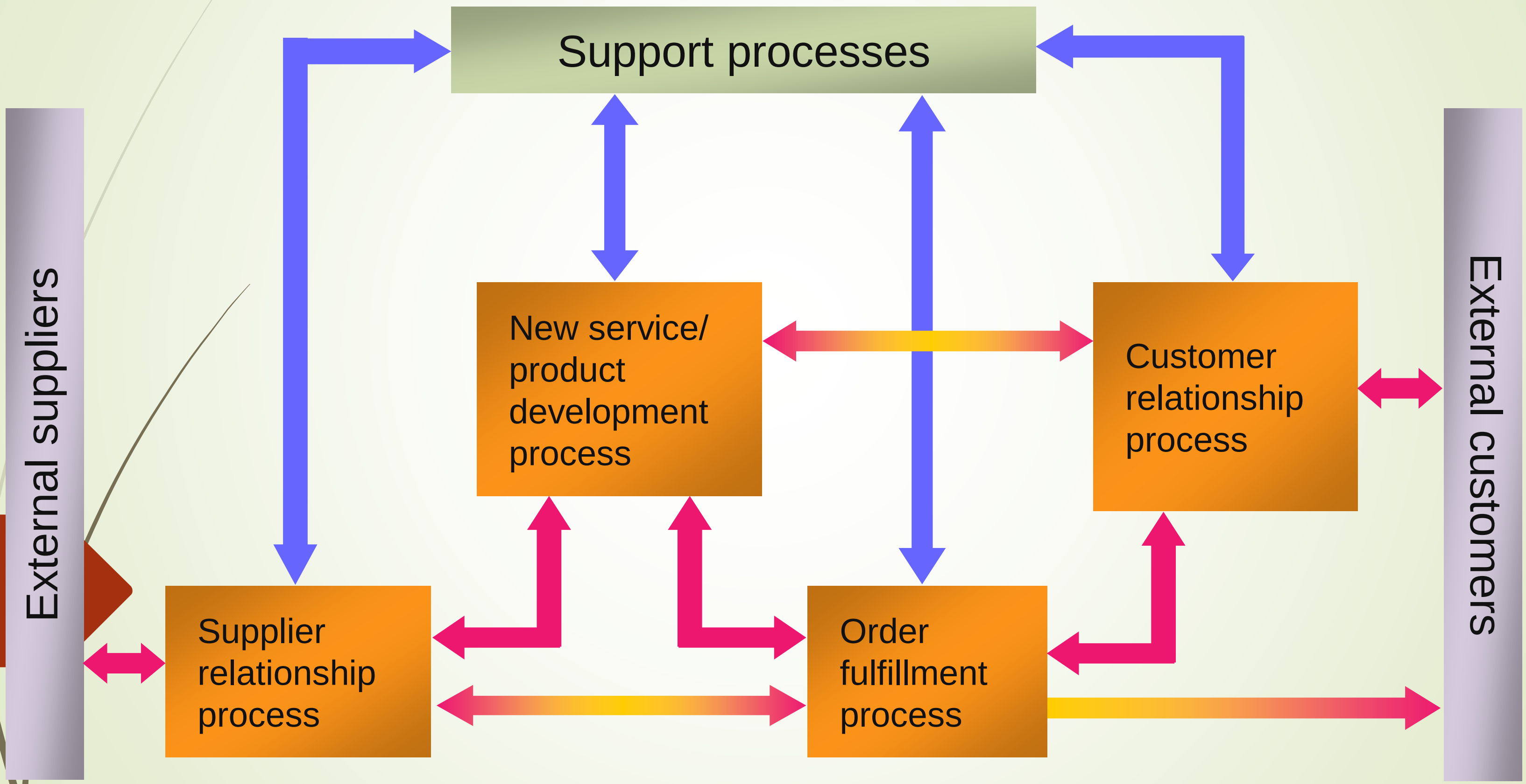
High or low

Management in service



Manufacturing and service comparison in the U.S.

Internal Value-Chain Linkages Showing Work and Information Flows



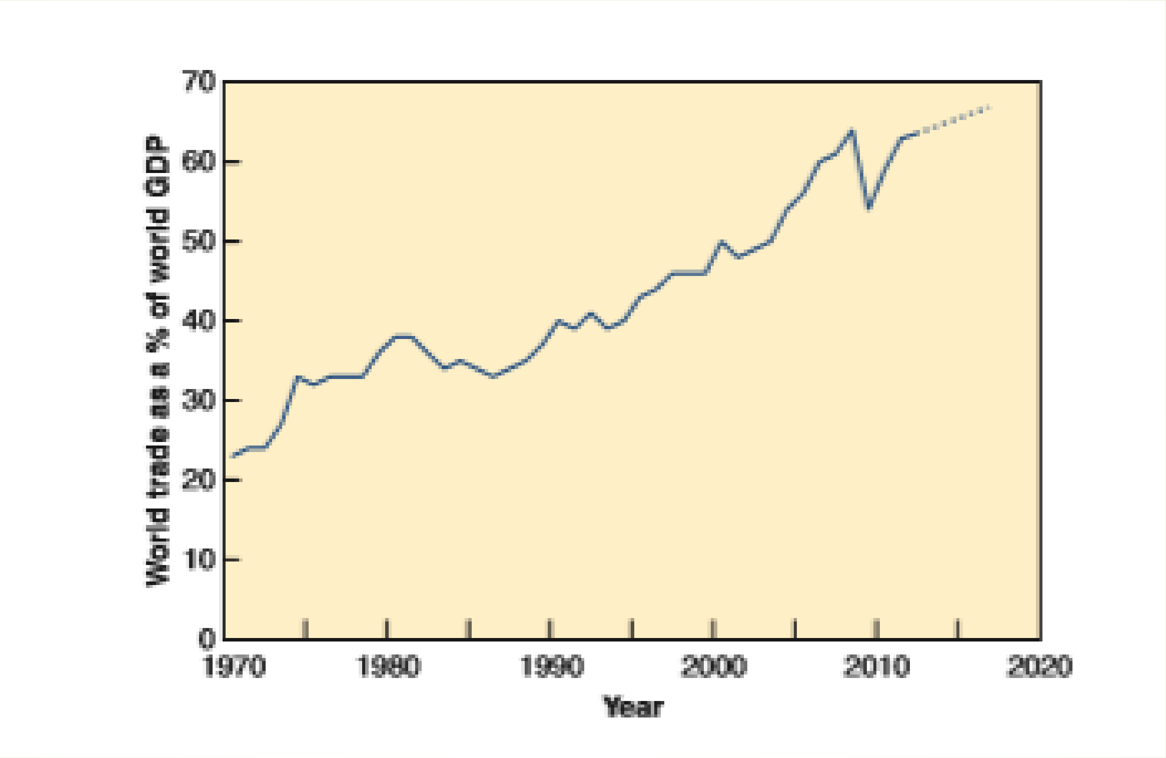
- Added value : a core process
- A support process : provides vital resources

Support Processes

Table 1.1 Examples of Support Processes	
Capital Acquisition	***The provision of financial resources for the organization to do its work and to execute its strategy***
Budgeting	***The process of deciding how funds will be allocated over a period of time***
Recruitment and Hiring	***The acquisition of people to do the work of the organization***
Evaluation and Compensation	***The assessment and payment of the people for the work and value they provide to the company***
Human Resource Support and Development	***The preparation of the people for their current jobs and future skill and knowledge needs***
Regulatory Compliance	***The process that insure the company if meeting all laws and legal obligations***
Information Systems	***The movement and processing of data and information to expedite business operations and decisions***
Enterprise and Functional Management	***The systems and activities that provide strategic direction and ensure effective execution of the work of the business***

Types of OM Decisions

- Strategic choices
  - New Processes
  - Quality
  - Value Chains
- Operating Decisions
  - Process Management
  - Project Management
  - Inventory
  - Scheduling



Growth of world trade, ... after Covid 19 ?

