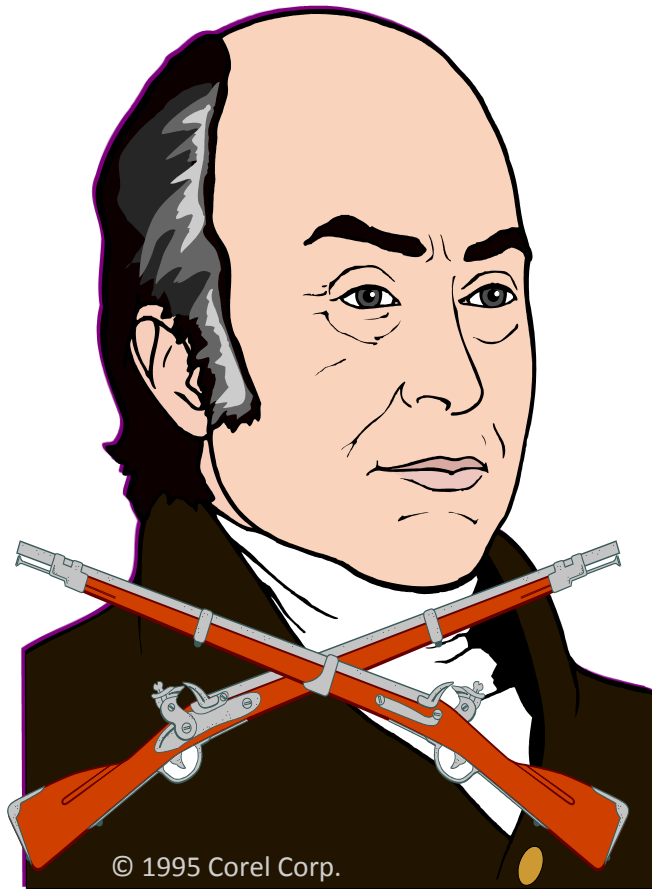


Introduction to Operations Management

Theocharis Papadopoulos

The historic development of operations management?

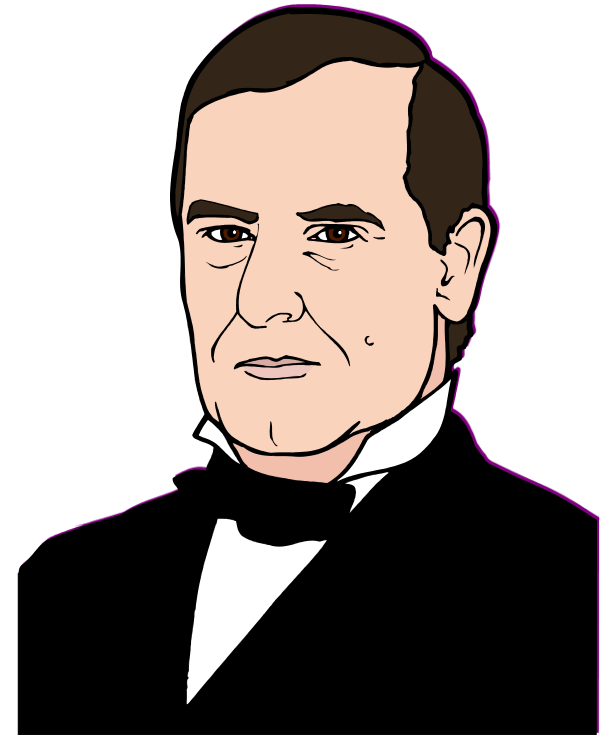
Eli Whitney



- ◆ Born 1765; died 1825
- ◆ In 1798, received government contract to make 10,000 muskets
- ◆ Showed that machine tools could make standardized parts to exact specifications
 - ◆ Musket parts could be used in any musket

Frederick W. Taylor

- ◆ **Born 1856; died 1915**
- ◆ **Known as ‘father of scientific management’**
- ◆ **In 1881, as chief engineer for Midvale Steel, studied how tasks were done**
 - ◆ **Began first motion & time studies**
- ◆ **Created efficiency principles**

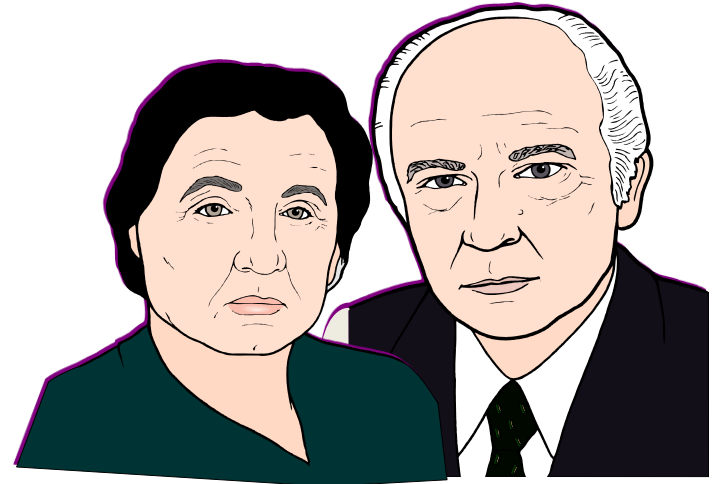


Taylor: Management Should Take More Responsibility for

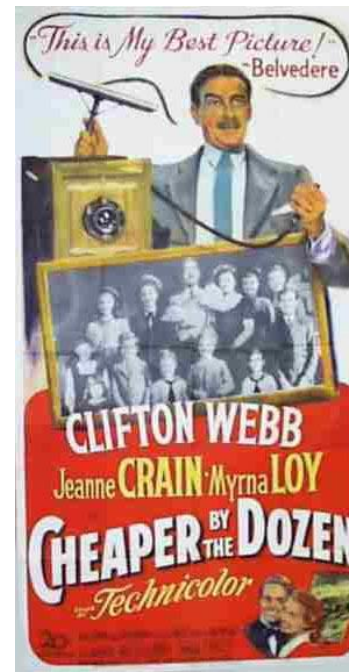
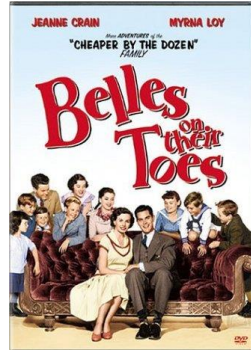
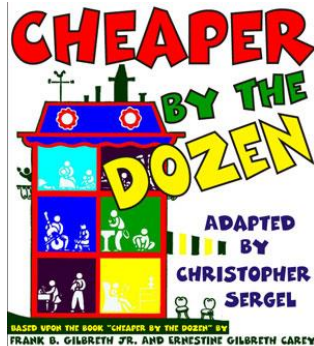
- Matching employees to right job
- Providing the proper training
- Providing proper work methods and tools
- Establishing legitimate incentives for work to be accomplished

Frank & Lillian Gilbreth

- ◆ Frank (1868-1924); Lillian (1878-1972)
- ◆ Husband-and-wife engineering team
- ◆ Further developed work measurement methods
- ◆ Applied efficiency methods to their home & 12 children!
- ◆ (Book & Movie: “Cheaper by the Dozen,” book: “Bells on Their Toes”)

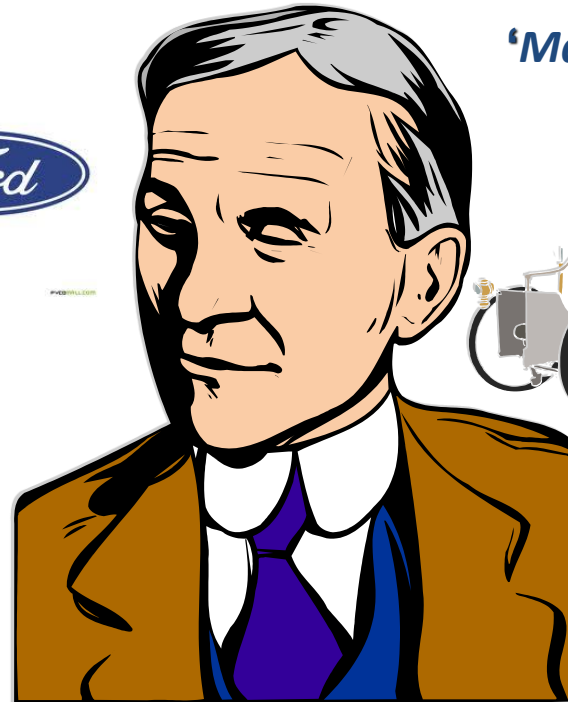


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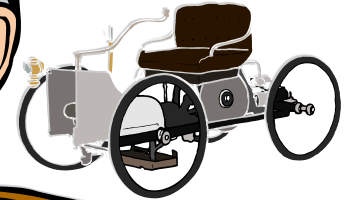


Henry Ford

- ◆ Born 1863; died 1947
- ◆ In 1903, created Ford Motor Company
- ◆ In 1913, first used moving assembly line to make Model T
 - ◆ Unfinished product moved by conveyor past work station
- ◆ Paid workers very well for 1911 (\$5/day!)



