
Service Operations

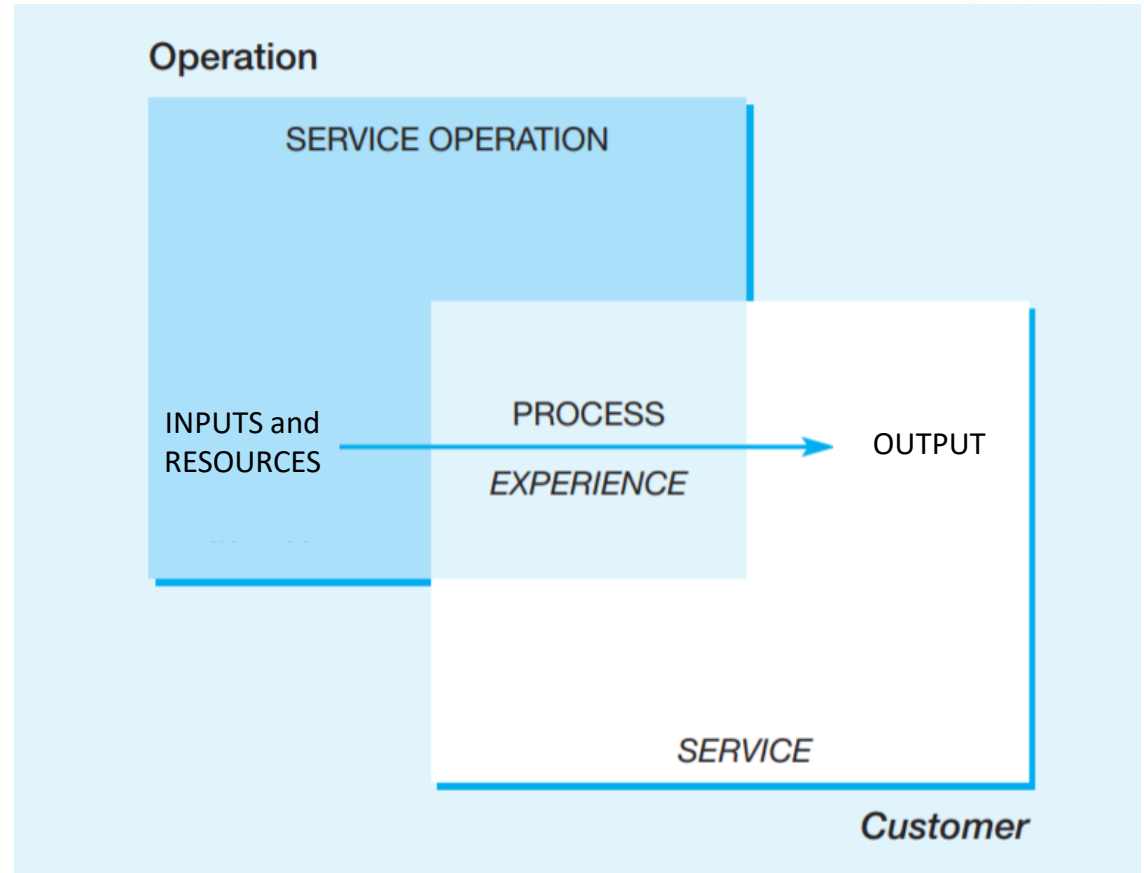
Prof. Giuditta Pezzotta
University of Bergamo



Service Operations Management

The scope of service operations management is described as "having inputs that are transformed and are then output to the service user".

