

Three fundamental functions of business organizations management essay



BMW stands for Bayerisch Motoren Werke AG established in 1916. The company was first known as a manufacturer of aircraft engines. In 1928, it started focusing on car manufacturing with the purchase of the Eisenach motor vehicle factory. The “ BMW 3/15” which was a version of the “ Austin Seven”, from British automaker Austin was the company’s first passenger car. It operated with a 15 horsepower engine and had a top speed of 45 miles per hour. BMW began to design and build its own cars in the 1930s. The company developed its own engine plant that allowed BMW to build both sports cars and sedans without using engines made by other companies. The 327, 328 and 335 models were advanced technologically that made BMW be recognized as a major European automaker. During WWII BMW was forced to produce motorcycles and engines for the German army. They had to stop car production until the 1950s. After WWII, BMW had to restart their car production from zero. In 1952, they began producing the large 501 luxury sedan. It was the first car to be mass-produced in the West Germany. The successful 501 was followed by the 502 sedan in 1954 and the popular 507 roadster in 1956. This series help the company regain the prominent position for sports and luxury cars. Today BMW cars is recognized as a worldwide luxury brand with a high reputation for quality and by their marketing slogan, “ The Ultimate Driving Machine.” BMW, MINI and Rolls-Royce are three of the strongest premium brands of BMW nowadays. BMW’s car is a superior product in terms of aesthetic appeal, dynamic performance, technology and quality. It underlines the company’s leading position in innovation and technology. BMW Group Production Network currently includes 29 production and assembly plants in 14 countries on four continents with a network of more than 12, 000 suppliers all over the world.

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The integration of production and logistics systems within the individual BMW Group locations provides advantages for the customer. Higher efficiency in the supply of production materials helps accelerate the delivery of cars to customers. Each plant contributes to the smooth operation of the global production network.

The main locations of BMW Group Production Network include:

USA: Spartanburg, South Carolina.

Germany: Dingolfing, Berlin, Eisenach, Landshut, Munich, Regensburg and Wackersdorf

Brasilia: Manaus.

Italy: Cassinetta

India: Chennai

Great Britain: Goodwood, Hams Hall Oxford Swindon

Austria: Graz, Steyr.

Indonesia: Jakarta

Russia: Kaliningrad

Malaysia: Kuala Lumpur

Thailand: Rayong

South Africa: Rosslyn

China: Shenyang (Dadong) and Shenyang (Tiexi)

(Adapted from www.bmwgroup.com; BMW group (2011); http://www.ehow.com/about_5145304_bmw-cars.html)

Operations management as a set of decision making

2. 1. What resources will be needed and in what amount?

2. 1. 1. What resources will be needed?

The production process is concerned with transforming a range of inputs into those outputs that are required by the market. This involves two main sets of resources - the transforming resources, and the transformed resources.

Transformed resources include those that are transformed in some way by the operation to produce the goods or services that are its outputs. Three types of resource that may be transformed in operations are:

materials - the physical inputs to the process (manufacturing)

information that is being processed or used in the process

customers - the people who are transformed in some way (common in the service business)

Transforming resources include those that are used to perform the transformation process. The two types of transforming resource are:

staff - the people involved directly in the transformation process or supporting it (labour)

facilities - land, buildings, machines and equipment (capital)

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(<http://www.differencebetween.com/difference-between-transformed-resources-and-vs-transforming-resources>)

In the case of BMW group, the resources necessary for their car production can be summarized in table1

Resources

Types

Notes

Transformed

- Iron, Steel, Aluminum, Rubber etc

- Energy

- Car Body

- Paint

- Engine

- Other parts

- For the production of car body, bolt, rivet, wire, seat and other parts etc

Transforming

- Land

- Engine production plants, body shops, paint shops and assembly plants

- Automated machines and other related machines

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- Equipment and tools

- Computers and supportive software

- Workers, managers, supervisors, inspectors

- To build different types of car manufacturing plants

2. 1. 2. In what amounts?

