



Operation Management

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ABSTRACT

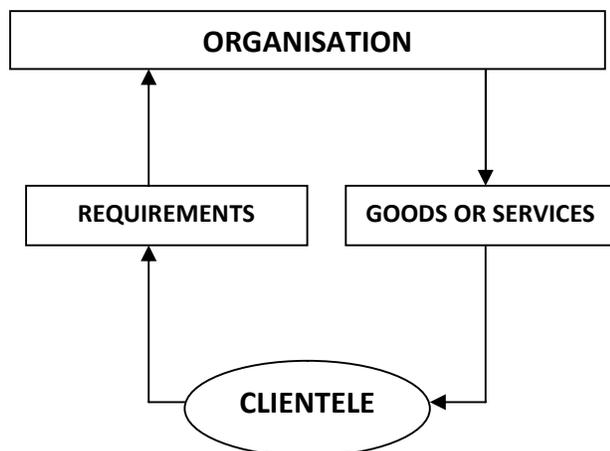
This paper reviews the use of case study research in operation management . It draws on the literature on case study in testing and also implying the theories in different streams. It reflects the importance of operation management for the productivity of objects and services in demand.

Keywords: Operation management, Management Chain, Graphical analysis, Customer relationship management.

INTRODUCTION

For an organization to be successful in the market, it should have to adopt certain acceptable market shares through competitive strategies. To maintain a competitive edge and lead over the competitors, organizations should be producing and providing goods and services that are competitive in their respective market [1]. The advantage over the other is achieved by the organization by its overall strategic plans and objectives.

Firstly, the strategy is made by the marketing and sales department for surveying about the product. Secondly, then the operation management strategy is made in accordance with the marketing and sales department strategy and the overall strategy. The success of the firm depends upon the effective ways used by the firm for the production of their product or the provision of their service. Thus operation management seems to be the basic activity of any organization.



WHAT IS OPERATION MANAGEMENT

Operation Management is an area of management which deals with the overseeing, designing, producing and managing the production and re-production of goods and services which helps in increasing the efficiency of the firm. This mainly deals with the management that involves the conversion of input material into output.

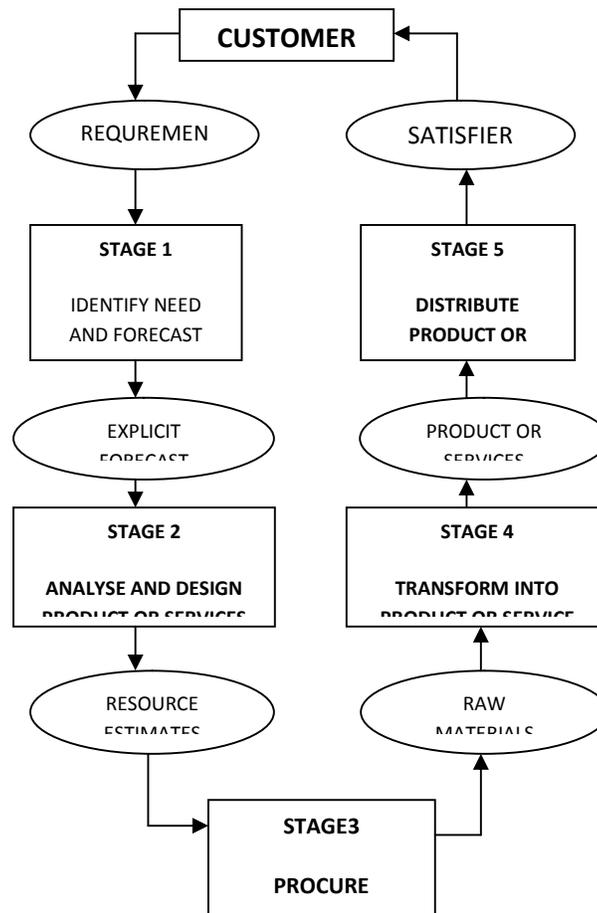
According to US Department of Education, operation management mainly concerned with the management of physical and technical processes of the firm or organization which relates to development, production and manufacturing [2]. Operation management is like engineering which deals with the applied science. People's creativity in designing and knowledge of technology are required for the success of the firm.