"The role of service operations managers is to manage and integrate both customer experience and service output, though long-term success in terms of financial performance, customer satisfaction and competitive advantage"



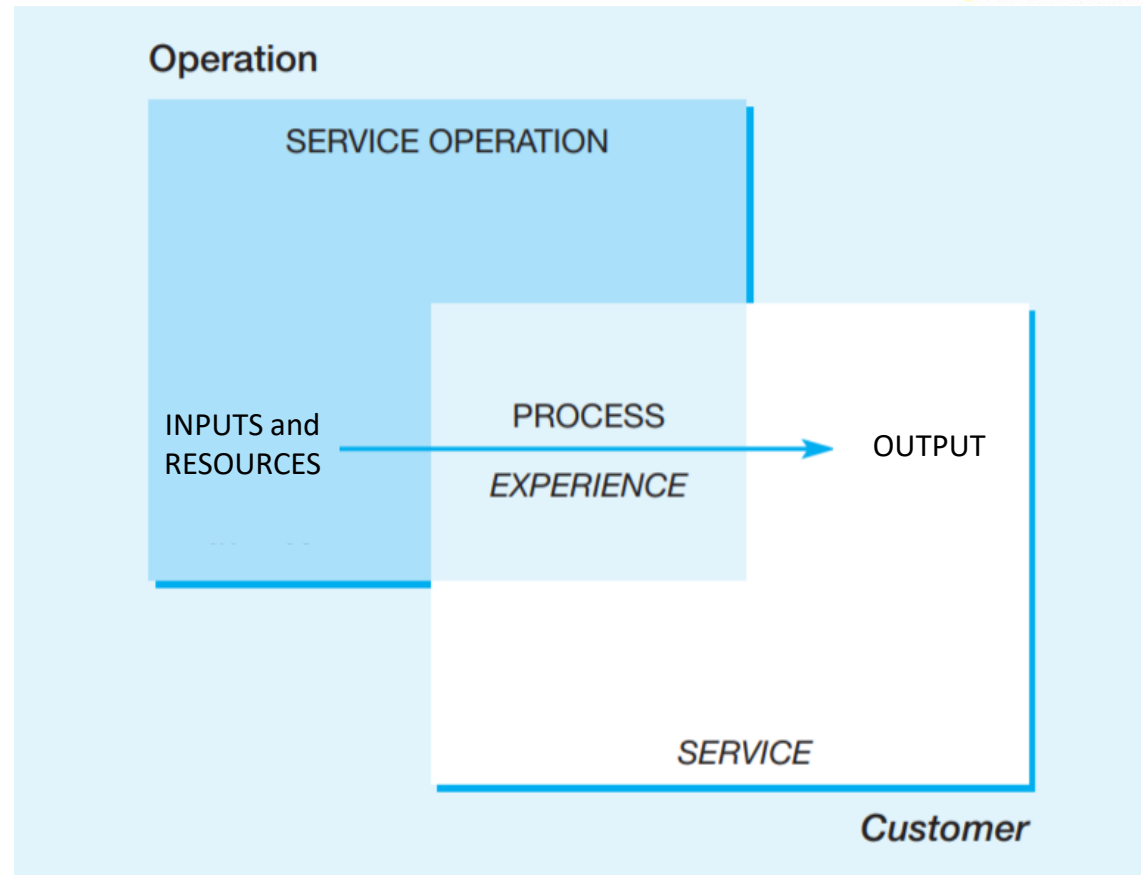
Adapted from "Service Operations Management"
Johnston and Clark

Service Operations Management

“The customer’s experience is an intrinsic part of the operation’s process (see Figure).

The customer sees much of the process and, in many cases, plays a key role or part in the process itself.

It is important to note that customers also have to make an input to the service. These customer inputs include their time and effort.