The amounts of resources required for car manufacturing largely depends on the demand of the product. The number of the goods/ services the company intends to produce and deliver to customers and the variety of products to be produced will determine the amounts of resources needed within a defined production system. To make decisions on the amounts of resources needed for manufacturing the product(s), operations managers should consider carefully two elements: selection of production process (operations strategy) and forecasting of demand of products/services.

Selection of production process: There are three basic types of production methods or process:

Make-to-stock (mass production): this method commonly goes along with line-flow strategy in which high volumes of products of relatively few standardized products are manufactured base upon relatively accurate anticipation of future demand for those products. This requires the firm to hold products in stock for immediate delivery. The competitive priorities of this method are stable quality and low cost. Since the demand for the

products have been well anticipated so does the amounts of required resources (Krajewsky et al, 1999).

Make-to-order: this method is commonly used by firms with flexible flow that produce low-volume, high-variety of goods/services according to customer specifications. In this direction, high level of customization is the major competitive priority of this method (<http://www.web-books.com/eLibrary/NC/B0/B66/098MB66.html>)

Assemble-to-order (mass customization): this method is used to produce goods/services with many options from a relatively few number of assemblies and components in line with the customer's specific order.

Assemblies and components are held in stock until specific orders arrives. Then respective products will be assembled with appropriate assemblies and components. This method is relevant to high volume and relatively high variety of good/services (Krajewsky et al, 1999).

Forecasting:

In order to determine more accurately the amounts of resources needed for the product/service the organization is to offer to the market, it is vital to forecast the demand of this product/service. Demand forecast is usually developed by the marketing department and its accuracy will be the crucial element of the success of capacity management plans implemented by operations. Forecast provides a strong basis for determining the capital invested in the plants, machines and equipment, purchasing the right amount of materials and employing the right amount of labour (Albert Porter, 2010).

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Production methods and capacity planning of BMW group as means to define amounts of resources needed.

In terms of production method, BMW's leading production principles includes horizontal and vertical integration of functions, team work organisation, visual management, built in quality processes, pull system of procurement and continuous improvement. This can be seen as a hybrid production system with a strong German element in product, production technologies and quality standards, a strong part of Japanese principles in process and work organisation and an American part of vertical management hierarchy. BMW's production approach is characterized with high quality, high productivity and high product flexibility which is closed to the mass customization model of production (Ludger Pries, 2002). With this production approach today BMW produces at least 80 percent of its vehicles to customer orders.

(http://www.bmwgroup.com/e/nav/index.html?..0_0_www_bmwgroup_com/home/home.html&source=overview).

With regards to capacity planning BMW develops a well-elaborated strategic-planning process where products and sales are forecast before production capacity planning. Derived from the results of market research, planners decide on the set of future products and estimated sales figures during their life cycle for different geographical markets with the necessary flexibility reserves (i. e. difference between expected demand and available capacity based on their experience). This serves as data for plant loading in which planners allocate the products to the plants and determine the required

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production capacities including future amount of resources needed and the way to procure them (Bernhard Fleischmann, 2006).

2. 2. When will each resource be needed? When should the work be scheduled? When should materials and other supplies be ordered? When is corrective action needed?

All those above questions are connected with materials management, scheduling and quality control the operations manager should carefully consider once the production process is put in place.

Master Scheduling Plan and Work Scheduling

Forecast of future demand of sales helps companies set up an overall production capacity plan which in turn tailored into Master Scheduling Plans (MSP) with an intermediate timeline where the quantity of specific end-products and the time to produce them are defined. It is the major control of all production activities. To create an MSP, it is important for managers to know where materials are located and how they flow at every step in the production process. For this purpose, they determine the routing of all materials-that is, the work flow of each item based on the sequence of operations in which it will be used (Anil Kumar et al, 2009). On the other hand, as it is necessary for managers to control the timing of all operations, they have to build work schedules for this purpose. Scheduling allocates resources over time to perform specific tasks (Krajewsky et al, 1999).