The main approach which utilizes the following three factors to reduce the issues of operation management within a firm are:

- 1) There should be an effective communication within the firm to reduce the risk of corporate losses which get unnoticed frequently.
- 2) Within a firm of organization, there should be group or person which is responsible for any issues related to operation management.
- 3) Managers in any organization should motivate the workers and update them with the new technology so that they feel comfortable with that.

ROLE OF OPERATION MANAGEMENT IN AN ORGANIZATION

Motive for the existence of any organization is to provide the needs of the clientele. These needs can be in a form of goods or services [1, 2]. An organization is subdivided into small units marketing, suppliers, inventories, production and controlling. This phenomenon is depicted in following stages:



Stage 1 - The marketing and sales department identify the customer needs. Then a forecast of the requirement is done. These explicit forecast form inputs for next stage.

Stage 2 - After forecasting the need, design of product and service is done. Estimation for the requirement of material and other resources are done and which become the inputs for the next stage.

Stage 3 - Inputs required estimated are procured from outside or from within the organisation depending on their availability.

Stage 4 – Now the raw material as input is converted into output as goods and services.

Stages 5 - Good and Services are then delivered to the clientele.

Stage 1 and stage 5 are the unit deals with the marketing. Stage 2, 3 and 4 are placed under the production and operation management. All the units in an organization should possess handy and smooth relation with each other for better efficiency.

RISKS REGARDING OPERATION MANAGEMENT

- a) Technology failure
- b) Business premises become unavailable for a certain period of time
- c) Inadequate record keeping and accounting
- d) Improper financial models and reports
- e) Third party fraudulent behaviour

While at the project planning, an entrepreneur have to pay attention on various aspects regarding the size, location and layout of their industry [3], where the actual manufacturing takes place.

- **Size:** The size of the unit refers to the capacity of installation and production area. The size should not be so small that it become complex to work, nor so large that it increase the production time and transportation time. The size determines the use of technology, machine, etc. The size should be enough to take care of inventory, finished product and construction process.
- **Location:** Proper location of an enterprise plays a major role in the success of an organization. For example: a hydro power plant should be near the sea or ocean, an agro industry should be installed in such a way that the sources of raw material should be at the nearest
- **Plant Layout:** Plant layout means the proper use of space available so that neither the space gets wasted nor there should be any difficulty in flow of material. Plant layout is designed at the time of industry setup and it happens only once. For any changes in the plant layout further then it requires a heavy investment. Instead of this there should be a loss of the company because of shutdown of the plant i.e. disrupting the operation. A good layout means there should be better appearance, better safety, high efficiency, convenience and profit of the company. Improper layout leads to congestion, disruption in flow of material and man which leads to accidents, delays leading to frustration and inefficiency.
- **Product Design:** The product offered by the company or the firm is the backbone of any enterprise. The very first step taken by the entrepreneur is to decide what product to produce. The very next step is that how to produce the same. Since, once the product is designed, it will continues for a long term, that's why the design engineer should design a product by keeping in mind about the probable changes in the environment, technology and customer taste minimum for next five years.

The following considerations are required while designing a product:

- Standardization
 - Simplified
 - Reliable for the end user
 - Less cost
 - After sales services
 - Maintainability
 - Reproducibility
 - Customer friendly
- **Inventory Control:** Generally raw material comes from somewhere else to the plant for processing through transportation. Due to certain circumstances there should be delay in transportation. That's why every industry kept an extra material within the firm so that production cannot be stopped. This extra material is

placed in an inventory. Inventory not only kept this but also stores the finished goods, goods in progress, etc. the inventory has many advantages:

1. Raw material is available at the time of production.
2. The finished goods inventory helps the customers at the time of their requirement.
3. Sometimes there should be the over demand of the product which is not predicted by the firm. At that time inventory items can fulfil the demand up to some extent.

