What is operations management?

Operations management is the activity of managing the resources which are devoted to the production and delivery of products and services.
The consultancy services market – % of world revenues of 40 largest consultancy firms

The operations function is fashionable!

They are all operations
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 *processed* 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.

A general model of operations management

- **Operations strategy**
- **The operation’s strategic objectives**
- **The operation’s competitive role and position**
- **Transformed resources**...
  - Materials
  - Information
  - Customers
- **Input resources**
- **Transforming resources**...
  - Facilities
  - Staff
- **Output products and services**
- **Customers**
Operations management at IKEA

- Design a store layout which gives smooth and effective flow
- Ensure that the jobs of all staff encourage their contribution to business success
- Continually examine and improve operations practice
- Monitor and enhance quality of service to customers
- Arrange for fast replenishment of products
- Maintain cleanliness and safety of storage area
- Site stores of an appropriate size in the most effective locations
- Design elegant products which can be flat-packed efficiently

Prêt a Manger

- 'High-end' sandwich and snack retailer
- Uses only 'wholesome' ingredients
- All shops have own kitchens, which make fresh sandwiches every day
- Fresh ingredients delivered early every morning
- The 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 a Manger

- **Product / Service Development**
  - Nutritional ‘mechanical’ and aesthetic design of the sandwiches and snacks

- **Marketing**
  - Promotional activities, market research, etc.

- **Operations**
  - Design, location and management of stores and in-store processes and the network that supplies them

All operations are transformation processes …

that transform inputs …

into outputs
Some inputs are transformed resources
Some inputs are transforming resources

Transformed
resources …

➢ Materials
➢ Information
➢ Customers

Input
resources

Transformation process

Transforming
resources …

➢ Facilities
➢ Staff

Outputs are products and services that add value for customers

At Prêt a Manger

Transformed
resources …

➢ Ingredients
➢ Packaging
➢ Customers

Input
resources

Transforming
resources …

➢ Equipment
➢ Fittings
➢ Staff

Served and satisfied customers
The output from most operations is a mixture of products and services.

<table>
<thead>
<tr>
<th>Products and Services</th>
<th>Pure Products – Outputs that are exclusively tangible</th>
<th>Mixture of products and services – Outputs that are a mixture of the tangible and the intangible</th>
<th>Pure Services – Outputs that are exclusively intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil production</td>
<td>Acme Whistles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminium smelting</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Specialist machine tool production</td>
<td>Prêt a Manger</td>
<td></td>
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<tr>
<td>Restaurant</td>
<td></td>
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<tr>
<td>Information systems provider</td>
<td>IKEA</td>
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<td>Management consultancy</td>
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<tr>
<td>Psychotherapy clinic</td>
<td>Mwagusi Safari Lodge</td>
<td></td>
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</tbody>
</table>

Operations can be analyzed at three levels:

- **Flow between operations**: The level of the supply network
- **Flow between processes**: The level of the operation
- **Flow between resources**: The level of the process
Operations management is concerned with the flow of transformed resources between operations, processes and transforming resources, where …

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

Processes form an internal ‘supply network’ and become each other’s customers and suppliers

Three levels of operations management analysis: the supply network, the operation, and the process
Three levels of operations management analysis: the supply network, the operation, and the process

The programme and video supply network

The programme and video operation

Processes – Flow between resources (people and facilities)
Three levels of operations management analysis: the supply network, the operation, and the process

The supply network – Flow between operations
- Studios
- Promotion agency
- Broadcasting company
- Programme / video maker
- Creative agency

The programme and video supply network

The operation – Flow between processes
- Set design
- Props acquisition
- Set construction
- Set finishing
- Engineering
- Production unit
- Post production
- Marketing and sales
- Finance and accounting

The programme and video operation

The ‘Set and props manufacturing’ process

Processes – Flow between resources (people and facilities)

Differences within sectors are often greater than the differences between sectors

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

<table>
<thead>
<tr>
<th>Low</th>
<th>Volume</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Variety</td>
<td>Low</td>
</tr>
<tr>
<td>High</td>
<td>Variation in demand</td>
<td>Low</td>
</tr>
<tr>
<td>High</td>
<td>Visibility</td>
<td>Low</td>
</tr>
</tbody>
</table>