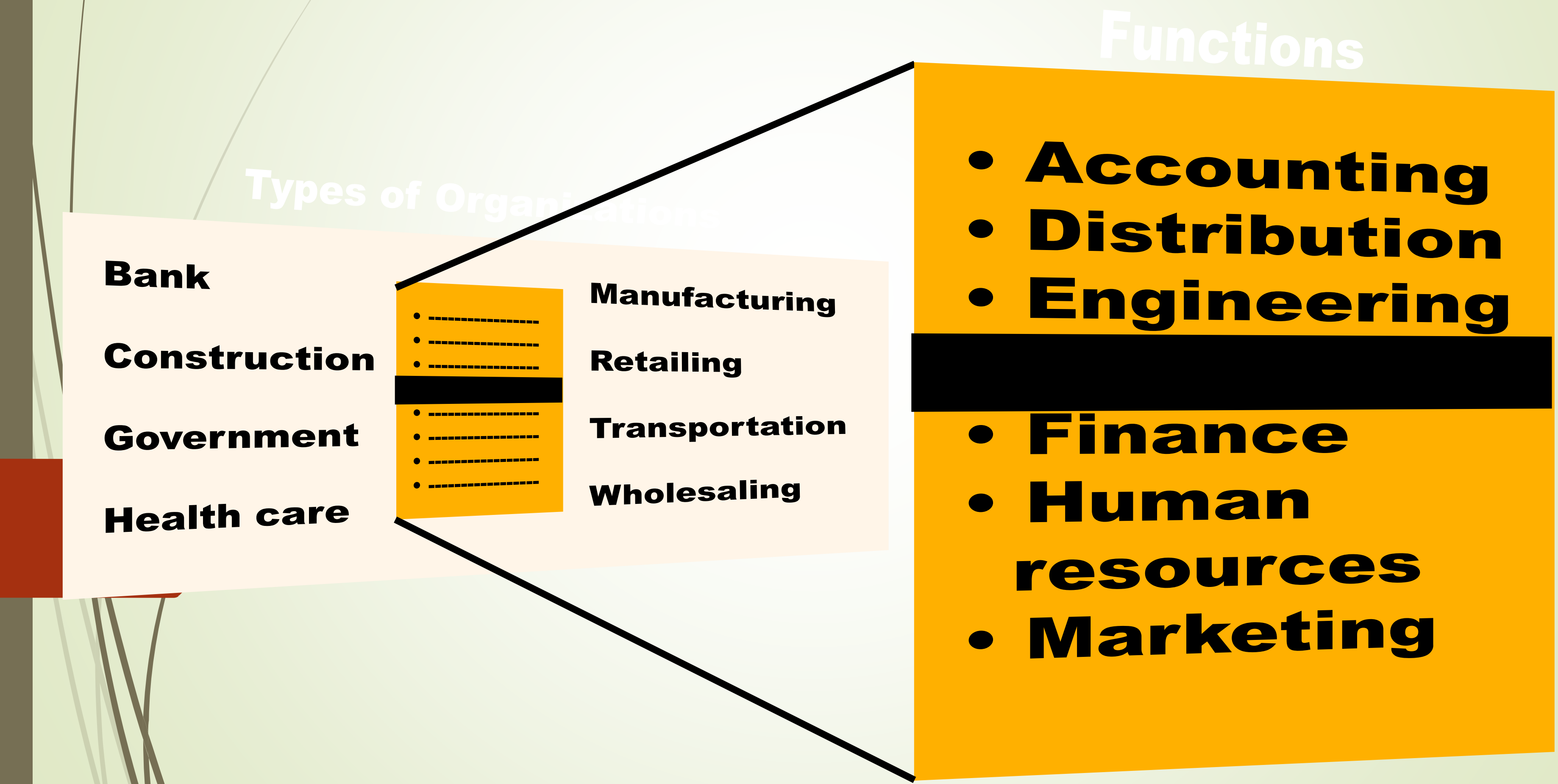
Multi poles world

- World Trade Organization (WTO)   An international organization that promotes world trade by lowering barriers to the free flow of goods across borders.
- North American Free Trade Agreement (NAFTA)   A free trade agreement between Canada, Mexico, and the United States.
- European Union (EU)   A European trade group that has 27 member states...
- And now
  - Indicator of performance in service as well as in manufacturing