'Make them all alike!'

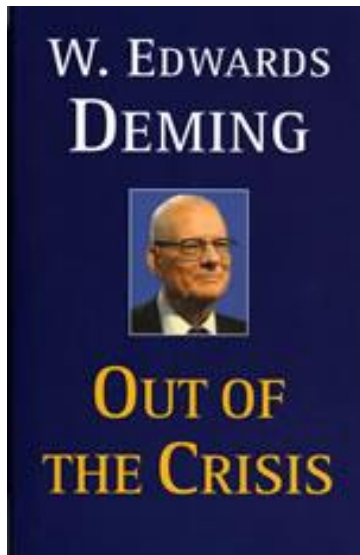


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W. Edwards Deming



- ◆ Born 1900; died 1993
- ◆ Engineer & physicist
- ◆ Credited with teaching Japan quality control methods in post-WW2
- ◆ Used statistics to analyze process
- ◆ His methods involve workers in decisions



What is operations management?

Key operations questions

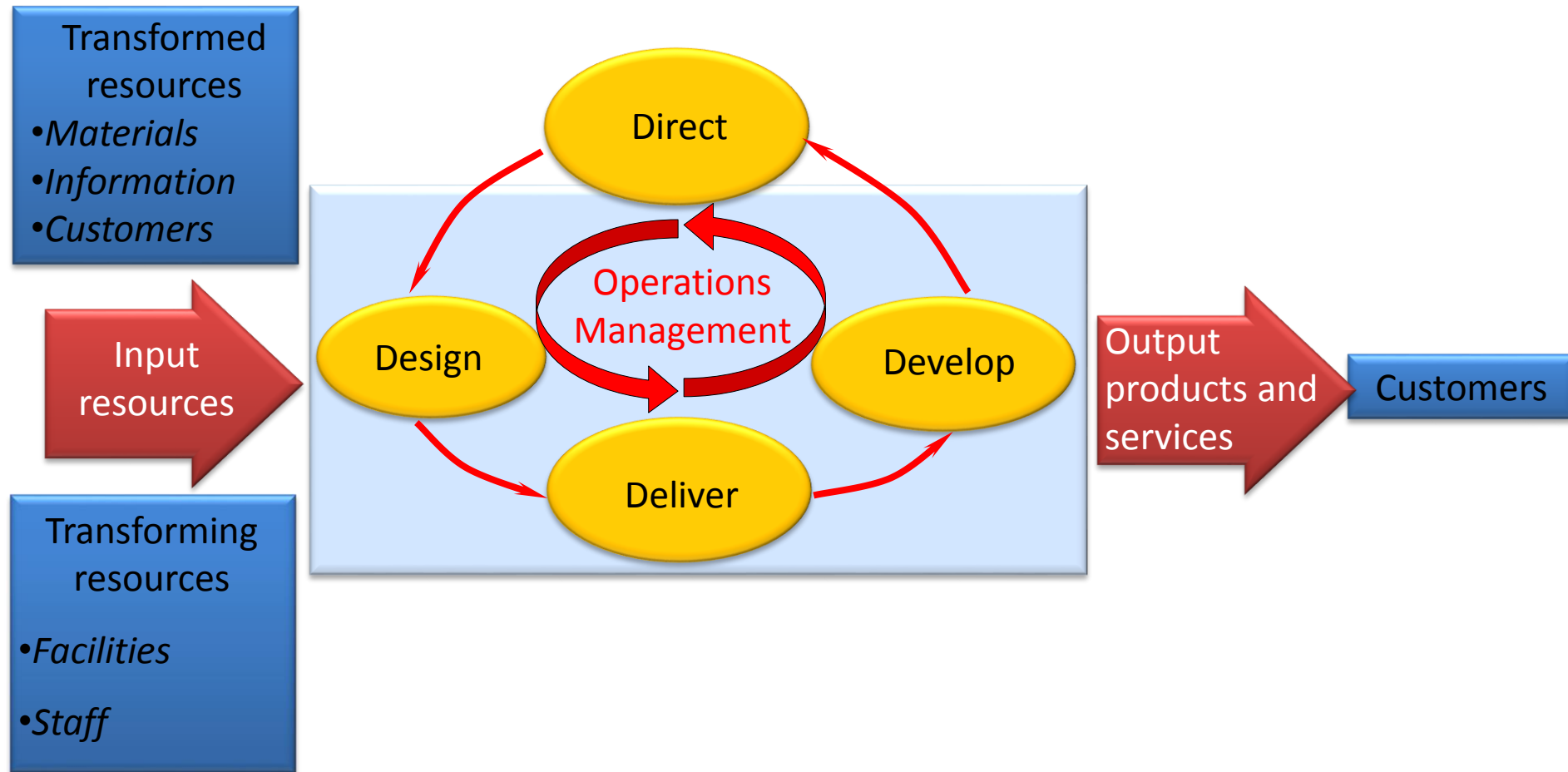
- ☐ What is operations management?
- ☐ Why is operations management important in all types of organization?
- ☐ What is the input-transformation-output process?
- ☐ What is the process hierarchy?
- ☐ How do operations processes have different characteristics?
- ☐ What are the activities of operations management?

Operations management defined



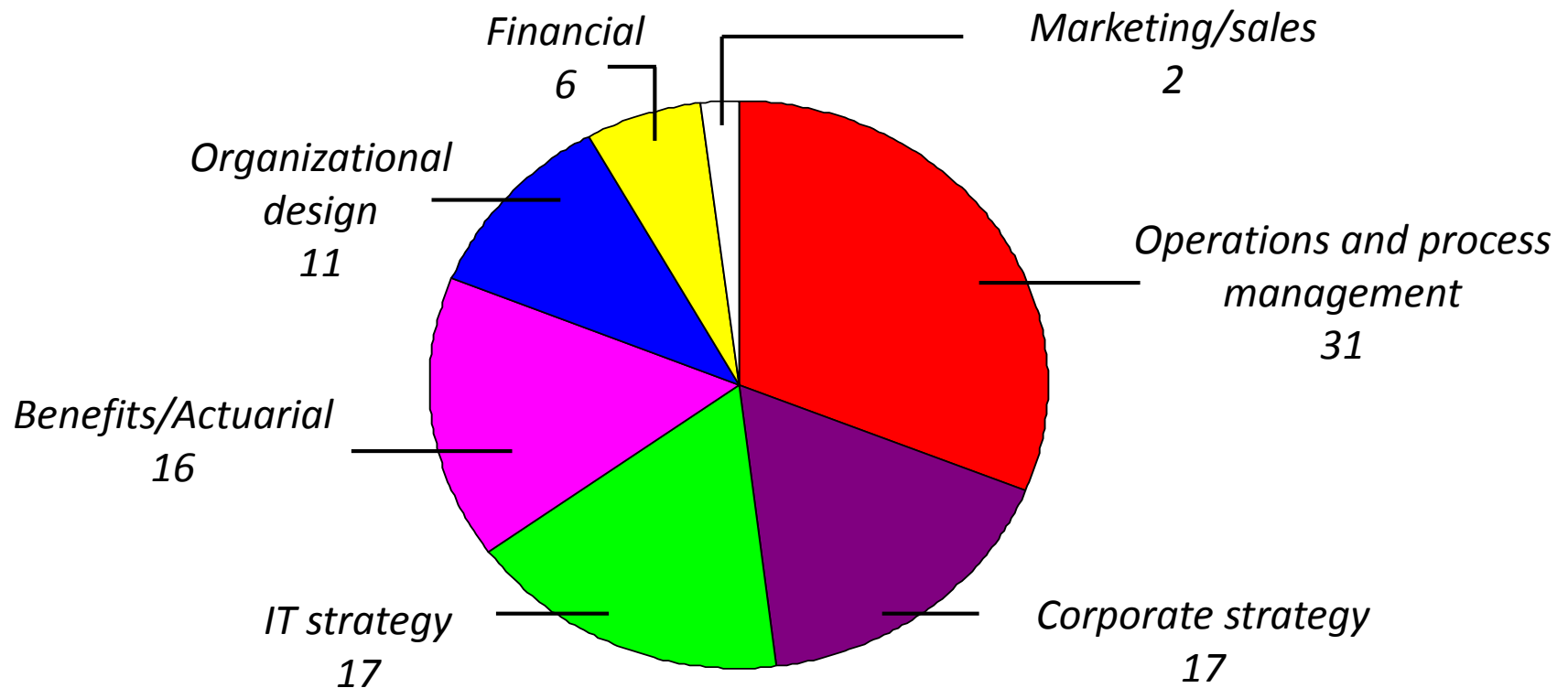
Operations management is the activity of managing the resources which are devoted to the production and delivery of products and services.