Managers determine jobs to be performed during the production process, allocate tasks to work groups, set timetables for the accomplishment of task and ensure that resources are to be adequately provided when and where

they are in need. Two most popular techniques used in scheduling are Gantt and PERT charts (<http://www.webbooks.com/eLibrary/NC/B0/B66/098MB66.html>)

Inventory control

It is disastrous if a manufacturer runs out of the materials it needs for production. However, keeping large inventories of materials is wasting money because the firm has to pay for those materials in stock and find places to store them. Therefore, to remain competitive, firms have to manage inventories efficiently. They need to ensure the availability of materials for production and at the same time not to waste money due to large inventory. Achieving the balance between those two risks rests on the inventory management and control. There are three types of inventories including (i) raw materials; (ii) purchased goods and (iii) finished parts and components. The various types of inventory to maintain the continuity in the production process is illustrated in fig 1.

Inventory

Raw materials

Process

Inventory

Parts + Purchased items

Process

Finished products

Market

Inventory

Fig 1: Inventory of materials (www. newagepublishers.com/samplechapter/001386. pdf)

There are two common inventory-control methods as follows:

Just-in-Time

It is seen as the modern concept of inventory planning where the materials should be purchased and brought in the stores just before it enters the production or sold out so that inventory cost is negligible. The zero inventories are the ideal planning because the costs of “ holding” inventory are significantly cut. JIT, however, requires considerable communication and cooperation between the manufacturer and the supplier. The manufacturer has to know what it needs, and when. The supplier has to commit to supplying the right materials, of the right quality, at exactly the right time (Albert Porter, 2010).

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Material Requirements Planning

However, in the present situations in any of the organization particularly manufacturing

organization, it is not absolutely possible to keep no inventory of materials required for production. Another inventory control method is commonly used called Material Requirements Planning (MRP). The MRP is a technique relies on a computerized program both to calculate the quantity of materials needed for production starting from the raw materials, finished parts, components, sub-assemblies and assemblies as per Bill of Materials (BOM) and to determine when they should be ordered or made to support a Master Production Schedule (MPS) (Krajewsky et al, 1999; Anil Kumar et al, 2009).

The basic MRP focuses on material planning, but there is a more sophisticated system-called Manufacturing Resource Planning (MRP II)manufacturing resource planning (MRP II)System for coordinating a firm's material requirements planning activities with the activities of its other functional areas.-that goes beyond material planning to help monitor resources in all areas of the company. Such a program can, for instance, coordinate the production schedule with Human Resource managers' forecasts for needed labor (www. newagepublishers.

com/samplechapter/001386. pdf)

Quality control

Quality control of materials

The quality of the product largely depends upon the quality of the materials used to produce that product. Therefore, it is a very important for the firm to purchase the right quality of materials. Quality control of materials aims at delivering product at higher quality with lower cost. It also helps decide the selection of suppliers and the relationship between buyers and suppliers. In <https://assignbuster.com/three-fundamental-functions-of-business-organizations-management-essay/>

quality control, the quality assurance is decided by inspection and checking. The various properties of materials are decided by the standards they should follow.

(www.newagepublishers.com/samplechapter/001386.pdf)

Total quality management

Today, quality is an efficient weapon firms use to compete with their rivals in the market. Total Quality Management (TQM) or quality assurance includes all managerial steps that firms take to ensure that its goods or services are of high quality to adequately meet customers' need). TQM encompasses the following three principles:

Customer -driven definition of quality: firms encourage customers to tell them how to make the right product. Firms also track customer's feedback about their products (via surveys and other methods) to know what they need to improve.

Employee involvement: commitment of employee in ensuring quality of their tasks and in detecting and correcting quality problems is very important. Training and other tools will help employee be actively involved in quality assurance process.

Continuous improvement: the commitment to making constant improvements in the design, production, and delivery of goods and services ((Krajewsky et al, 1999).