In order to place an order for an inventory, manager has to check [3][4]

1. Order lead time:
Average time from order placed up to the time of getting the finished goods.
2. Usage rate:
The average rate at which the inventory is being used
3. Reorder point:
It is the level at which a new order must be placed so that a new stock comes before the existing stock reaches to zero level. The reorder point can be calculated by using the formula

$$\text{Reorder point} = \text{usage rate} * \text{lead time}$$

ROLE OF OPERATION MANAGEMENT IN DIFFERENT DISCIPLINES

A. *Queuing or Waiting Line*

Queue area is a place where people waits for their turn while receiving product or service[5]. General examples of queue area are ATM, billing window, ticket stands, cafe, etc. Queuing is a phenomenon in number of fields and plays a major role in the analysis of queuing theory.

- **Queuing Theory:** It is a mathematical study of waiting lines or queues. In queuing theory, a mathematical model is constructed on the basis of previous mathematical study about waiting lines, so that queue lengths and waiting time of the customer can be estimated. On this basis organization takes the business decisions about providing the service.
- a) **Physical queue:** At some places, there are dozens of separate queues which may cause frustration. As different queues are served with different speeds, some people continuously change their queues for the purpose of getting quick service. Some people in a queue are served quickly while the people in other queue have to wait for a long time. Sometime, two or three people get splits up in different queues. Once it is judged which queue is faster the other one joins the same.
- b) **Virtual queue:** Sometimes the people don't have to stand in the queue. There is waiting room or an area where all of them sits with a token or any number and waits for their call. This is probably seen in doctor's clinic, banks during cheque clearing, fashion houses, hospitals, etc. In restaurants instead of making the customer to wait, they are served certain other things so that they feel comfortable during waiting in a waiting room. Now a day's virtual queuing apps are coming in the market which helps the customer to know his virtual queuing status and also they can control it remotely.
- c) **Mobile queues:** Since all the above have a drawback that the customer have to arrive at the service station to either know his status or to book himself and getting a queue number. But, nowadays, queues in restaurants, colleges, government offices, healthcare institution and elsewhere is being replaced by mobile queues or queue ahead. In this the customer can enter in a virtual queue from his mobile phone or internet without arriving at the service station. This leads to save the precious time of the customer along with reducing the frustration. The status can be then seen as in virtual queuing and arrives at the station when the number came.

B. *Banking Sector*

It is not be so surprising to say that operations is viewed as an engine of the bank. It is suitably and frequently used in processing transactions, selling trades and satisfying the needs of the customer. In large banks, this is a risk undertaking because they have a responsibility for millions of transactions every day. Now-a-days many banks realize the importance of Customer Relationship Management (CRM) and its importance to attract new customers, retaining existing ones[5]. The main target of banking sector is to maintain a close relationship with the customers which will require a strong coordination between IT and marketing department to provide a long

term relation with the selected customers. The role of Customer Relationship Management in banking sector is to increase customer value by using an analytical method in CRM application

C. Bakeries

In Bakeries, which is a common example of our daily life, operation management plays a vital role in it. In bakeries batch production process is used. Batch production is a technique used for manufacturing the products in a company in batch form. In batch production the object is processed stage by stage over different operations performed on it in different workstations. Batch production is mainly used in bakeries, manufacturing of sport shoes, pharmaceutical ingredients, purifying water, inks, paints, adhesives, etc. Batch production has many advantages in bakeries. Since in bakeries, every customer has a different demand. Making the product in batches reduces the overall cost. It also addresses specific customer needs. Use of special machineries and skilled person can increase the output and productivity. Since nothing is perfect, it also have some disadvantages. The main disadvantage is that it consumes more time for resetting the machineries.

D. Beauty Parlour

In a beauty parlour, products in the form of shampoo, cream, etc. are provided. On the other hand, instead of providing products one can provide a service fulfilling the needs. Theories of operation management can enhance the services by providing better quality in an certain interval. For instance a lady wants to look attractive. This can be fulfilled by cosmetic products like lipsticks, nail paint, hair colour, etc. or she can go with the services provided by the beauticians.