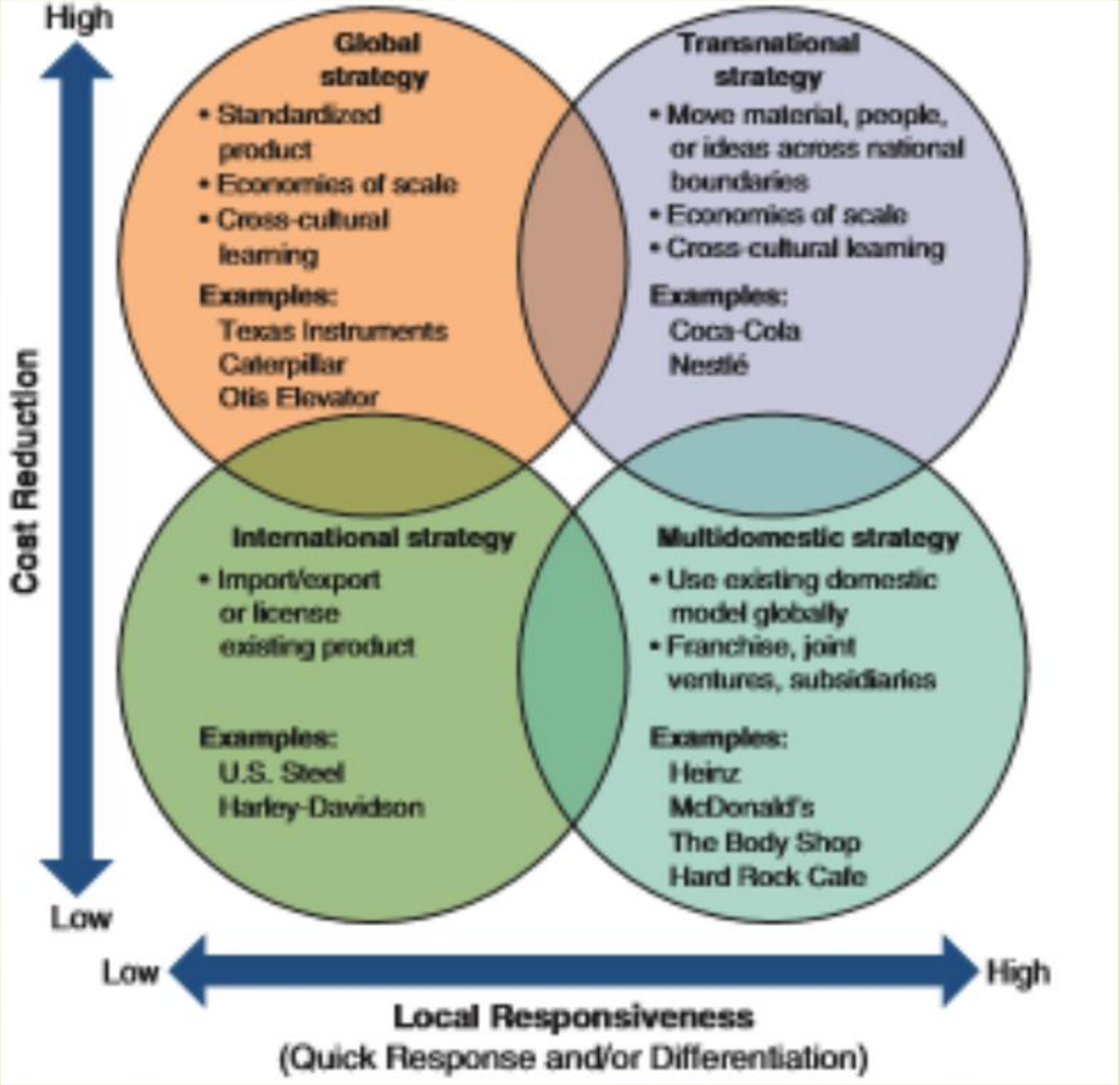
Sum up

- Identify differences between services an manufacturing and what is their connection ?
- Identify two main processes

Operations Management as a Function



Four global strategies



Competitive advantage application

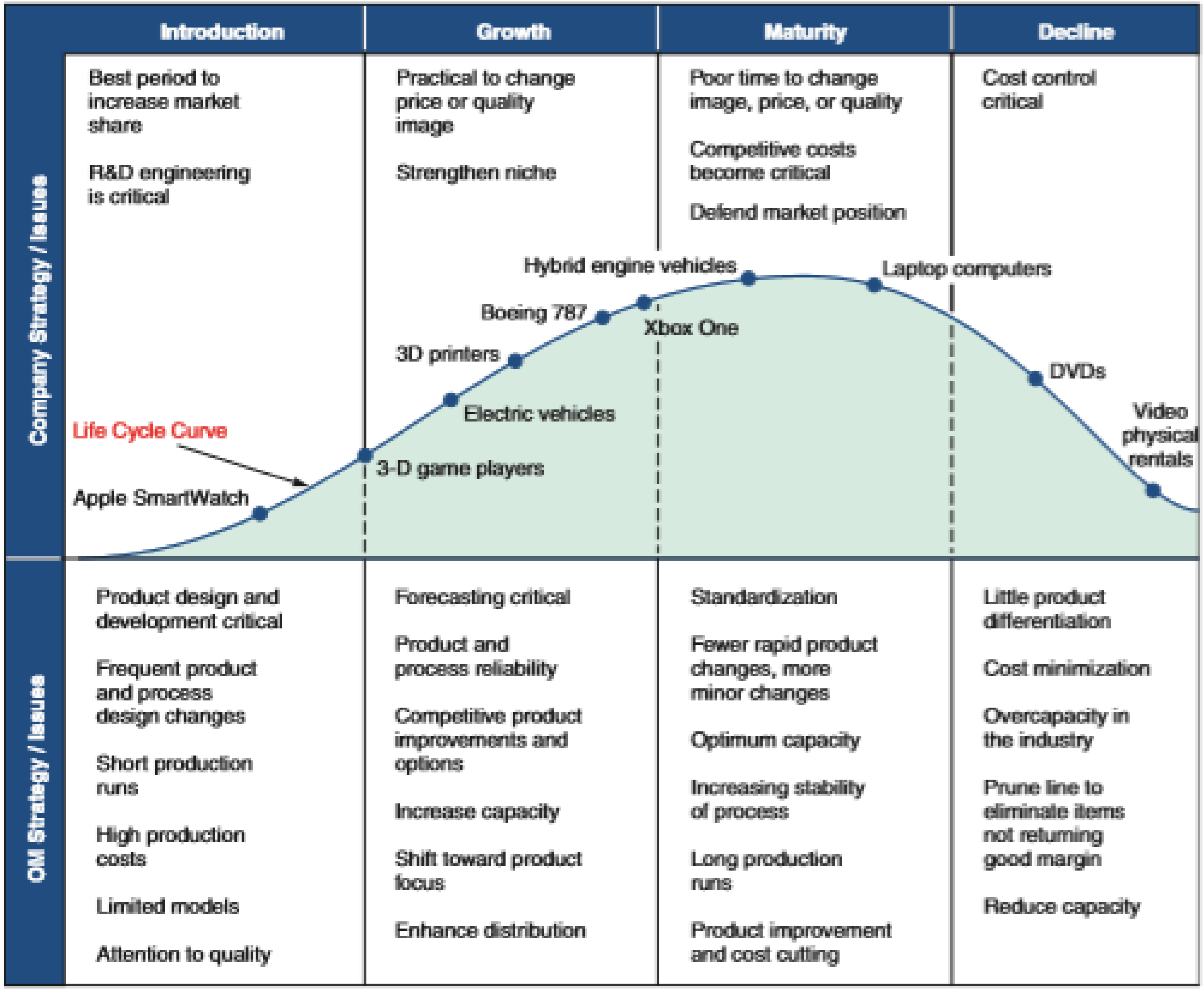


Figure 2.5

Product life cycle

Productivity

The ratio of outputs (goods and services) divided by one or more inputs (such as labor, capital, or management).

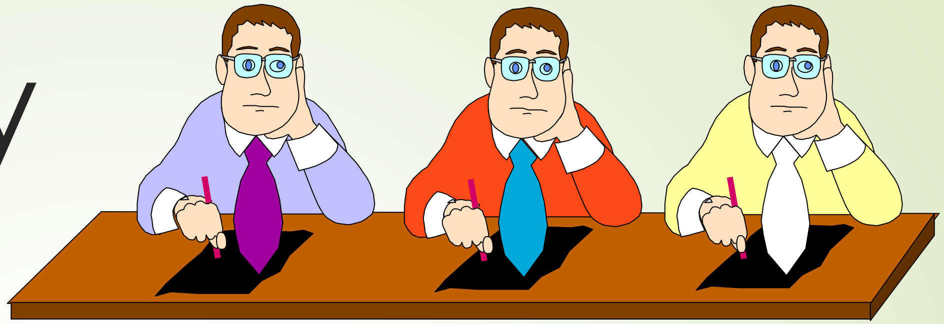
$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

The operations manager's job is to enhance (improve) this ratio of outputs to inputs. Improving productivity means improving efficiency

Productivity

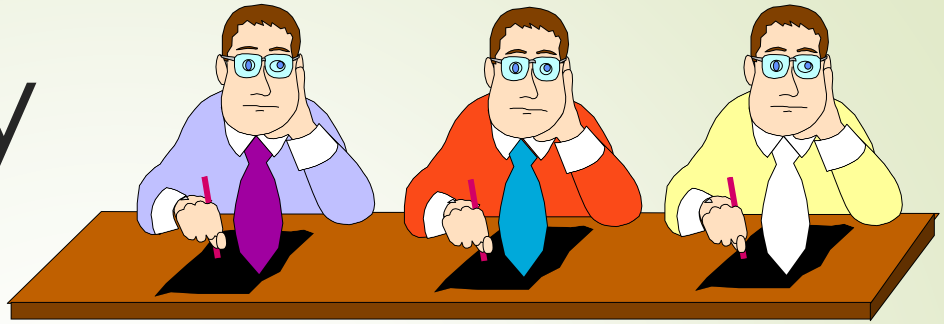
$$\text{Labor productivity} = \frac{\text{Policies processed}}{\text{Employee hours}}$$