Slack *et al*'s model of operations management



Operations management is fashionable!

*The consultancy services market - % of world revenues of
40 largest consultancy firms*



Operations management at..... IKEA



They are all ***operations***

Back office operation in
a bank

Kitchen unit
manufacturing
operation

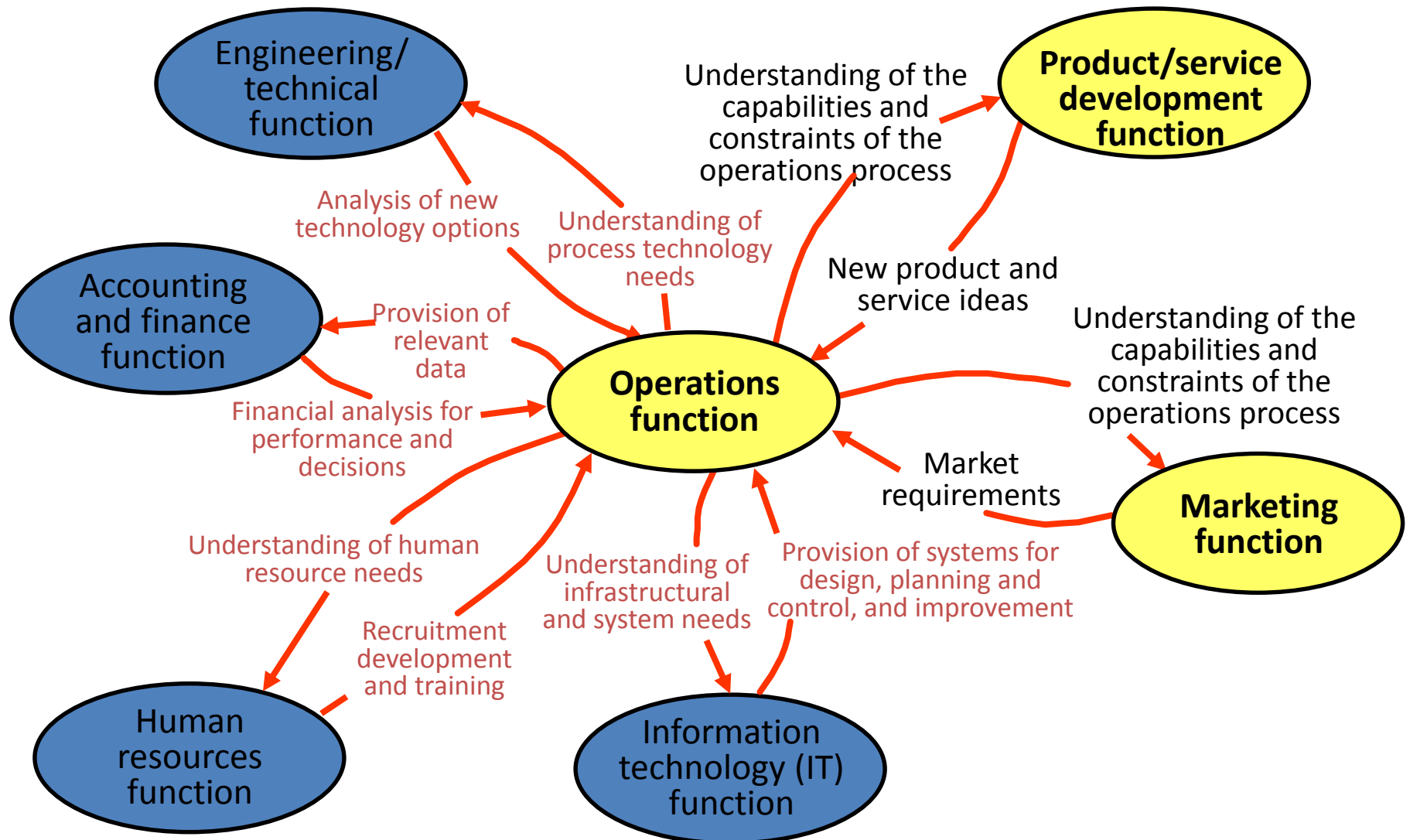
Retail operation

Take-out / restaurant
operation

Operations are everywhere

- The best way to start understanding the nature of “*Operations*” is to look around you
- Everything you can see around you (except the flesh and blood) has been *produced* by an *operation*
- Every service you consumed today (radio station, bus service, lecture, etc.) has also been *produced* by an *operation*
- Operations Managers *create* everything you buy, sit on, wear, eat, throw at people, and throw away