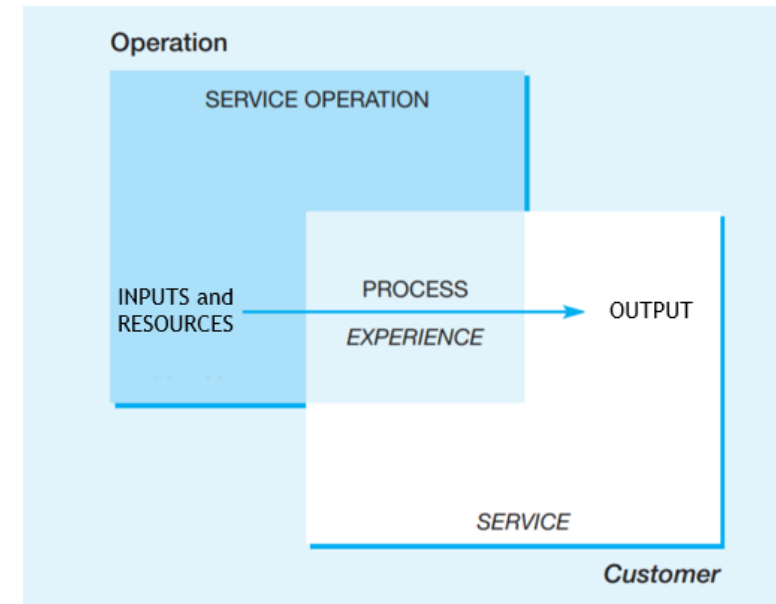


Adapted from “Service Operations Management”
Johnston and Clark

Service Operations Management

Inputs: inputs are either consumed or transformed by process. They include material, equipment, humans.

- Automakers require sheet steel
- Airlines require fuel
- Hospital require medical supplies and energy
- Schools need students
- News services need content (wire stories, photo, video)
- etc.

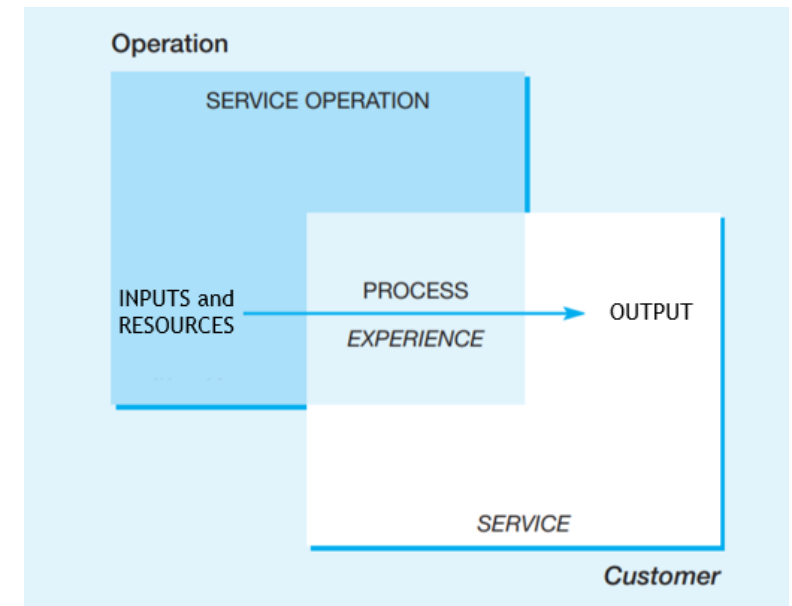


Service Operations Management



Resources: resources are the means by which inputs are converted into outputs. Resources include asset such as

- Auto plant
- The airport gates
- Specialized knowledge of physician
- The classrooms
- The network of local reporter



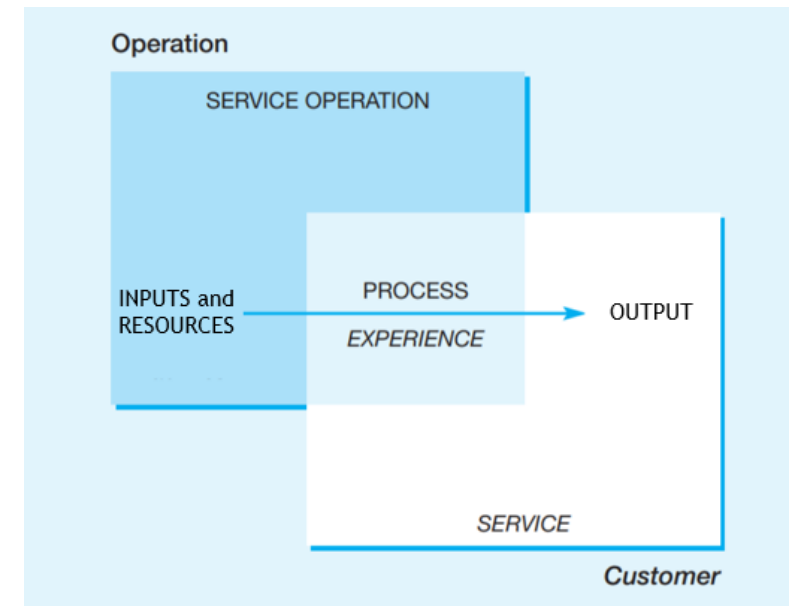
Service Operations Management



Outputs: outputs are the end of product of the process (or service performed by the processes).