Productivity



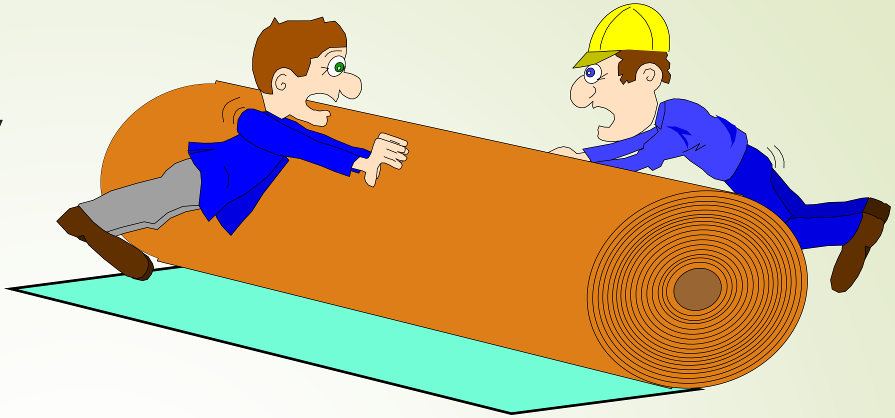
$$\text{Labor productivity} = \frac{\text{600 policies}}{\text{(3 employees)(40 hours/employee)}}$$

Productivity



Labor productivity = 5 policies/hour

Productivity

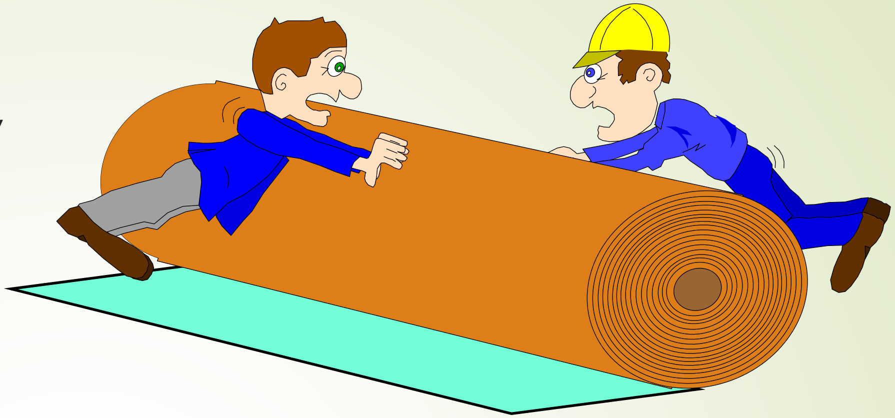


Labor productivity = 5 policies/hour

Multifactor productivity =

$$\frac{\text{Quantity at standard cost}}{\text{Labor cost + Materials cost + Overhead cost}}$$

Productivity



Labor productivity = 5 policies/hour

Multifactor productivity =

$$\frac{(400\text{ units})(\$10/\text{unit})}{\$400 + \$1000 + \$300} = \frac{\$4000}{\$1700} = 2.35$$

Productivity labor exercice

- Productivity can be measured in a variety of ways, such as by labor, capital, energy, material usage, and so on.

- At Modern Lumber, Inc., **Art Binley, president and producer of apple crates** sold to growers, has been able, with his current equipment, to produce 240 crates per 100 logs. He currently purchases 100 logs per day, and each log requires 3 labor-hours to process. He believes that he can hire a professional buyer who can buy a better-quality log at the same cost. If this is the case, he can increase his production to 260 crates per 100 logs. His labor-hours will increase by 8 hours per day.

- **What will be the impact on productivity (measured in crates per labor-hour) if the buyer is hired?**

Productivity Measures

1. Labor, which contributes about 10% of the annual increase.
2. Capital, which contributes about 38% of the annual increase.
3. Management, which contributes about 52% of the annual increase.

Productivity and service

Productivity of the service sector has proven difficult to improve because service-sector work is…

1. Typically **labor intensive** (e.g., counseling, teaching).

2. Frequently focused on unique individual attributes or desires (e.g., investment advice).

3. Often an intellectual task performed by professionals (e.g., medical diagnosis).

4. Often difficult to mechanize and automate (e.g., a haircut).

5. Often difficult to evaluate for quality (e.g., performance of a law firm).

And ….

- Art Binley has decided to look at his productivity from a multifactor (total factor productivity) perspective.

- To do so, he has determined his labor, capital, energy, and material usage and decided to use dollars as the common denominator.

- His total labor-hours are now 300 per day and will increase to 308 per day. His capital and energy costs will remain constant at $350 and $150 per day, respectively. Material costs for the 100 logs per day are $1,000 and will remain the same. Because he pays an average of $10 per hour (with fringes), Binley determines his productivity increase as follows …

Productivity Measures

OM Explorer

Tutor 1.1—Productivity Measures

The state ferry service charges $18 per ticket plus a $3 surcharge to fund planned equipment upgrades. It expects to sell 4,700 tickets during the eight-week summer season. During that period, the ferry service will experience $110,000 in labor costs. Materials required for each passage sold (tickets, a tourist-information sheet, and the like) cost $1.30. Overhead during the period comes to $79,000.

a. What is the multifactor productivity ratio?
b. If ferry-support staff work an average of 310 person-hours per week for the 8 weeks of the summer season, what is the labor productivity ratio? Calculate labor productivity on an hourly basis.

Productivity Measures

Tutor 1.1—Productivity Measures

Enter data in yellow areas. Use Tab to advance from one input cell to the next.

a. Multifactor productivity is the ratio of the value of output to the value of input.

Step 1. Enter the number of tickets sold during a season, the price per ticket, and the surcharge per ticket. To compute value of output, multiply tickets sold by the sum of price and surcharge.

Tickets sold:	4,700	Value of output:	
Price:	$18		
Surcharge:	$3		

Step 2. Enter labor costs, materials costs per passenger, and overhead cost. For value of input, add together labor costs, materials costs times number of passengers, and overhead costs.

Labor costs:	$110,000	Materials costs:	$1.30	Overhead:	$79,000

Value of input:

Step 3. To calculate multifactor productivity, divide value of output by value of input.

Multifactor productivity:

Productivity Measures

Tutor 1.1—Productivity Measures

Enter data in yellow areas. Use Tab to advance from one input cell to the next.

b. Labor productivity is the ratio of the value of output to labor hours The value of output is computed in part a, step 1.

Step 1. Enter person-hours per week and the number of weeks in the season; multiply the two together to calculate labor hours of input.

Hours per week:	310	Weeks:	8
		Labor hours of input:	

Step 2. To calculate labor productivity, divide value of output by labor hours of input.

Labor productivity:	

Productivity Measures

Tutor 1.1—Productivity Measures

Place cell pointer on green shaded areas to examine formulas.

a. Multifactor productivity is the ratio of the value of output to the value of input.

Step 1. Enter the number of tickets sold during a season, the price per ticket, and the surcharge per ticket. To compute value of output, multiply tickets sold by the sum of price and surcharge.

Tickets sold:	4,700	Value of output:	$98,700
Price:	$18		
Surcharge:	$3		

Step 2. Enter labor costs, materials costs per passenger, and overhead cost. For value of input, add together labor costs, materials costs times number of passengers, and overhead costs.