Interfunctional relationships between operations and other functions

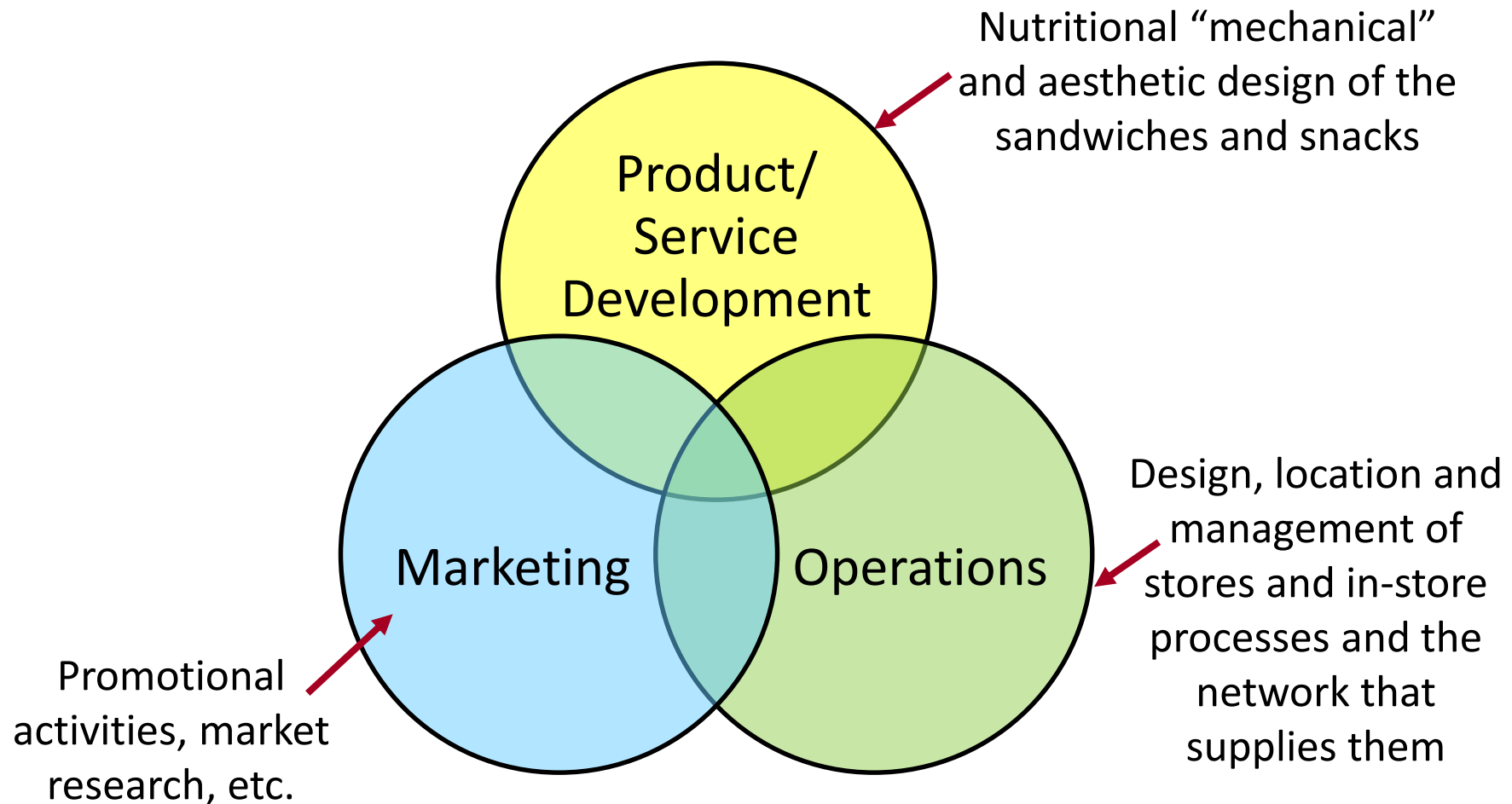


Prêt à Manger

- “High-end” sandwich and snack retailer
- Use only “wholesome” ingredients
- All shops have own kitchens which makes fresh sandwiches every day
- Fresh ingredients delivered early every morning
- Same staff who serve you at lunch made the sandwiches that morning
- *“We don’t work nights, we wear jeans, we party...”*



The three basic functions at **Prêt à Manger**



Operations management in all types of organization

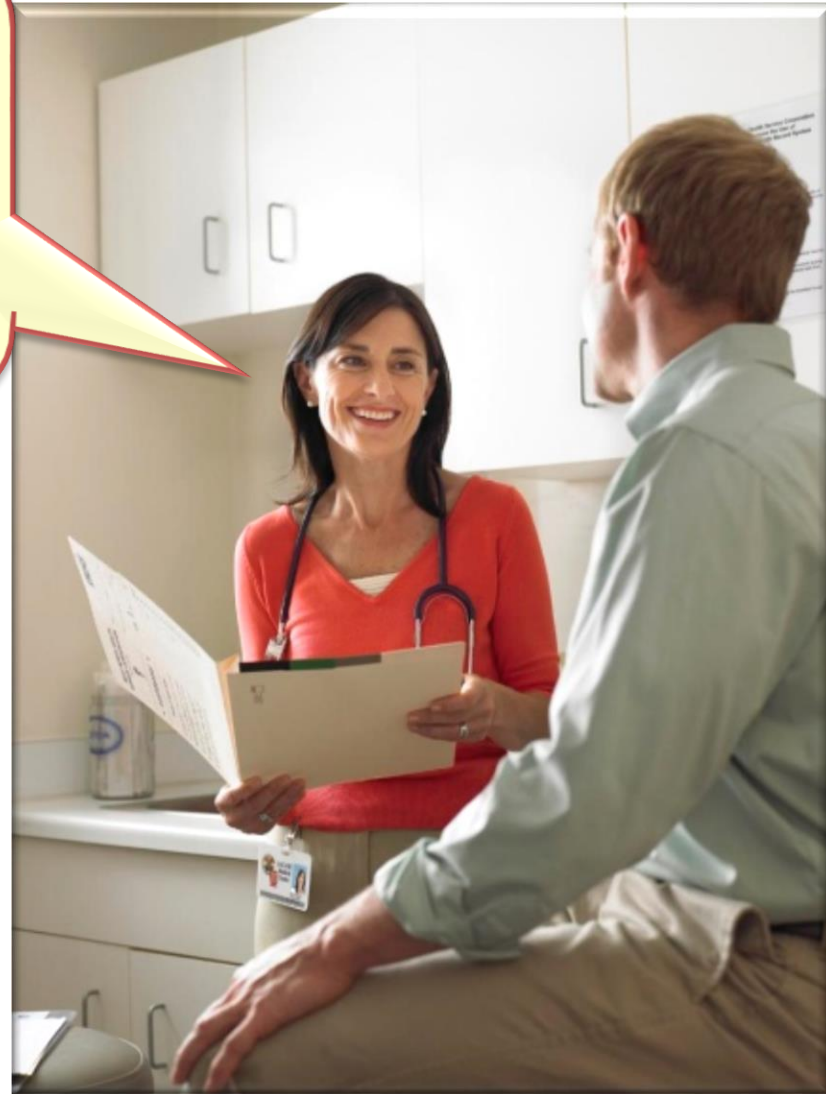
Automobile assembly factory - *Operations management uses machines to efficiently assemble products that satisfy current customer demands*



Operations management in all types of organization

Physician (General practitioner) -

Operations management uses knowledge to effectively diagnose conditions in order to treat real and perceived patient concerns



Operations management in all types of organization



Management consultant - *Operations management uses people to effectively create the services that will address current and potential client needs*

Operations management in all types of organization

Disaster relief charity -
*Operations management
uses ours and our
partners' resources to
speedily provide the
supplies and services that
relieve community
suffering*



Operations management in all types of organization

Advertising agency - *Operations management uses our staff's knowledge and experience to creatively present ideas that delight clients and address their real needs*



Operations management uses.....

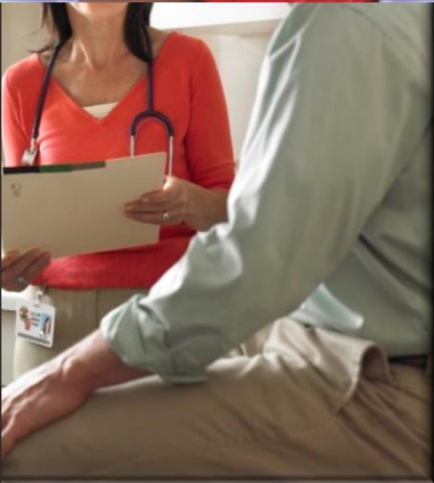
machines

knowledge

people

ours
pa
res

our
know
exp

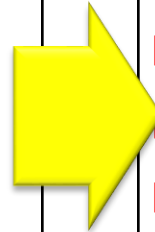


ideas that delight
clients and address
their real needs

Operations management is changing

The business environment is changing, for example.....

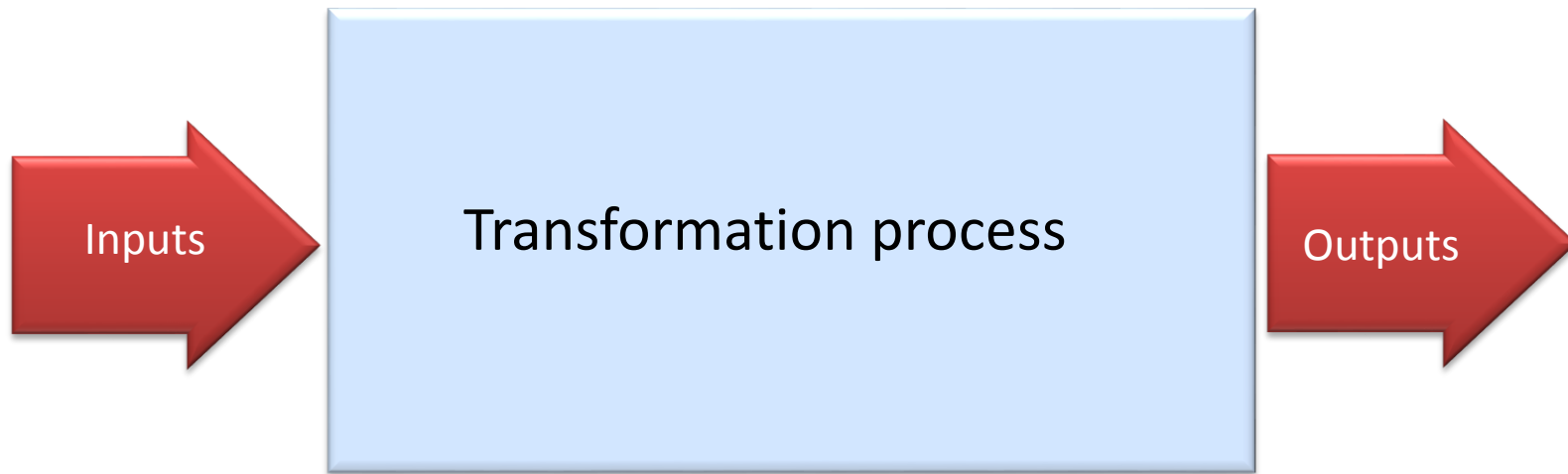
- ☐ Increased cost-based competition
- ☐ Higher quality expectations
- ☐ Demands for better service
- ☐ More choice and variety
- ☐ Rapidly developing technologies
- ☐ Frequent new product/service introduction
- ☐ Increased ethical sensitivity
- ☐ Environmental impacts are more transparent
- ☐ More legal regulation
- ☐ Greater security awareness