Implications:
- Low repetition
  - Each staff member performs more of the job
  - Less systemization
  - High unit costs

Implications:
- High repeatability
  - Specialization
  - Capital intensive
  - Low unit costs
A Typology of Operations

Implications

Flexible
Complex
Match customer needs
High unit costs

Well defined
Routine
Standardized
Regular
Low unit costs

High
Variety
Low

Implications

Changing capacity
Anticipation
Flexibility
In touch with demand
High unit costs

Stable
Routine
Predictable
High utilization
Low unit costs

High
Variation in demand
Low
A Typology of Operations

**Implications**

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

- High Visibility
- Low

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

Some interfunctional relationships between the operations function and other core and support functions:

- Engineering/technical function
  - Analysis of new technology options
  - Understanding of process technology needs
- Product/service development function
  - New product and service ideas
  - Understanding of the capabilities and constraints of the operations process
- Accounting and finance function
  - Provision of relevant data
  - Financial analysis for performance and decisions
- Operations function
  - Provision of systems for design, planning and control, and improvement
  - Understanding of infrastructural and system needs
  - Understanding of human resource needs
- Human resources function
  - Recruitment development and training
- Information technology (IT) function
  - Understanding of infrastructural and system needs
- Marketing function
  - Market requirements
  - Understanding of the capabilities and constraints of the operations process
Conventionally, organizational boundaries are drawn around functional processes. BPR advocates reorganizing (reengineering) micro operations to reflect the natural customer-focused business processes.
Example of how each micro operation contributes to the business processes which fulfill external needs.

Key Terms Test

**Operations management**
The activities, decisions and responsibilities of managing the production and delivery of products and services.

**Operations function**
The arrangement of resources that are devoted to the production and delivery of products and services.

**Operations managers**
The staff of the organization who have particular responsibility for managing some or all of the resources which comprise the operation’s function.
Key Terms Test

Support functions
The functions that facilitate the working of the core functions, for example, accounting and finance, human resources, etc.

Broad definition of operations
All the activities necessary for the fulfilment of customer requests.

Transformation process model
Model that describes operations in terms of their input resources, transforming processes and outputs of goods and services.

Key Terms Test

Transformed resources
The resources that are treated, transformed or converted in a process, usually a mixture of materials, information and customers.

Input resources
The transforming and transformed resources that form the input to operations.

Transforming resources
The resources that act upon the transformed resources, usually classified as facilities (the buildings, equipment and plant of an operation) and staff (the people who operate, maintain and manage the operation).
Key Terms Test

**Tangibility**
The main characteristic that distinguishes products (usually tangible) from services (usually intangible).

**Facilitating services**
Services that are produced by an operation to support its products.

**Facilitating products**
Products that are produced by an operation to support its services.

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Key Terms Test

**Processes**
An arrangement of resources that produces some mixture of goods and services.

**Supply network**
The network of supplier and customer operations that have relationships with an operation.

**Internal supplier**
Processes or individuals within an operation that supply products or services to other processes or individuals within the operation.


**Key Terms Test**

**Internal customer**
Processes or individuals within an operation that are the customers for other internal processes or individuals’ outputs.

**Hierarchy of operations**
The idea that all operations processes are made up of smaller operations processes.

**‘End-to-end’ business processes**
Processes that totally fulfil a defined external customer need.

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**Key Terms Test**

**Business process reengineering**
The philosophy that recommends the redesign of processes to fulfil defined external customer needs.

**Volume**
The level or rate of output from a process, a key characteristic that determines process behaviour.

**Variety**
The range of different products and services produced by a process, a key characteristic that determines process behaviour.
Key Terms Test

Systemization
The extent to which standard procedures are made explicit.

Standardization
The degree to which processes, products or services are prevented from varying over time.

Customer contact skills
The skills and knowledge that operations staff need to meet customer expectations.

Key Terms Test

Front-office
The high-visibility part of an operation.

Back-office
The low-visibility part of an operation.