Labor costs:	$110,000	Materials costs:	$1.30	Overhead:	$79,000
			Value of input:		$195,110

Step 3. To calculate multifactor productivity, divide value of output by value of input.

Multifactor productivity: 0.51

Productivity Measures

Tutor 1.1—Productivity Measures

Place cell pointer on green shaded areas to examine formulas.

b. Labor productivity is the ratio of the value of output to labor hours The value of output is computed in part a, step 1.

Step 1. Enter person-hours per week and the number of weeks in the season; multiply the two together to calculate labor hours of input.

Hours per week: 310 Weeks: 8

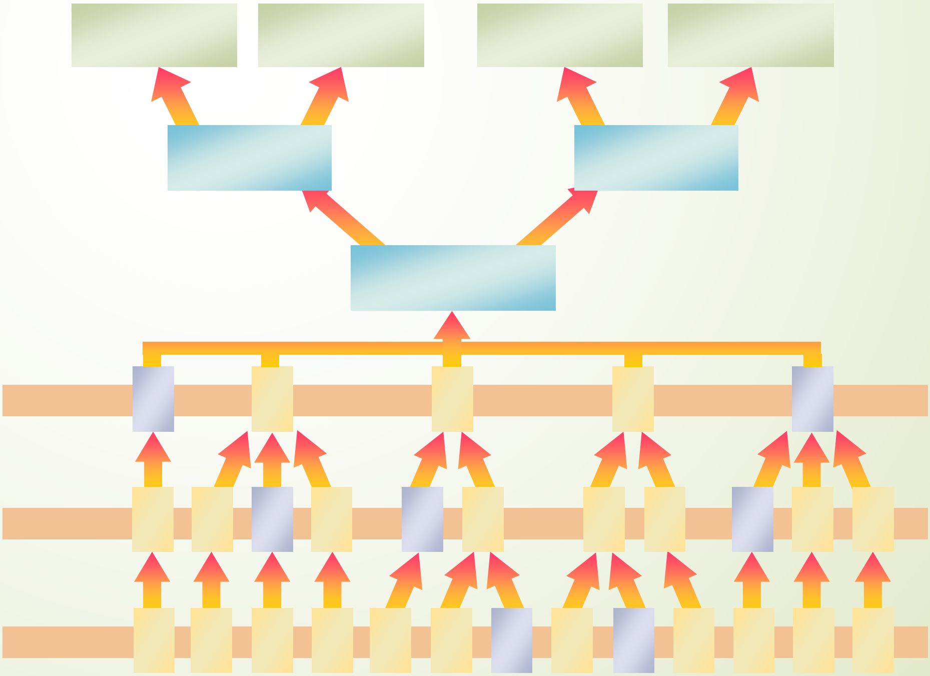
Labor hours of input: 2,480

Step 2. To calculate labor productivity, divide value of output by labor hours of input.