E. Automobile Industries

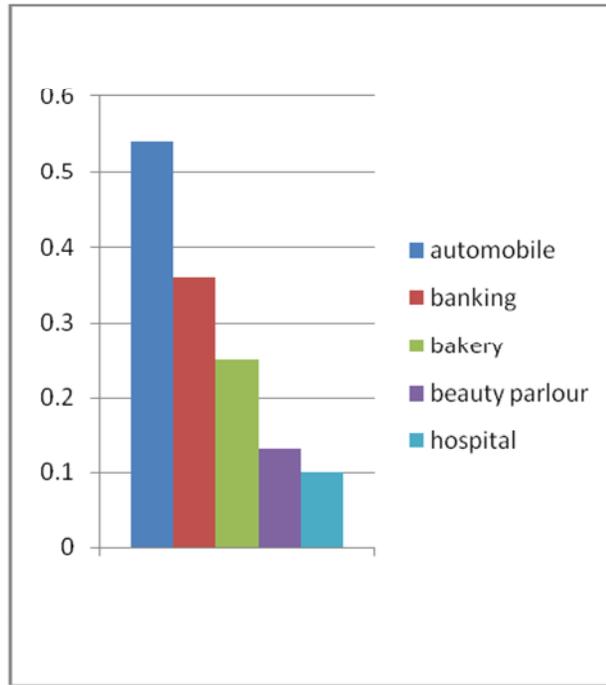
Operation management also plays a vital role in automobile industry. The best example of this is Maruti udyog. Initially Maruti udyog had a loss of Rs.2500 million in 2001, and it has a net profit of Rs.1050 million in 2002. Maruti measured the relative quality of its dispatched vehicle with respect to other on the basis of quality index audit. Maruti introduced the various measures for improving its quality like it had done various tracking surveys and direct customer contact in order to understand the various problems which are being faced by the customers.

F. Hospitals

Operation management is the basic need of the hospitals. Since hospitals are the place where full discipline is to be maintained, so there should be a group or a person who manages the daily routine of the hospital. The best example related to the role of operation management is Apollo Hospital. Apollo hospital is having a senior management team which deals with the day to day affairs of the hospital along with the best possible care of the patient. It also manages the international practice which strives to establish the hospital to be the best in the region. The competitive advantage of this hospital is that all the managed hospitals became the part of Apollo network. Exchange programs are also conducted by Apollo hospital for medical consultants, nurses and technicians so as to facilitate knowledge sharing and technology exchange. Apollo now manages more than 42 hospitals in India and abroad. Similarly the hospitals that are managed by Infosys has an alerting mechanism. The solution to the questions asked by the patient is delivered to him via SMS, e-mail, pager.

GRAPHICAL ANALYSIS OF OPERATION MANAGEMENT IN DIFFERENT DISCIPLINES

While visiting in different firms it is seen that the organizations using operation management in various streams, it is generally seen that automobile sector has a very vast advantage. For example the Maruti udyog had a total turnover profit of 54% within one year [6]. Similarly, in banking sector, within same one year, 36% overall profit is increased. In bakeries this is very complicated to apply operation management. But then also 25% profit is observed. In beauty parlours total 13% profit is increased. In advance hospitals like in Apollo hospital only 10% profit is observed.



CONCLUSION

Operation management is a broad area in an organization that involves labour relations, statistics, manufacturing control and policy creation. Operation management is feasible to term as backbone of any organization. This research paper depict the role of operation management in various disciplines like bakeries, banking, beauty parlour, hospitals, automobile, etc. Also operation management abate the wastage of materials and enhance the productivity of objects as products or services.

REFERENCES

- [1]. Operations management, by Ray Wild.
- [2]. Operation management, Jae K. Shim, Ph.D., and Joel G. Siegel, Ph.D., Barron's Educational Series, Inc.
- [3]. Operation management an international perspective, David Barners.
- [4]. Production and Operations management, R.B. Khanna, professor Indian institute of planning and management 9IIPMO Jaipur.
- [5]. Production and management, S.N. Charity.
- [6]. Operation management: theory and practice, Goel B S, Indian institute of science, Bangalore.