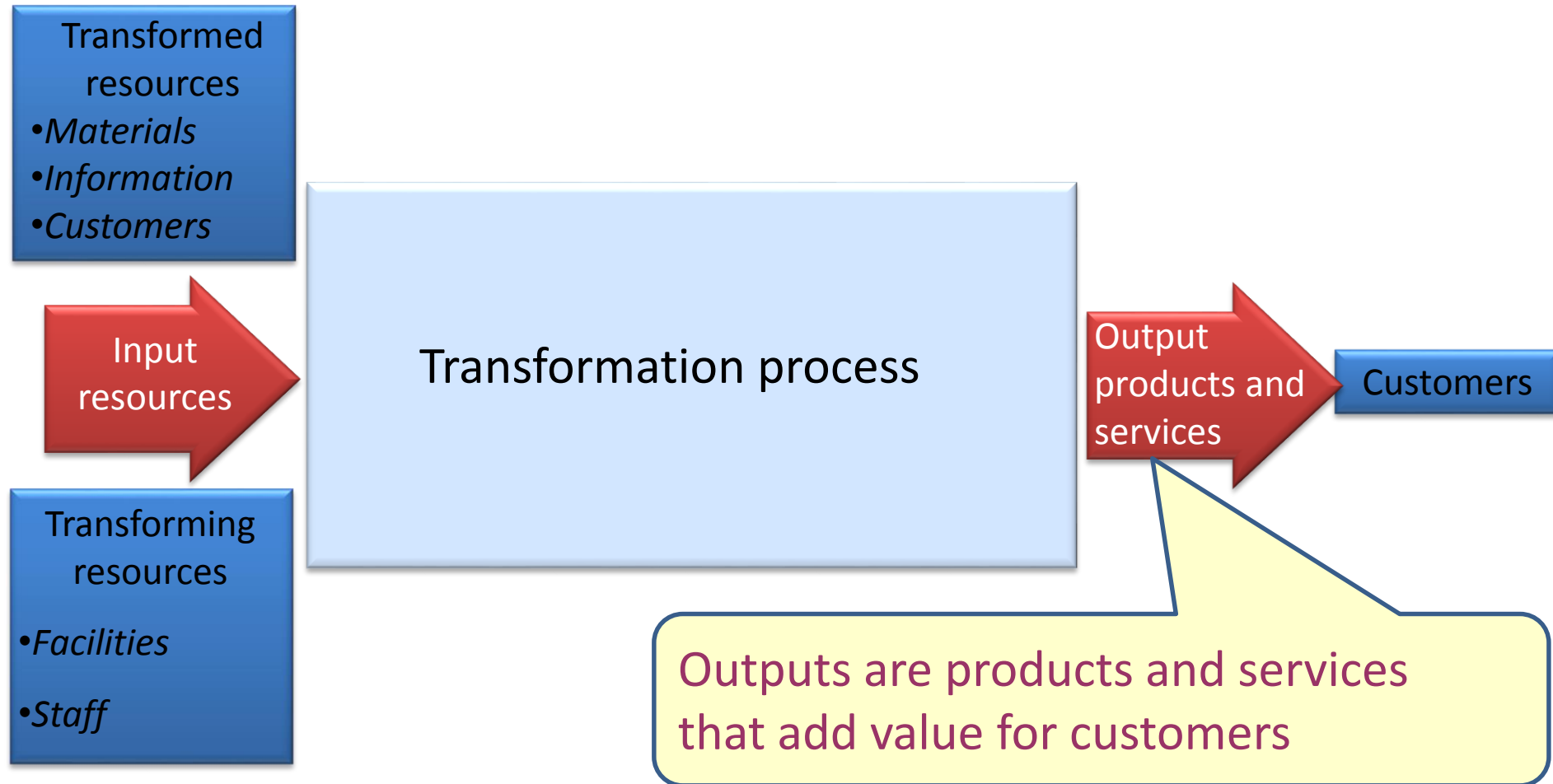
Prompting operations responses, for example.....

- ☐ Globalization of operations networking
- ☐ Information-based technologies
- ☐ Internet-based integration of operations activities
- ☐ Supply chain management
- ☐ Customer relationship management
- ☐ Flexible working patterns
- ☐ Mass customization
- ☐ Fast time-to-market methods
- ☐ Lean process design
- ☐ Environmentally sensitive design
- ☐ Supplier 'partnership' and development
- ☐ Failure analysis
- ☐ Business recovery planning