- Completed car
- Transported passenger
- The cured patient
- The educated student
- The completed news story

- Emotions
- Experience

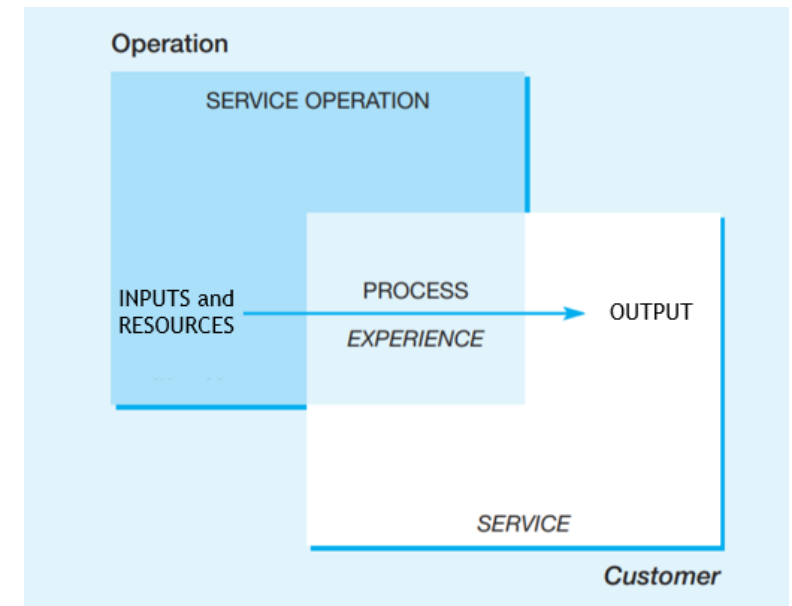


Service Operations Management



Process/Activities: activities involve a specific use of resources to help convert inputs into outputs.

- Bolting bumper onto a car
- Loading an airplane with passengers
- Performing an operation
- Teaching a class
- Dispatching a reporter to cover an election



Manufacturing vs Service Organizations



Manufacturing Organizations	Service Organizations
Produce physical goods	Produce nonphysical outputs
Goods inventoried for later consumption	Simultaneous production and consumption
Quality measured directly	Quality perceived and difficult to measure
Standardized output	Customized output
Production process removed from consumer	Consumer participates in production process
Facilities site moderately important to business success	Facilities site crucial to success of firm
Capital intensive	Labor intensive
<i>Examples:</i>	<i>Examples:</i>
Automobile manufacturers	Airlines
Steel companies	Hotels
Soft-drink companies	Law firms

Source: Based on Richard L. Daft, *Organization Theory and Design* (Cincinnati, OH: South-Western College Publishing, 1998), 130; and Byron J. Finch and Richard L. Luebbe, *Operations Management* (Fort Worth, Texas: The Dryden Press, 1995), 50.

Service Operations Management goals



• Similarly to manufacturing operations management, Service Operations Management is concerned with:

- Efficiency
- Effectiveness
- Quality
- Cost

• In addition service considers also:

- Timing

Efficiency

- No. of servers
- Use of resources

Effectiveness

- Right prescription
- Right advice
- Service availability

Cost

- Inventory management
- Tradeoffs
- Purchasing

Quality

- Training
- Error prevention
- Continuous Improvement



Service Operations Management



- **Main challenges:**
- managing multiple customers
- understanding the service concept
- managing the outcome and experience
- managing the customer
- managing in real-time
- co-ordinating different parts of the organisation
- understanding the relationship between operations decisions and business/ organisational success
- knowing, implementing and influencing strategy
- continually improving the operation
- encouraging innovation
- managing short-term and long-term issues simultaneously