A range of tools have been developed to control quality and identify areas of improvement such as Statistical Process Control, Benchmarking and Taguchi's Quality Loss Function method.

In addition, a set of standards called ISO has been devised by the International Organization for Standardization to help companies comply with quality documentation standards and get recognition worldwide. There are a set of standards: ISO 9000 family for quality management and ISO 14000 for environmental management.

(http://worldacademyonline.com/book/applied_operations_management_manufacturingand_services/).

Materials Management and Quality Management at BMW

BMW forecasts their new products and demand of sale for capacity planning and allocate the products to their plants worldwide. Each plant then develops the MSP based upon the new orders and demand of sales. The MSP determines explicitly the quantity and the time of the resources (materials and capacity) needed based on the sequence of operations. In terms of inventory management, since BMW adopts a hybrid production system, MRP is used to calculate the quantity of materials needed for production and to determine when they should be ordered or manufactured with the integration of JIT principle to reduce inventory. In each location, BMW manufacturing plant establishes a network of first tier suppliers located nearby, for instance the Spartanburg plant has 18 first tier suppliers that are located in the nearby industrial park and committed to provide ordered materials and components with high quality and right in time. E-orders and <https://assignbuster.com/three-fundamental-functions-of-business-organizations-management-essay/>

purchasing are used to communicate and do the transaction with its suppliers. As a result, buffers between body shop and painting is 18 units and between painting and assembly is 120 units. The suppliers are forced to recompense the rigidity of the production system with their own and extensive buffer (Ludger Pries). This mixed inventory control method allows BMW to develop a mass customization production system characterised with high quality, high productivity but also high flexibility.

Quality is the strongest competitive advantage of BMW cars. For BMW to achieve premium quality, it is important to recognize any defects/mistakes before production begins and to correct them. Therefore the company has adopted sophisticated computer-aid quality inspection technology to control the quality of purchased parts, engines and all the semi-products and components going from the press, body shop to the final assembly with start-of-the-art inspection device such as 3D CAD, mobile optical TRITOPCMM system (<http://www.capture3d.com/file-capture3d-bmw-assemblyline.pdf>). Computer-aided inspection systems contribute significantly to saving rework time, optimizing processes and thereby reducing production costs. BMW group also complies to ISO 9000 and ISO 14000 for quality and environmental management system ((Ludger Pries, 2002).

2. 3. Where will the work be done?

The selection of plant location or facility location is a key strategic decision for an organization. The location decision is costly and time consuming to change. This is because large investment is made to buy the land and to construct buildings. Company's competitiveness will be affected by its

location since it will impact costs such as transportation and labour.
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Improper location of a plant may lead to loss of competitiveness, and eventually waste of all investments put in land, buildings and machinery. Therefore, before making decision for the selection of a plant location, long range forecast about the future demands should be made. The plant location should be based on the firm's expansion plan and policy, diversification plan of products, changing market conditions, changing sources of raw materials and other resources and many other factors.

The key following factors are seen important for location decision:

Proximity to customers (extremely important in service business)

Proximity to suppliers

Proximity to labour

Infrastructure and transportation availability (Albert Porter, 2010; Anil Kumar et al, 2009).

BMW group and its worldwide plant locations

Needless to say, BMW group has seen the development of its plant location worldwide network as a key strategic planning to enhance its competitiveness in the automobile global market. From their dominant position in Europe with their plants located in strategic countries such as Germany (its headquarter), Britain, Austria and Italia, the company spread their manufacturing to strategic countries of all over other continents (except Australia) for instance the US for North America, Brasilia for South America, South Africa for Africa, Malaysia, Indonesia, Thai for Southeast Asia,

India for East Asia and recently China for North Asia. In each country, BMW has meticulously identified most suitable area for the location of their strategic manufacturing plant corresponding to their expansion plan and policy and the diversification of their products. Proximity to suppliers, labour and the land, infrastructure and labour availability are factors the group always considers when making plan location decision.