All operations are input-transformation-output processes



Operations input resources and outputs



Inputs and outputs at Prêt à Manger

Transformed
resources

- *Ingredients*
- *Packaging*
- *Customers*

Input
resources

➤ Transforming
resources

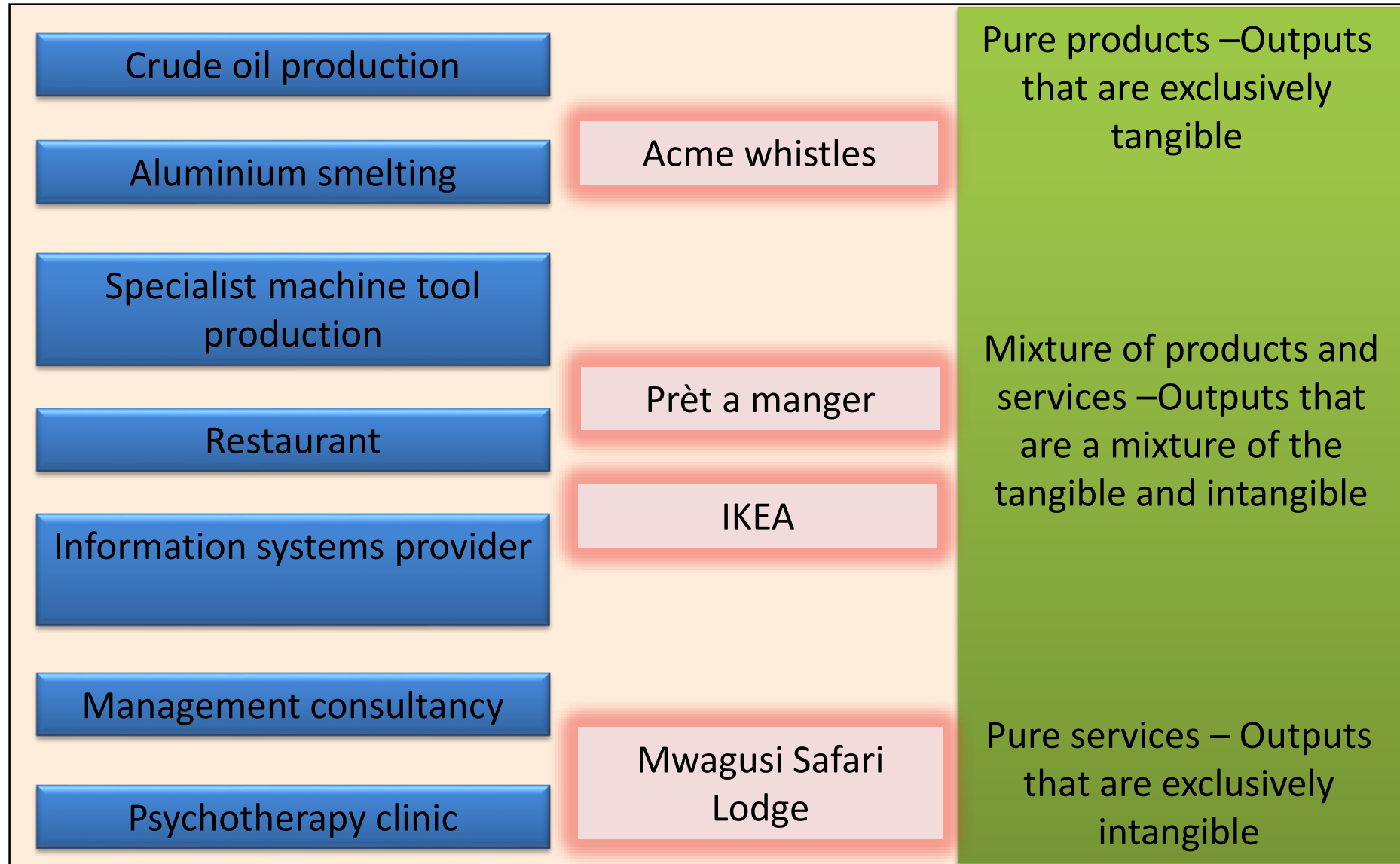
- *Equipment*
- *Fittings*
- *Staff*



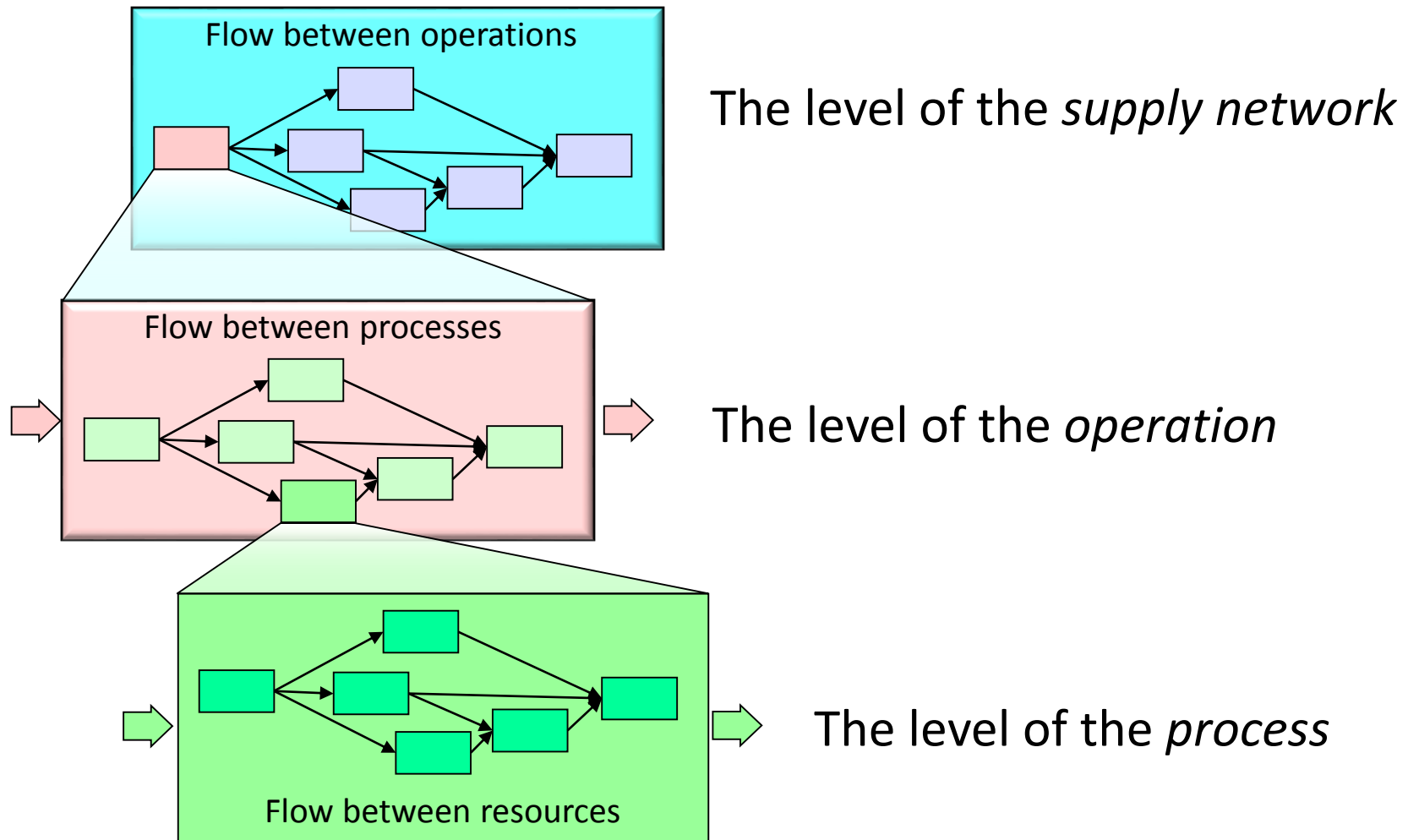
Served and
satisfied
customers

Customers

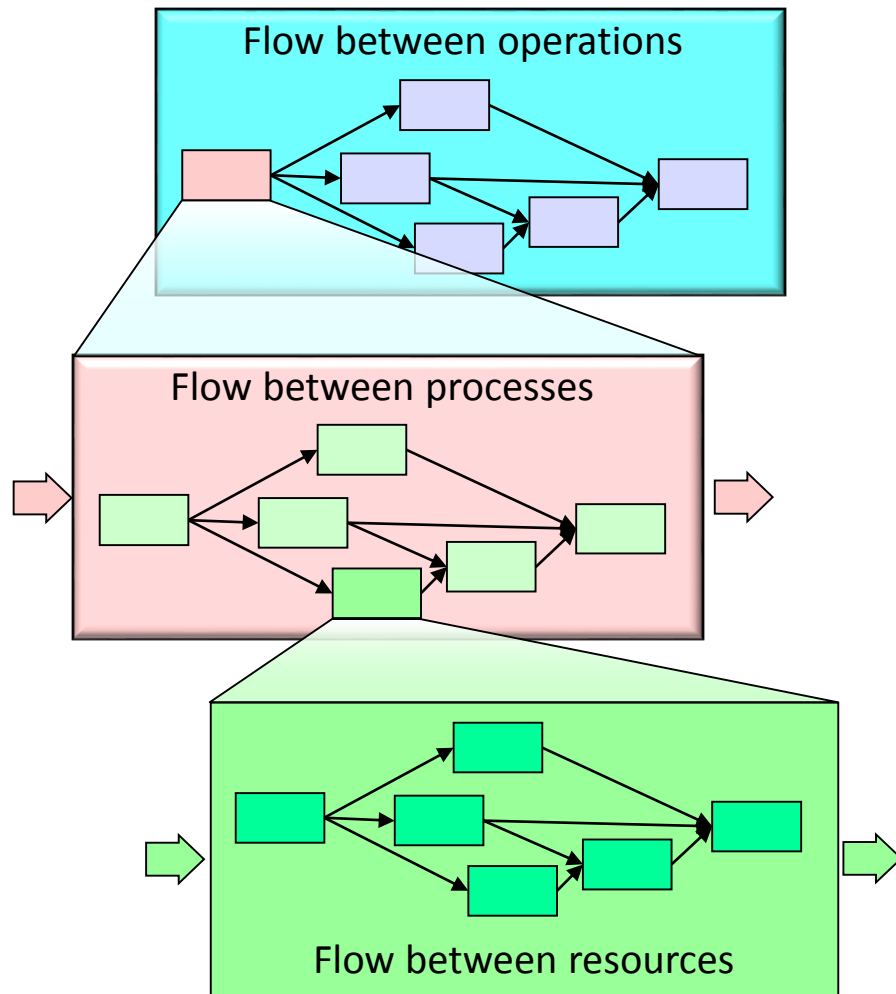
Most operations produce products and services