Service Operations Management



- Possible decision levers in service operations:
- Level of customer contact
- Capital intensity
- Degree of customer involvement
- Customer satisfaction
- Market environment



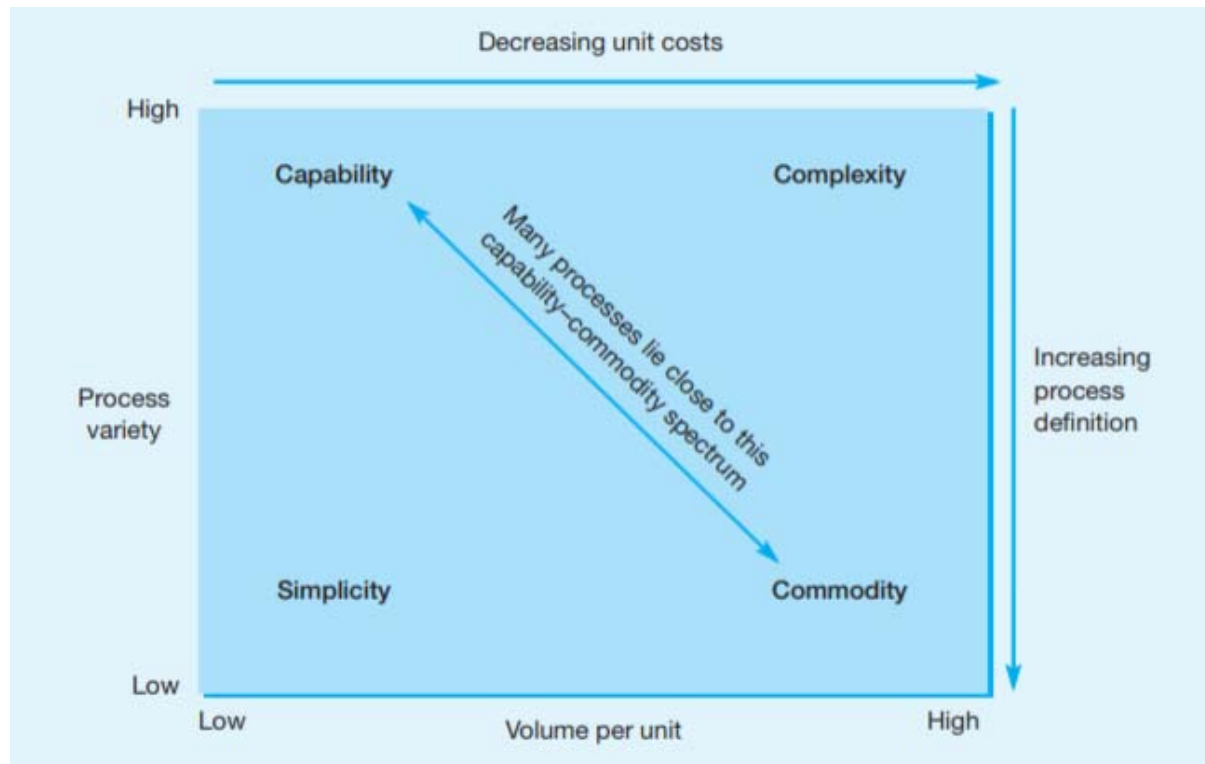
Service Operations Management

Different kind of service processes



- In order to manage the service features and to take decisions about services it is relevant to analyze the process.