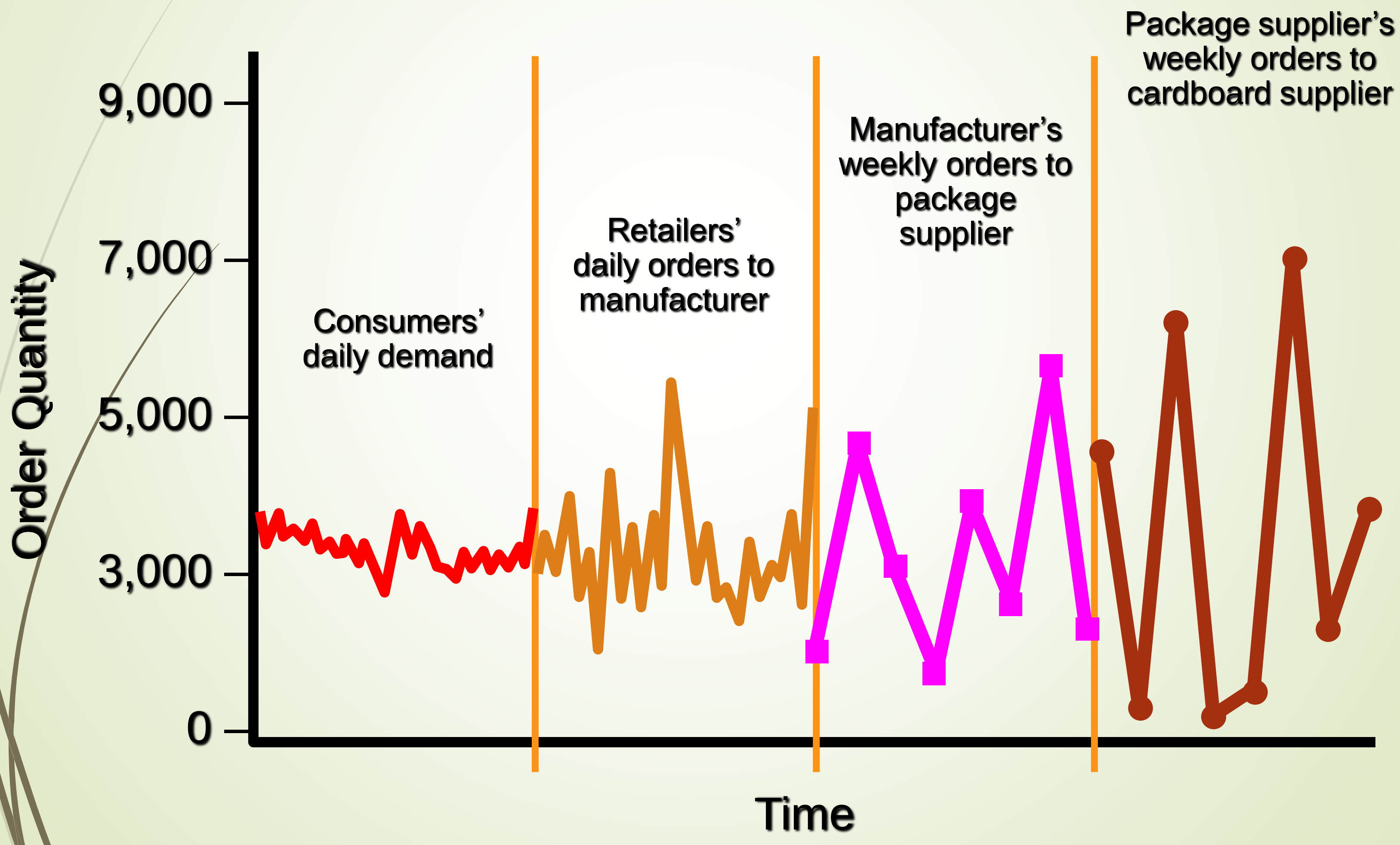
Labor productivity: $39.80

Figure 1.5c

Supply-Chain Design



Supply Chain Dynamics for Facial Tissue



External Value-Chain Linkages

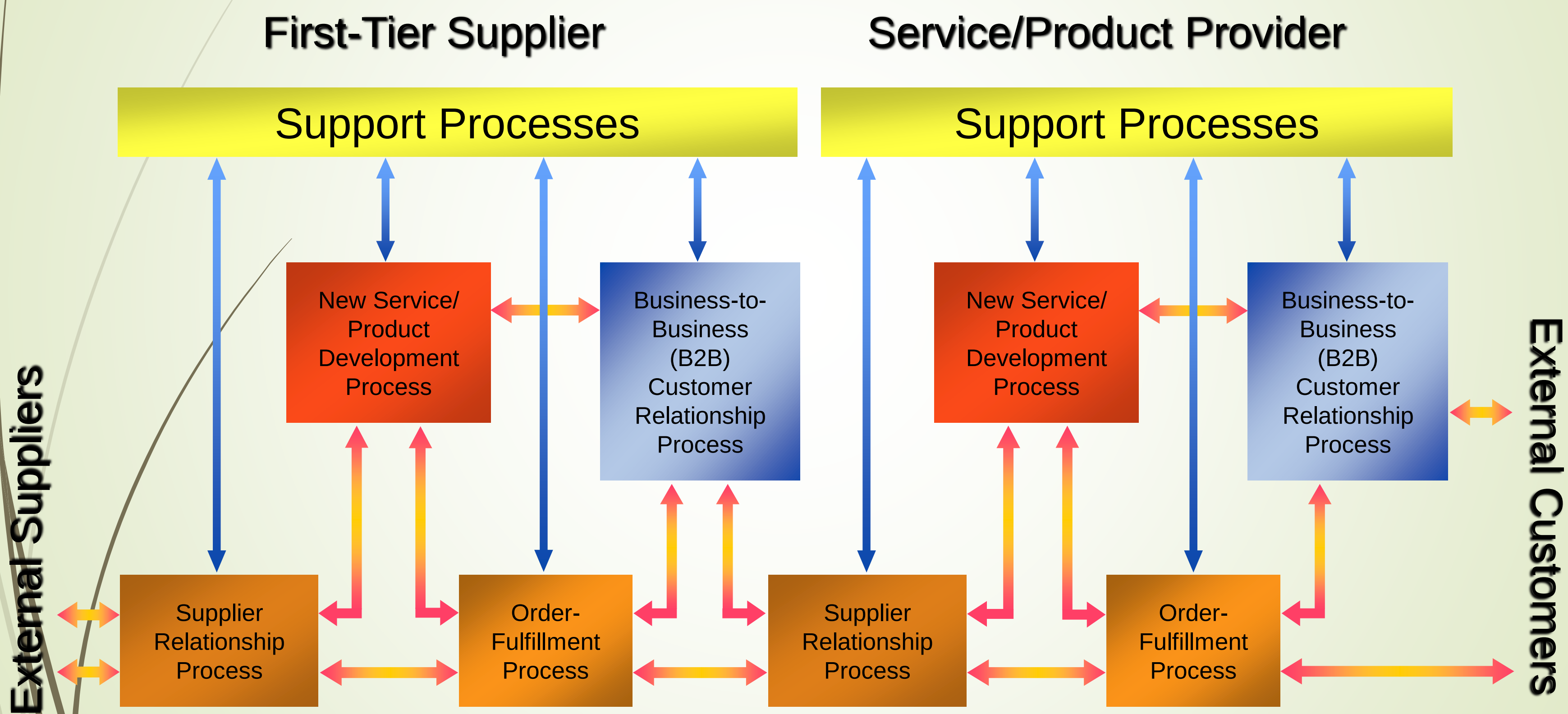
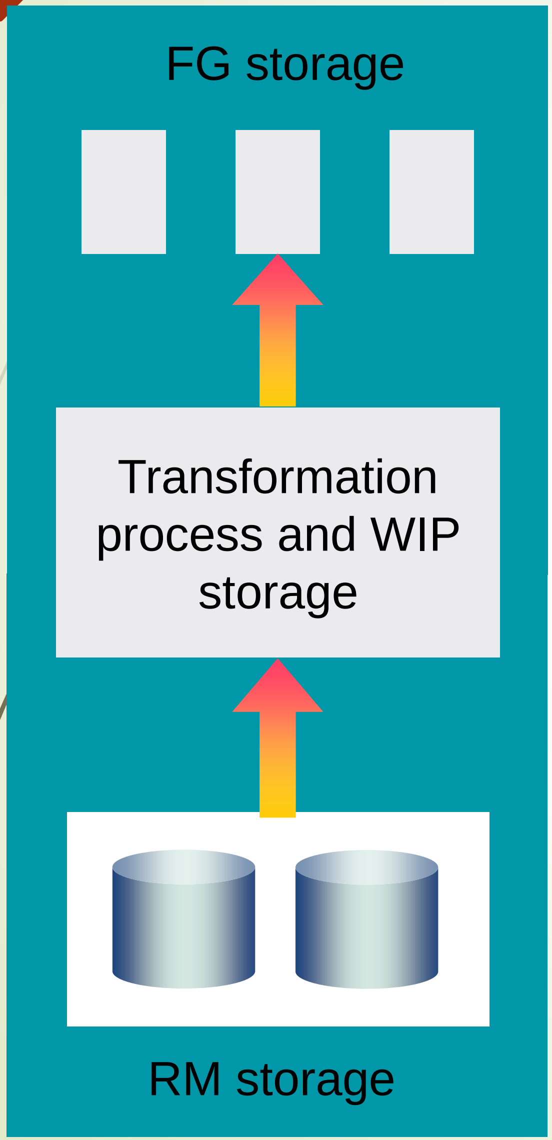
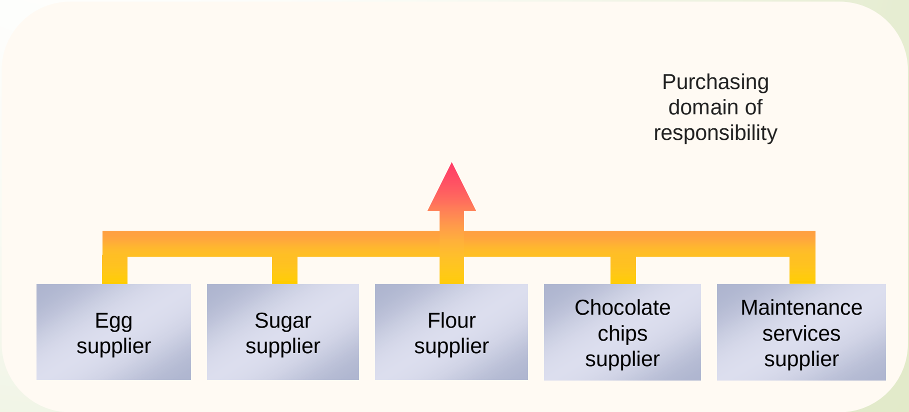