Operations can be analyzed at three levels



Operations can be analyzed at three levels

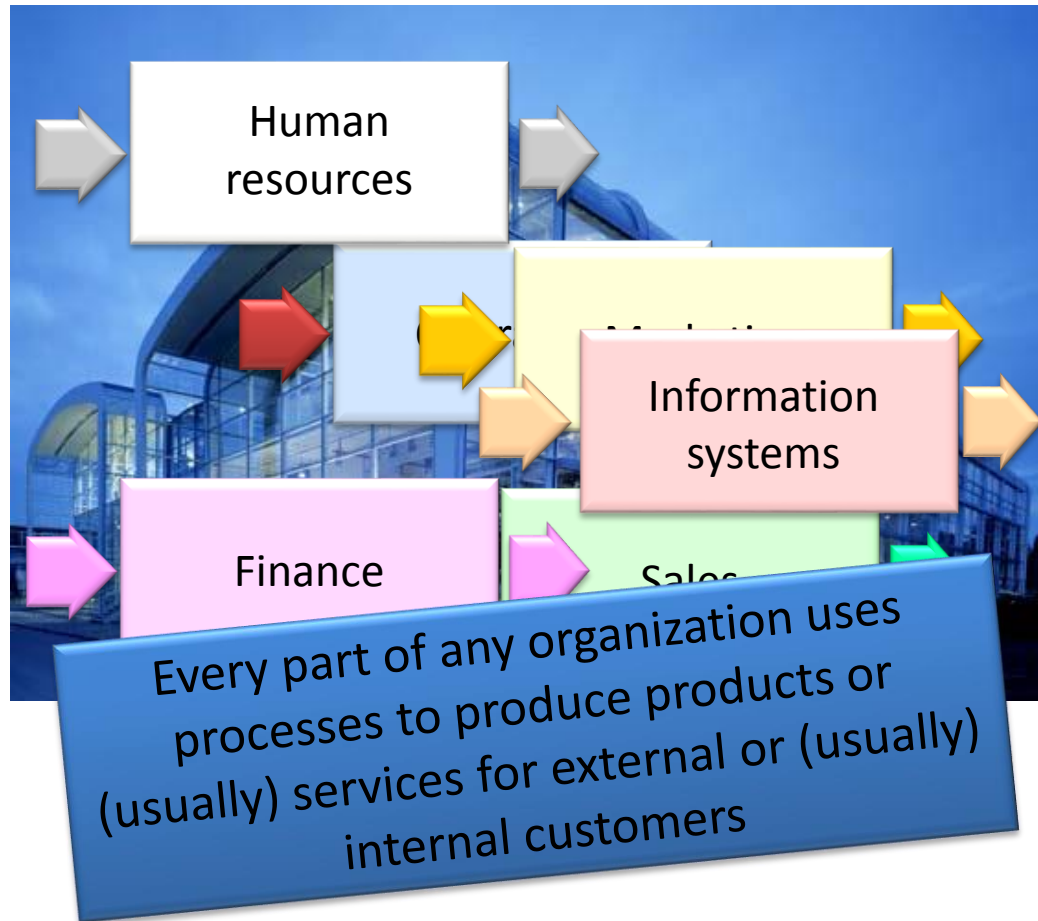


Operations management is concerned with the flow of transformed resources between operations, processes, where....

External operations interact with internal processes to form the external supply network

Processes form an internal “supply network” and become each others customers and suppliers

All functions use processes to provide service



Differences within sectors are often greater than the differences between sector

Financial services

An account management centre at a large retail bank



Financial analyst advising a client at an investment bank



Furniture manufacturing

Mass production of kitchen units



Craft production of reproduction 'antique' furniture



Hotels

Value-for-money hotel

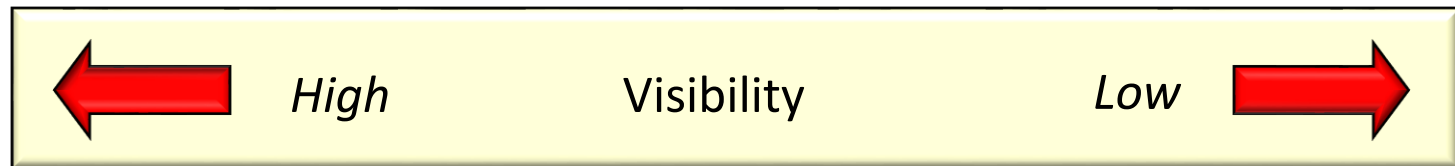
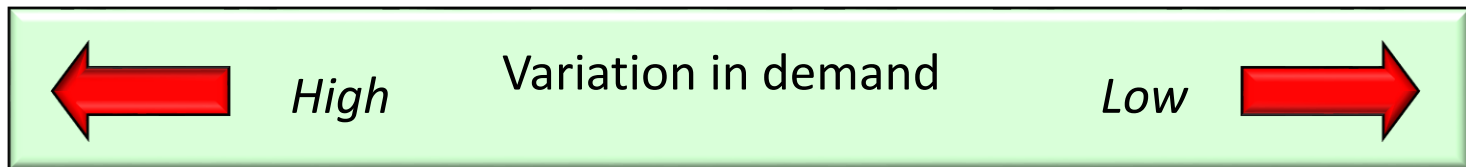


Lobby of an international luxury hotel



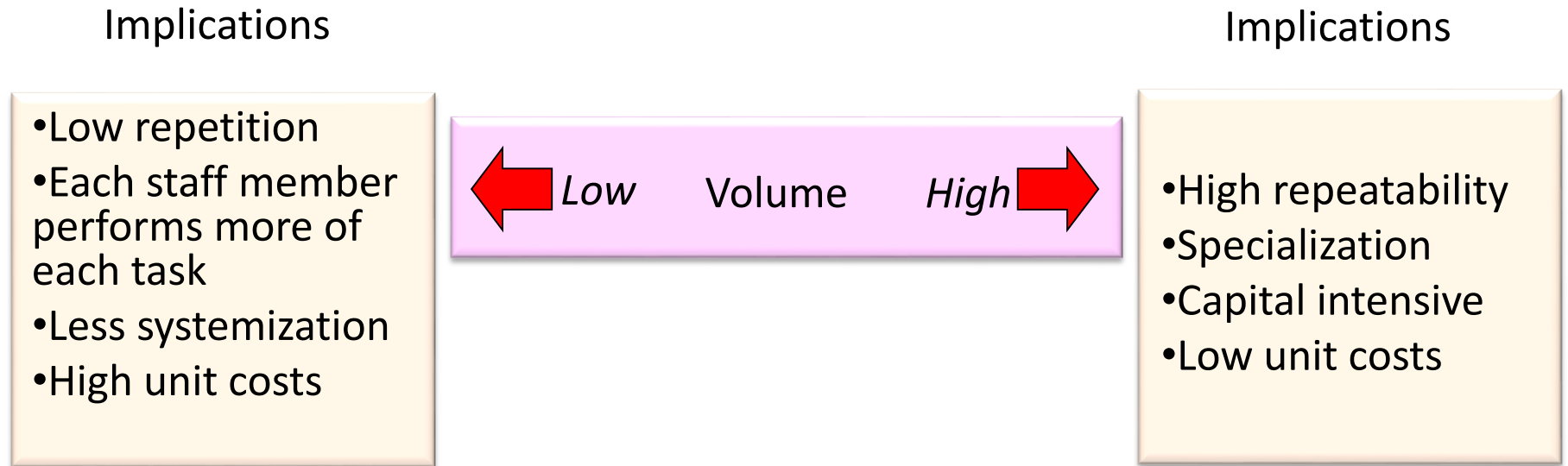
A typology of operations and processes

The 4 vs.....



A typology of operations and processes

The implications of high and low Volume in operations and processes.....



A typology of operations and processes

The implications of high and low Variety in operations and processes.....



A typology of operations and processes

The implications of high and low Variation in operations and processes.....