E.g. Five-star hotel;
consultancy



E.g. Budget hotel;
McDonald's

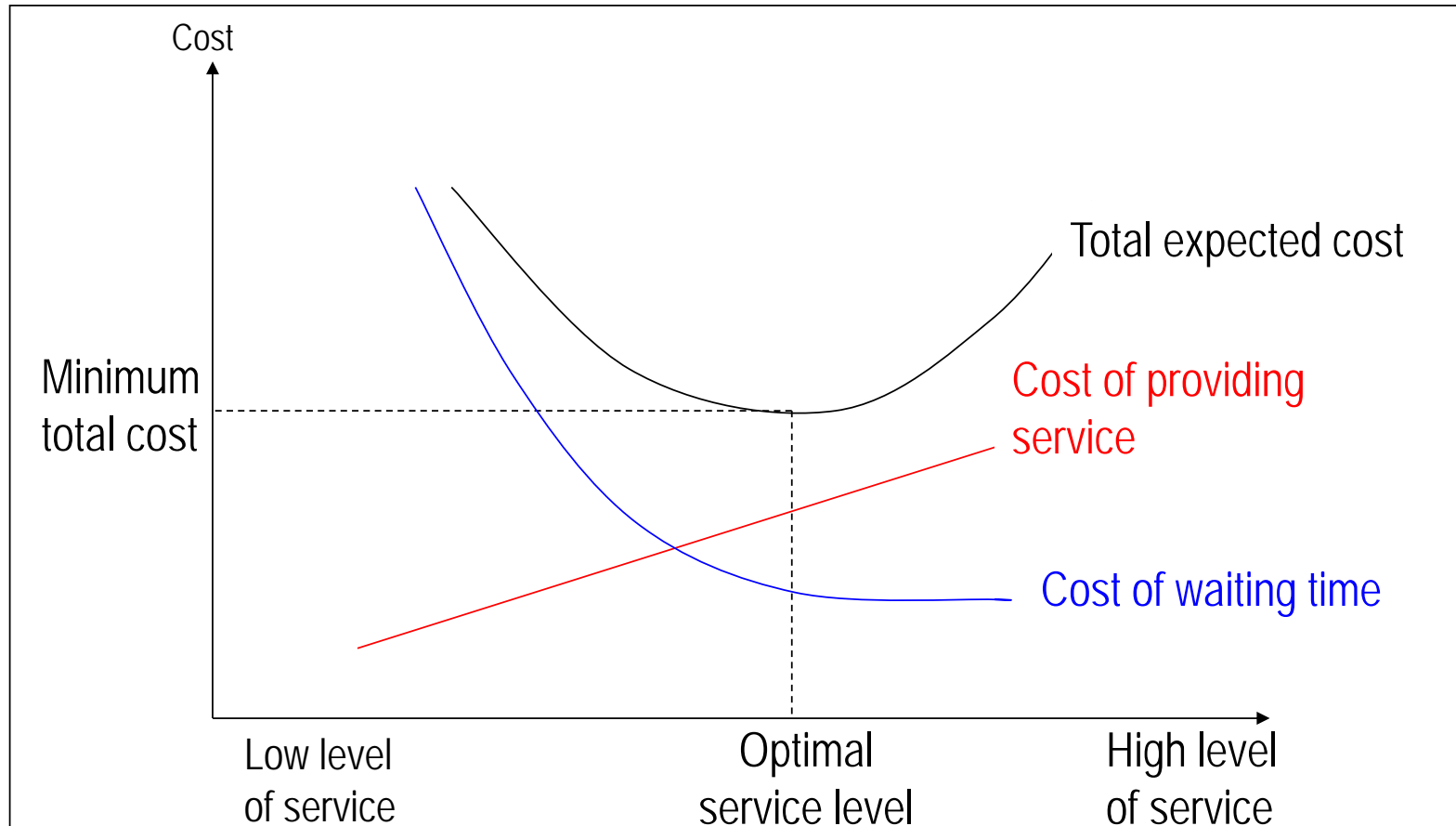
Service Operations Management

Different kind of service processes



	<i>Capability</i>	<i>Commodity</i>
Examples	Luxury hotel Management guru Corporate lawyer Builder of architect-designed luxury homes Aviation insurance broker	Budget hotel chain Software package training provider House conveyancer Garden shed erector Motor insurance provider
Process style	Flexible processes allowing for wide range of outcomes and approaches	Relatively rigid processes focused on narrow range of outcomes and proscribed approaches
Service offer	Ability to diagnose customer needs and to develop a customised solution	Ability to provide an economical and consistent service to meet the needs of many customers
What do they do well?	Flexible, innovative and responsive to individual customer needs	Low cost, with consistent quality and often rapid response
Major challenges	Co-ordinating the response of individual employees Maintaining differentiated competencies to justify premium prices Managing productivity Making best use of highly skilled and knowledgeable individuals	Delivering consistently across multi-sites and many providers Employee morale and ownership of process and customer Managing innovation Managing large numbers of staff and customers

Deciding on the optimum level of service



Planning service capacity



Manufacturing Capacity

Goods can be stored for later use.

