HUMAN RESOURCE AND TALENT MANAGEMENT: 
STUDY ON PLANT LAYOUT 

PORAG KALITA* 

ABSTRACT 

Production management alternatively referred to as manufacturing management, is required for transforming raw materials and partly, fabricated materials into finished products. Production management does not imply management of productive process alone, but it covers all those activities which go into the making of production. To make production a concrete reality, one must pay heed to the factors of production management thus calls for the work of planning and control pertaining to each of these factors of production. 

For effective managerial, the work of production department is required to be organized on sound lines. All the principles and practice of organizing are to be applied in building a sound structure for improving the result of production management. Successful production management is not practicable without the existence of an appropriate organization structure. 

Decision making means, “That thinking process which leads logically in the recognition of specific wants and hence to the determination to attain these wants by use of selected means, that actual use of selected means is the characteristics differentiating decision making from decision implementation”. The decision making consists of perception, conception, investigation, deliberation, selection and promulgation etc. 

Some leading authorities such as Herbert Simon have considered decision making and management as synonymous terms. 

Plant layout is consisting by two ways, i.e. Group Layout and Under Group Layout and there are several advantages of line layout and it should be used in preferences to group layout wherever practicable.

KEYWORDS: Manufacturing Management.

INTRODUCTION 

Plan layout means the work of arranging machines, equipments and service areas within a predesigned factory building for the purpose of ensuring a steady, economical and prompt flow production. Plant layout is affected by the system of production and affected by the system of production and affects, in turn, the design of factory building. These three aspects of works planning and Organization, viz, the production system, plant layout and factory building are interrelated and go to decide the shape of things to come into existence. Correct layout has an important contribution towards efficient running of production affairs, because

*Head, Automobile Engineering Department, Govt. of Assam, Vocational Education (+2), M R S Higher Secondary School, Titabor, Assam, India. Correspondence E-mail Id: editor@eurekajournals.com
it increase the speed of on process work, reduces the manufacturing time, lower the cost of handling materials and others. There are two distinct types of layout of production i.e. Group Layout and under Group Layout. Group layout lies in poor co-ordination between operations, excessive material handling and backtracking of work in process.

Decision making means, “That thinking process which leads logically in the recognition of specific wants and hence to the determination to attain these wants by use of selected means, that actual use of selected means is the characteristics differentiating decision making from decision implementation”. The decision making consists of perception, conception, investigation, deliberation, selection and promulgation etc.

LITERATURE REVIEW

Three objectives or criteria of performance and operations management system can be identified:

- Effectiveness,
- Customer Satisfaction,
- Efficiency, etc.

Whether the organization is in the private sector or in the public sector is a ‘manufacturing’ or a ‘Service’ organization, or a ‘profit-making’ or a ‘non-profit making’ organization, the productive or optimal utilization of resource inputs is always a good objectives. However, effectiveness involves optimality in the fulfillment of multiple objectives, with a possible prioritization within the objectives.

<table>
<thead>
<tr>
<th>Long term Horizon</th>
<th>Intermediate time horizon</th>
<th>short term horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product design</td>
<td>product variations</td>
<td>Transport and Delivery arrangements</td>
</tr>
<tr>
<td>Quality policy</td>
<td>Methods selection</td>
<td>preventive maintenance</td>
</tr>
<tr>
<td>Technology to be Employed</td>
<td>Quality Implementation</td>
<td></td>
</tr>
<tr>
<td>Process selection</td>
<td>inspection &amp; control</td>
<td>scheduling</td>
</tr>
<tr>
<td>Site selection</td>
<td>Machinery &amp; plant Loading</td>
<td>implementation of safety</td>
</tr>
<tr>
<td>Machinery &amp; Plant Selection</td>
<td>decision</td>
<td>industrial relation</td>
</tr>
<tr>
<td>Plant size selection</td>
<td>forecasting</td>
<td>setting up work Standard</td>
</tr>
<tr>
<td>Warehousing Arrangements</td>
<td>overtime decision</td>
<td>material allocation</td>
</tr>
<tr>
<td>Insurance spares</td>
<td>shift-working Decisions</td>
<td>scheduling of manpower</td>
</tr>
<tr>
<td>Design of jobs</td>
<td>temporary hiring &amp; lay-off</td>
<td>incentives systems production</td>
</tr>
<tr>
<td>Safety &amp; maintenance System</td>
<td>development &amp; evaluation</td>
<td>supervision &amp; immediate Attention to problem areas in labour</td>
</tr>
</tbody>
</table>

Figure 1. Decision/Activities of Production & operation
This is not difficult to imagine because modern production and operation management has to serve the so called target customers the peoples working within, as also the region, country or society at large. In fact the effectiveness of the operating system may depends upon a multi objective satisfaction but also on its flexibility or adaptability to changed situations in the future so that it continues to fulfill the desirable objectives set while maintaining optimal efficiency. The long experience of industrial life, the growth the technology and the rapidly growing availability of its benefits has all been changing the value systems all over the world. The concept of quality of life has gained solid ground. The demand for service is fact catching up with the demand for ‘form utility’. Services are becoming as important, if not more, as the availability of physical products. The demand for variety in products and services is on the increase. The concept of customer and customer orientation are very vital today, as also the definition of the word ‘customer’. There is a great pressure everywhere to enhance the quality of life in general. In addition to all this, there is a greater complexity as far as the socio-techno-economic scenario and the problem of depleting resources.