Figure 9.1

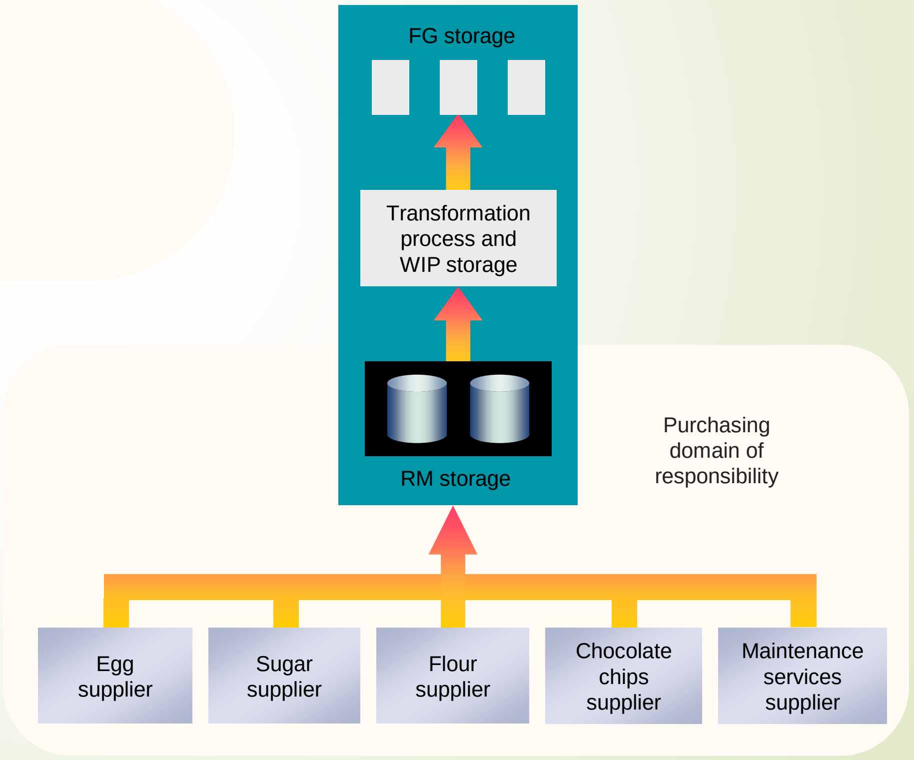
Materials Management



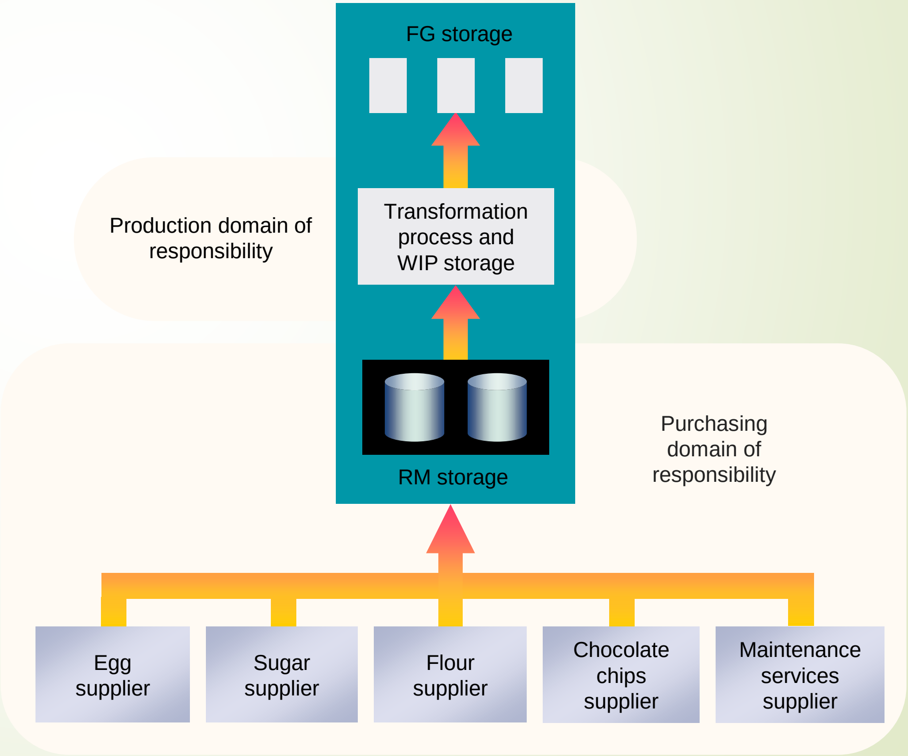


Materials Management

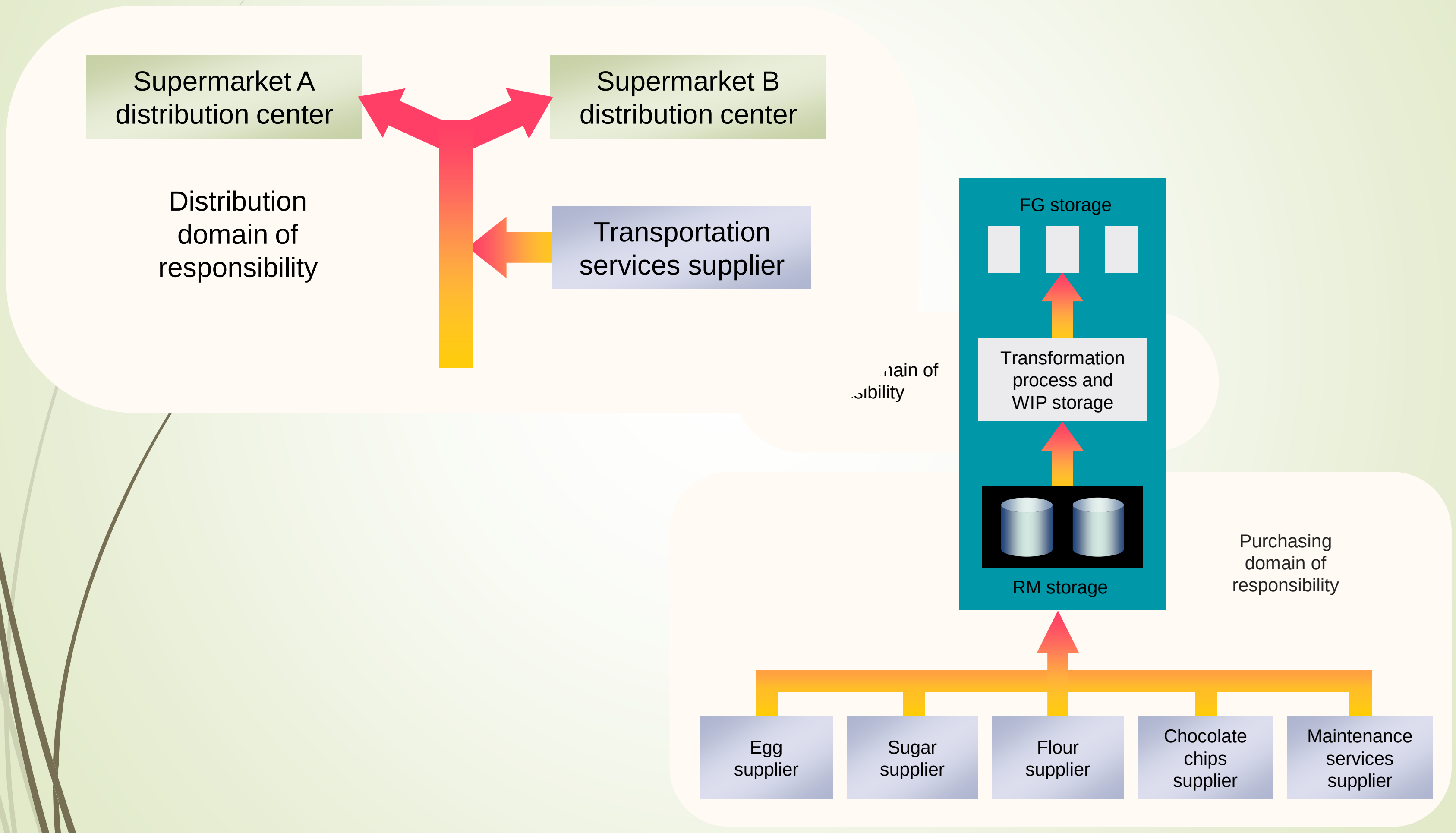
Production domain of
responsibility



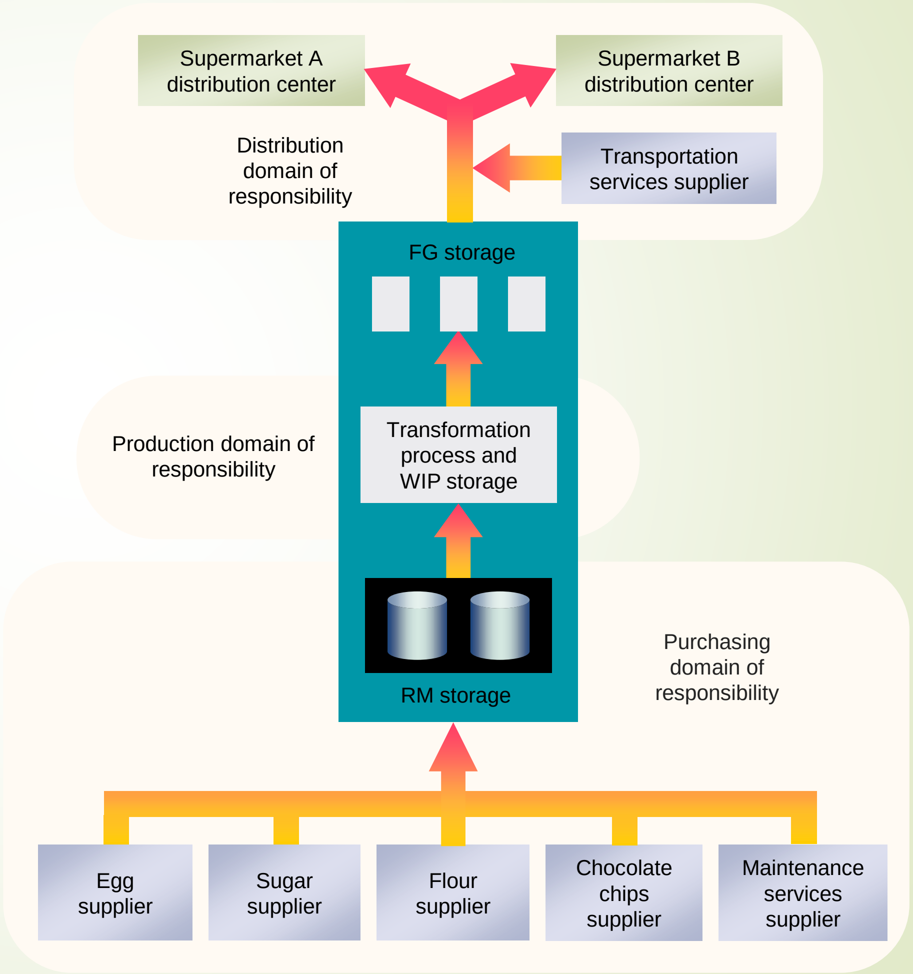
Materials Management



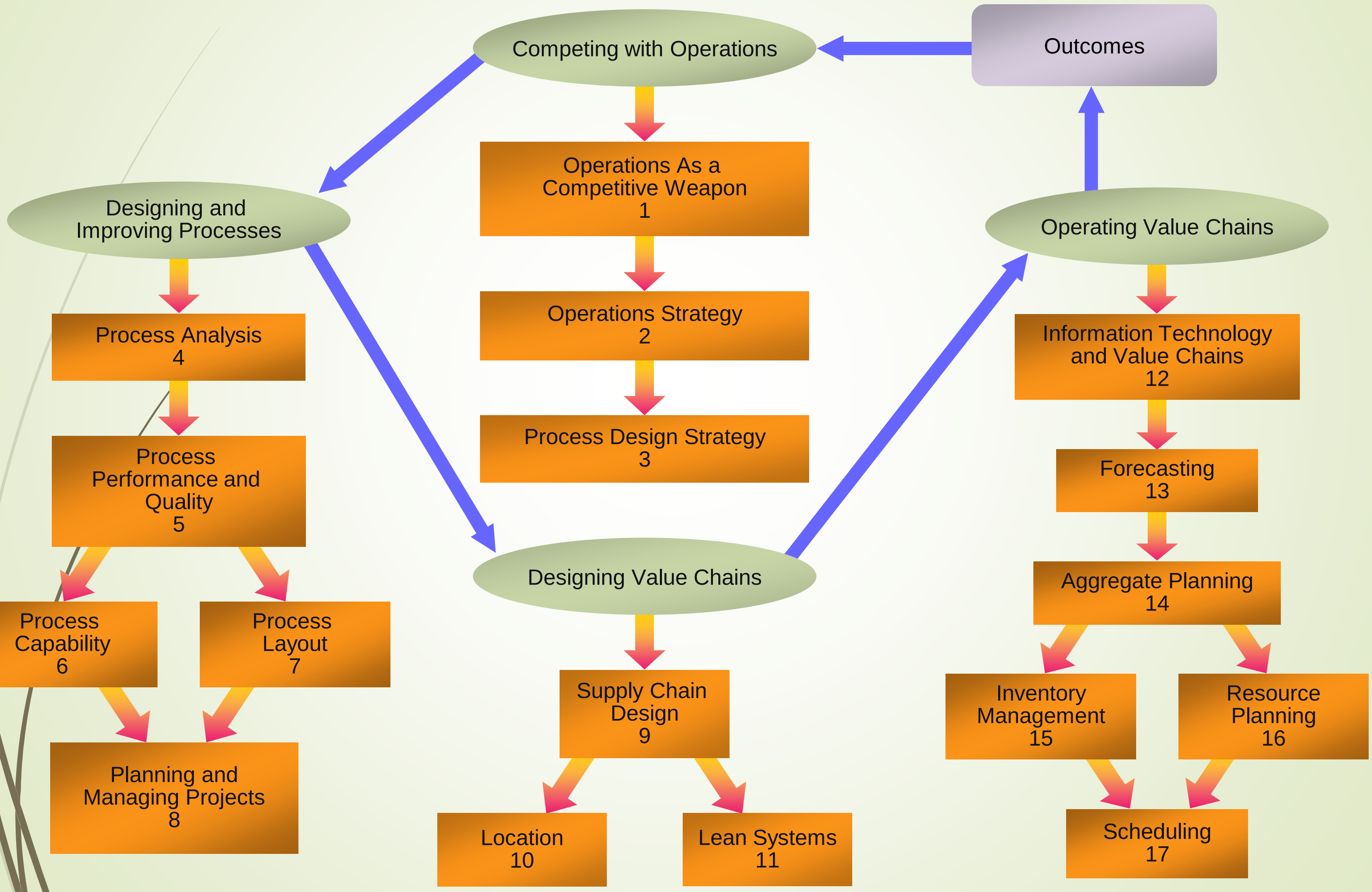
Materials Management



Materials Management



Operations Roadmap *to be developed … later*



Student tuition at Boehring University is $100 per semester credit hour. The state supplements school revenue by matching student tuition dollar for dollar. Average class size for a typical three-credit course is 50 students. Labor costs are $4,000 per class, materials costs are $20 per student per class, and overhead costs are $25,000 per class.

a. What is the *multifactor* productivity ratio for this course process?
b. If instructors work an average of 14 hours per week for 16 weeks for each three-credit class of 50 students, what is the *labor* productivity ratio?

Natalie Attired makes fashionable garments. During a particular week employees worked 360 hours to produce a batch of 132 garments, of which 52 were "seconds" (meaning that they were flawed). Seconds are sold for $90 each at Attired's Factory Outlet Store. The remaining 80 garments are sold to retail distribution, at $200 each. What is the *labor* productivity ratio of this manufacturing process?