Goods can be shipped to other locations.

Volatility of demand is relatively low.

Service Capacity

Capacity must be available when service is needed – cannot be stored.

Service must be available at customer demand point.

Much higher volatility is typical.

Capacity Utilization and Service Quality



The relationship between service capacity utilization and service quality is critical.

- Utilization is measured by the portion of time servers are busy.

Optimal levels of utilization are context specific.

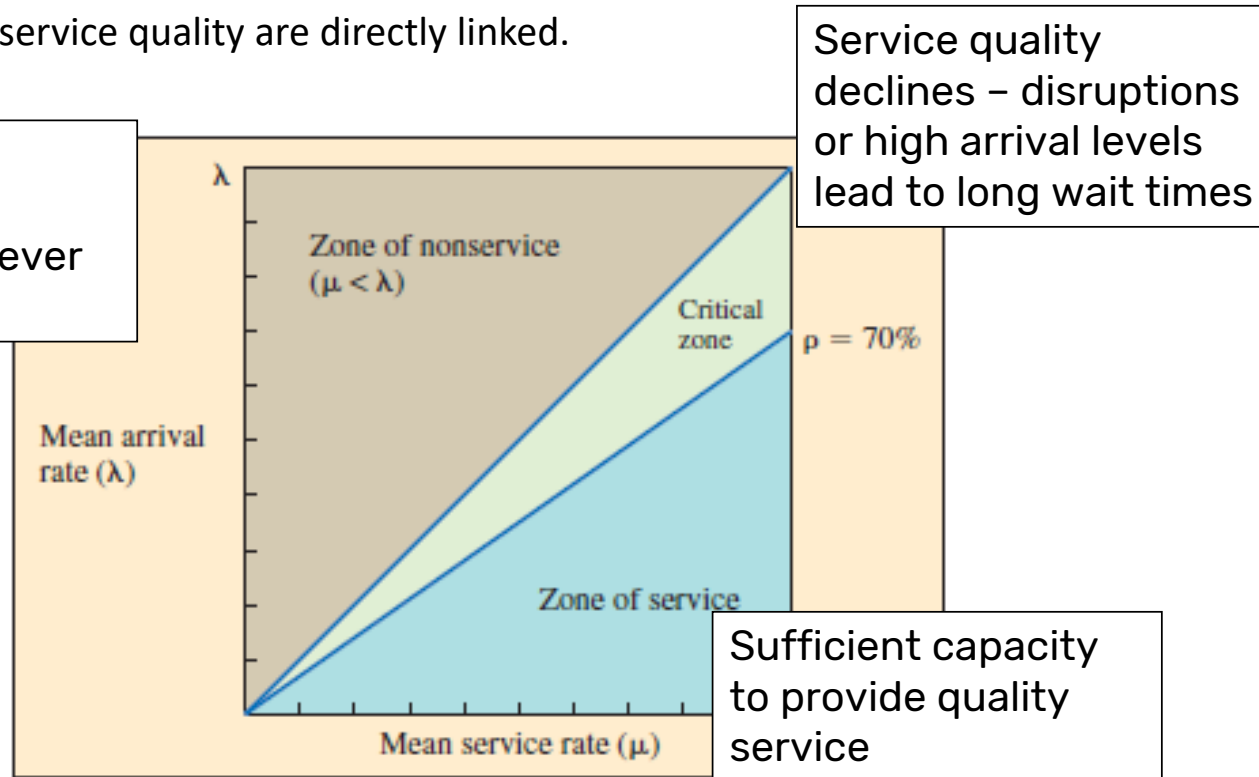
- Low rates are appropriate when the degree of uncertainty (in demand) is high and/or the stakes are high (e.g., emergency rooms, fire departments).
- Higher rates are possible for predictable services or those without extensive customer contact (e.g., commuter trains, postal sorting).