A typology of operations and processes

The implications of high and low Visibility in operations and processes.....

Implications

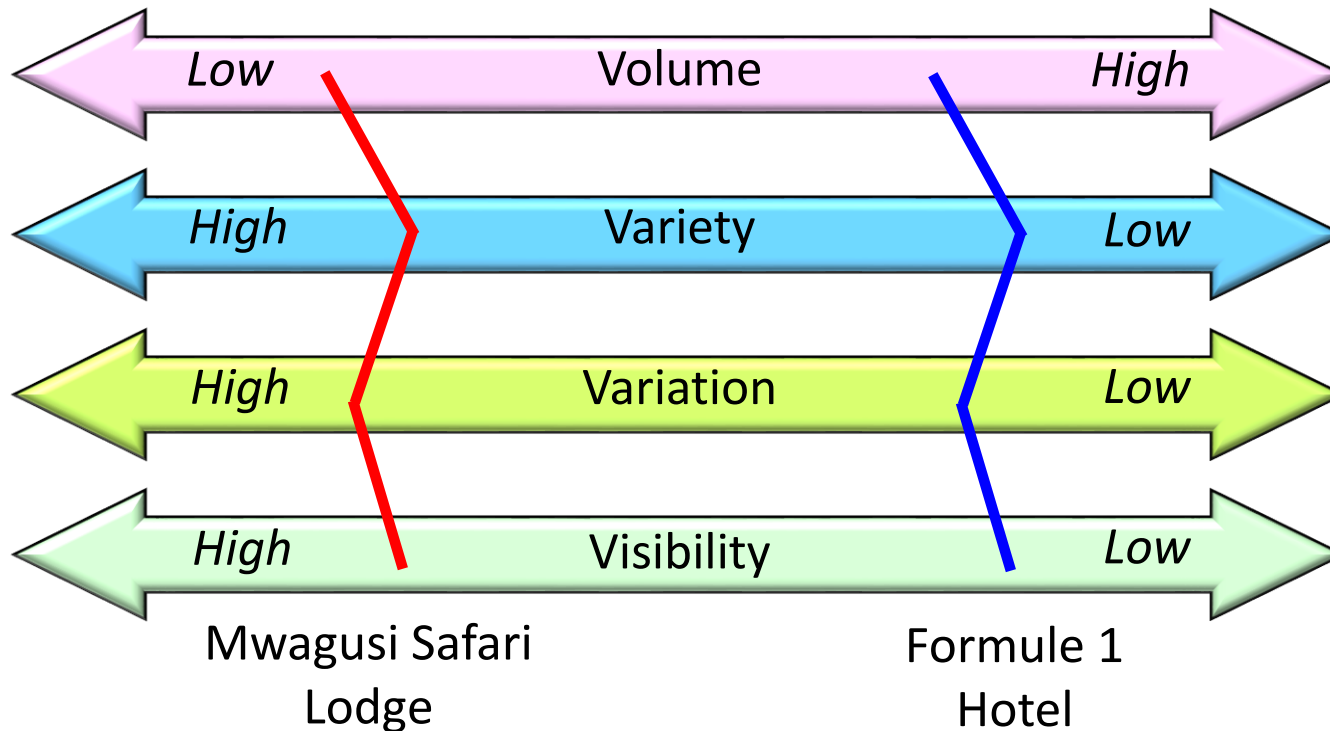
- Short waiting tolerance
- Satisfaction governed by customer perception
- Customer contact skills needed
- Received variety is high
- High unit costs



Implications

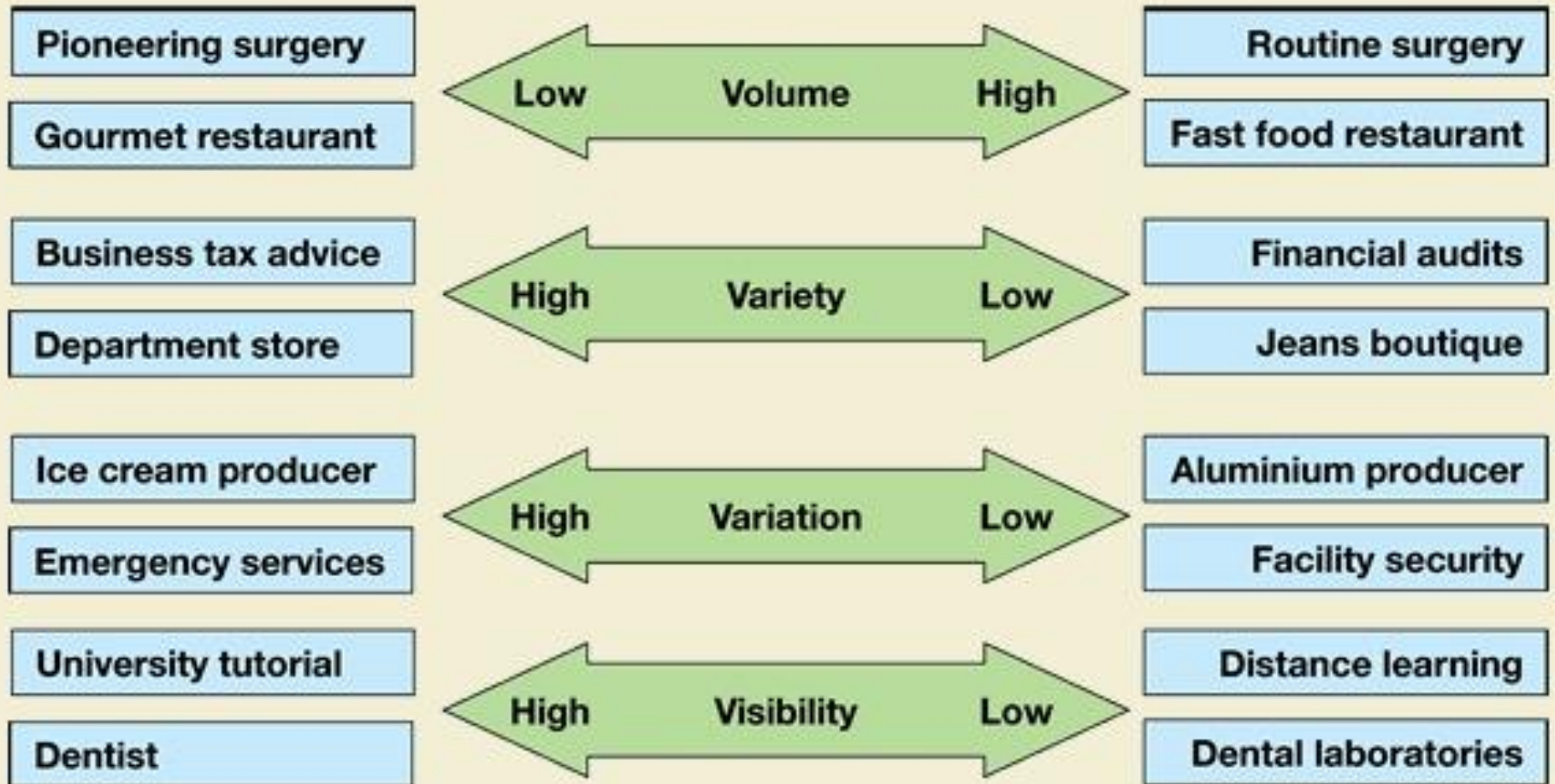
- Time lag between production and consumption
- Standardization
- Low contact skills
- High staff utilization
- Centralization
- Low unit costs

A 4 Vs profile of two operations



- Important to understand how different operations are positioned on the 4 V's.
- Is their position where they want to be?
- Do they understand the strategic implications?

4 Vs Examples



4 Vs Example - Sales



Large account sales process.

80 transactions per month, average value €58,000

Every customer has negotiated a complex set of discounts, terms of trade, etc.

Because there are few customers needing individual attention, sales activity can fluctuate significantly

Customers expect the sales team to visit them.

Small account sales process.

1,500 transactions per month, average value €2,300

All customers accept standard discounts, terms of trade, etc.

Sales activity fluctuates, but smaller customers encouraged to place orders early.

Customers all use internet or call centre to place orders.