**METHODOLOGY**

We know that plant layout is related to a number of aspects of production and operation management. Features of good plant layout are consisting by:

- Ease of working greater safely and reduced health hazards for workers

This will go a long way in increasing worker satisfaction and therefore labour productivity and plant layout has much to do with productivity technique which is related to the design of physical working environment. Plant layout theories, in their quest for optimization, tend to overlook the human aspects.

- Reduced handling of materials

A good plant layout takes into consideration the various flow of material inside the plant, thus reducing the handling of materials. A good physical plant layout should produce economics in the storage and movement of material; reduce damages damage and spoilage of materials. If adequate consideration regarding the handling and storage of materials is given, it automatically reduces damage and spoilage materials, congestion of material, machinery and men.

- Basic types of Layouts

There are three different kinds of basic layouts, which is depending on method of production:

Process Layout, is typical of the job-shop type of production where the equipment performing similar operations is grouped together.

Fixed position layout may be preferred when the equipment and machinery is small in number and size where the workmen is highly skilled to perform the various small jobs on the product.

Product layout or Line production, the equipment here is laid out according to the sequence in which it is used for making the product. Product layout is usually suitable for assembling operations as in the automobile industry. Since a machine is assigned for each operation the number of equipments in a product layout is much more compared to process layout. Therefore, the utilization of equipment has to be sufficiently high to justify the higher level of investment necessary in a product layout. This means, the volume of production should be large and the variety of products should be low so that there is very little time lost in setting up the machinery.

The principal of minimum distance moved and of congruence of flow of material and sequence of equipment are very well satisfied in a product layout. When continuous production is undertaken over a long run of time with the assurance supply of raw materials product layout is preferred.
• Decision making:

Some leading authorities such as Herbert Simon have considered decision making and management as synonymous terms.

Decision making theory is directed that a rational decision for an enterprise is one which the manager consistently attempts to achieve maximum goal attainment giving consideration to the time and costs involved in obtaining information.

Decision theory is directed towards how we should take rational decision. While taking decision we should have logical frame work, should understand and apply science, mathematics and real world for various alternative action paths and should asses risk in various alternative actions. For day –to-day operating and repetitive decisions, a set of decision rules makes possible continuity and smooth operation, “ A rational decision for an enterprise is one in which the manager consistently attempts to achieve maximum goal attainment giving consideration to the time costs involved in obtaining information”.

The decision making consists of the following steps:

![Module of Decision Making Conception](image-url)
RESULT & DISCUSSION

Value analysis, or value engineering as it called, is basically a cost reduction technique. The usual cost reduction approach is to manufacture existing product by less expensive methods or using an alternative process, but value analysis looks at the function the product fulfills and enquires into possibility of performing the same function in a cheaper way.

Value analysis is, in essence, a study of function. The function of a part, or material or service is the job it does. Value is the price we pay for a product, process, material or service which is required to perform a specific function in an efficient way. We get the best value when we incur that all the elements of cost, whether for labour or material, for manufacture or for service, contribute proportionately to the function. Value is define as, “The lowest cost to reliably provide the required functions or service at the desired time and place and with essential quality”. Type of value is consisting by:

- Economic Value,
- Moral Value,
- Aesthetic Value,
- Social Value,
- Political Value,
- Religious Value and
- Judicial Value etc.

In almost everything we buy, we relate what we get to what we have paid for in terms of performance, reliability appearance etc. If we can collectively term these as function than we can express value in a mathematical way i.e.

Value = \( \frac{\text{Function}}{\text{Cost}} \)

Benefits from the value analysis, the salient benefits are:

- The cost of existing products of services gets reduced,
- In new products or new services, the unnecessary costs are identified and eliminated,
- The introduction of value analysis leads to overall cost consciousness and a general change the attitude towards costs.
- Finally, a greater return on investment results. In other words greater profits accrue, etc.

TYPE OF DATA

The following flow diagram is useful for identifying the critical units and the history of breakdown extracted from the records for a snapshot exposure of 110 weeks.

The maintenance plan is the combination of strategies chosen to maintain the plant. Management responsible for the maintenance function establishes or modifies, as appropriate, the management plan.
CONCLUSION

Decision making, the area with which the production manager is concerned can be said to be those areas in which he will have to make decision. These decisions must be based on the types of problems encountered in these areas. Thus, it is important to become acquired with the factors which must be considered in solving these problems.

With regard to the decision making process, there are two basic approaches i.e. judgment and quantitative in nature. Both approaches in
decision making are necessary as production management is both an art and a science. This is to say the nature of some problems is such that require numerical description and hence must be analyzed on the basis of judgment.

However, Control of a work-shop is very vital for production control. It is for the supervisory staff to control the shop which results in production control. It is not absolute, but can only be judged or relisaed by comparison with some standard. When a standard has been specified, product can be described as “better or worse” or “higher or lower” that the specified degree of perfection.

Production is responsible for quality. The general aims of inspection are:

- To ensure that product is to standard desired.
- To ascertain that material used is of uniform quality.
- To provide means of ascertaining variations in manufacture. Etc.

ACKNOWLEDGEMENT

I would like to thanks my son Mr Alakesh Kalita, Student of B. Tech in Engineering Physics (1st Semester- Dual) in Indian Institute of Space Science & Technology, Government of Space, Kerala for the valuable cooperation.

REFERENCES

[3]. Course materials Management Development programme, XLRI, Jamshedpur and course director Prof Madan.
[5]. Paper by Dr. Porag Kalita, UGC sponsored National in Nalbari commerce College Assam.
[7]. Paper by Dr. Porag Kalita, NAAC sponsored national seminar, J B College, Assam, India.