Service Quality



Rate of service utilization and service quality are directly linked.

Arrivals exceed services – many customers are never served



Service quality declines – disruptions or high arrival levels lead to long wait times

Sufficient capacity to provide quality service

Waiting time

- A common phenomena in service system is waiting. In our daily life, we observe this phenomena almost all the time
 - o In the bank, in the restaurant, during check-out in the supermarket, during flight check in etc.
- **The waiting “customers” need not always be people**
 - o Jobs waiting to be processed, employees waiting for resources, trucks waiting to be loaded, airplanes waiting to land, internet requests waiting to be connected etc.
- **The time customer spends waiting for service is a major determinant of quality**



Why is there waiting?



- Waiting lines occur naturally because of two reasons
 1. Customers/jobs arrive randomly, not at evenly placed times nor predetermined times
 2. Service requirements of the customers are variable (think of a bank for example)
- Because of these two reasons,
- waiting lines form even in under
- loaded systems



Cost of waiting

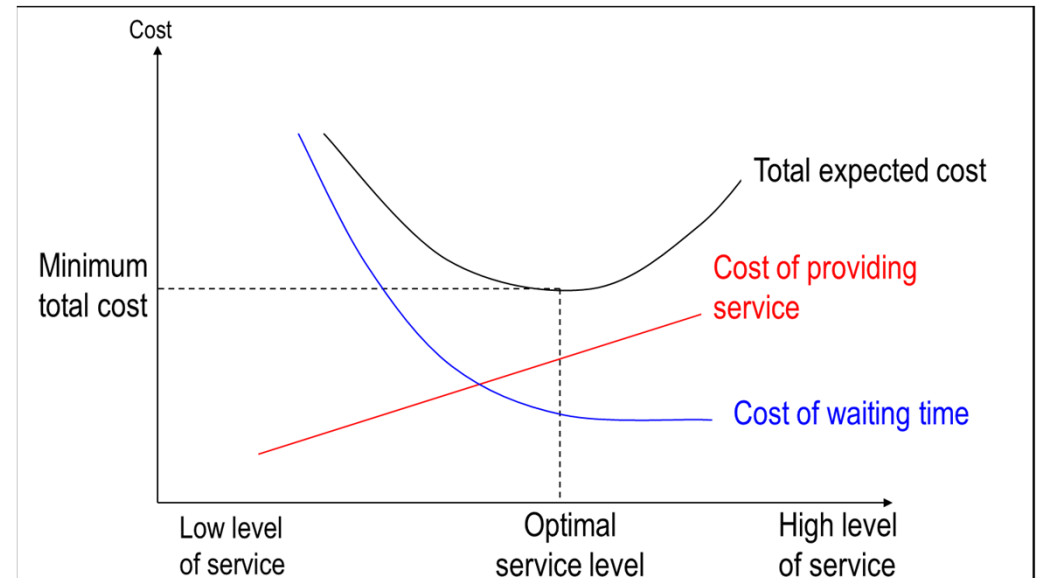


- Quantifiable costs:
 - When the customers are internal (ex: employees waiting for making copies), salaries paid to the employees
 - Costs of the space of waiting (ex: patient waiting room)
 - Loss of business (lost profits)
- Hard to quantify costs:
 - Loss of customer goodwill
 - Loss of social welfare (ex: patients waiting for hospital beds)

Capacity – Waiting Trade-off



- Waiting lines can be reduced by increasing capacity:
- More service counters
- Adding workers to increase speed



Capacity definition



- *Capacity* is the maximum output rate of a production or service facility
 - *Capacity* = $(\text{number of machines or workers}) * (\text{number of shifts}) * (\text{utilization}) * (\text{efficiency})$

Measures of capacity



Type of Business	Input Measures of Capacity
Car manufacturer	Labor hours
Hospital	Available beds
Pizza parlor	Labor hours
Retail store	Floor space in square feet