

Importance of Production, Planning and Control in Any Organization – An Analysis

¹C.L. Avadhani., ²Veni Lasya Jammalamadaka., ²Madhuri Atluri

¹Research Scholar, Department of Business Administration, Annamalai University, India

²PGP in Management, Indian School of Business, India

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ABSTRACT

In any organization, the vital role of production planning and control is ensuring successful operations and competitiveness, especially in manufacturing sectors. Effective planning and control maximize resource utilization, minimize waste, and optimize productivity, while simultaneously reducing production costs and enhancing both quality assurance and safety standards. The aim of this article is analyzing the importance of Production Planning & Control in any Organization and by highlighting how Production Planning & Control can be utilized in organizations to optimize resource usage ensure continuous and efficient production flow, maintain high quality standards, reduce costs and achieve timely delivery of products all while overcoming operational challenges and improving overall productivity. Production Planning & Control strategy will enhance the efficiency of allocating human resources manufactured goods and equipments/machines and it is a critical function allows any organization to have control and visibility over all elements of production. It make it possible to increase efficiency, collaboration and the use of production related data. Beneficial techniques and strategies for many manufacturers used in improving their operations such as a). Customer Service Enhancement, b). Inventory Control, c). Equipment Improvement, d). Plant Morale Improvement, e). Idle Time Reduction, f). Quality Improvement. The study examines core processes including material procurement, scheduling, routing, dispatching, inspection, and the implementation of safety culture practices, using a combination of Industry literature review and case analysis. To conclude, systematic Production Planning and Control not only help organizations overcome operational hurdles but also drive continuous improvement, enabling firms to meet customer demands reliably and maintain an edge in the Global Market.

Key Words: Production Planning, Production Control, Resource Management, Material Procurement, Scheduling, Routing, Loading, Dispatching, Expediting, Inspection, Safety Culture, Quality Assurance, Inventory Management.

Aim And Objective

Aim: The aim of this Article is to analyzing the importance of Production, Planning and Control in any organization

Objective: The objective of this article is to highlight and examine how production planning and control can be utilized in organizations to optimize resource usage, ensure continuous and efficient production flow, maintain high quality standards, reduce costs, and achieve timely delivery of products, all while overcoming operational challenges and improving overall productivity.

INTRODUCTION

In any Organization, Production, Planning and Control are the most essential components for a successful manufacturing process. Any organization give its best, one has to follow a detailed planning with respect to Production, Planning and Control.

Production, Planning and Control refers to two productions stages of manufacturing. It is nothing but the process of managing the available resources, manpower and schedules and other aspects of production of goods and services. Any business/organization proper scheduling of Production, Planning and Control if implemented by the Organizers strengthen their production and prevent setbacks from effecting the normal operations.

One of the benefits that introducing Production, Planning and Control is to aim for quality assurance and quality control, without effecting the production. On the other hand, the main goal of Production, Planning and Control is to maximize the materials, workforce, productivity time and other resources that are being used in the process of manufacturing.

The main objective of Production managers are to set quality, quantity and schedules so that it implemented properly, the organization will succeed in its attempt to put the ideas into practice.

Some of the important aspects of Production, Planning and Control in any organization are to enhance material procurement:

- 1. To improve the procurement better communication** among suppliers and other third party vendors that leads to accurate source allocation of materials
- 2. To improve Production Time:** The Production Planning and Control with properly planned and executed can remove bottlenecks or production delays, a head of time. If this happens, it helps the production team promptly meet production schedules as planned.
- 3. Reduce Production Costs:** In any organization, a planned and constantly monitored production, any Organization can utilize resources efficiently and effectively so as to reduce production costs without compromising quality of goods and services that are to be marketed.
- 4. Minimize Resource Waste:** One of the important aspects of any organization is to minimize the waste and increase proper utilization of resources in their optimal level by executing strong production, planning and control. In addition, proper Planning and Schedule will avoid discrepancies / disruptions in material supply chain and material demand to avoid waste of resources such as money and material and also to reduce the loss of time and also increase the value of the product.
- 5. To streamline Production process:** It is obligatory on the part of the production managers and their team to follow a standardized approach in production process, so that to remove inefficiencies, inefficient functions and inefficient personnel to prevent loss of production and identify growth potential.

Steps needed in Production, Planning and Control:

In any organization for smooth running and integration of Production, Planning and control in any organization, it is necessary on the part of the management to implement a systematic routine with respect to Production, Planning and Control that can be effective and meet the demand that is why Production Managers was always take it a challenge to implement their production planning on a established process in accordance with the needs and availability of resources like materials and manpower so that the process of any organization especially in manufacturing unit will not deviate from this said standard routine. This is very important because for any organization for a smooth running and to enrich with profits, it is the duty of the production managers to strict to the schedules.

In this regard, normally there are eight steps that are to be carefully planned and implemented in any organization and are,

- a. Combined steps of Production Planning and Production Control:** This involves whole process of production planning and control; This depends upon the specific needs of any organization and the budget that is being allocated but following are some of the important aspects that production managers has to take into consideration and keep their watchful in implementing the same. In accordance with pre planned operations.

i. Planning: For any organization especially manufacturing the first step is planning, the materials, manpower, manufacturing techniques, resources and other initial needs to complete the production. In this regard, care should be taken by the planning department in strengthening the production from the very beginning of procurement especially raw materials and other essential commodities that are needed for a smooth production and this will be achieved to strengthen the material supply chain and better communication.

ii. Routing: Routing is nothing but a determined path by the production department starting from a raw material till it is converted into a finished product meaning, the path that raw materials takes place in different sections convert into a marketable product uninterrupted Sequence of operations. In routing, the Production Manager will also identify not only the path but also the men, machine that are required and are to be used at every step in the production. The importance of routing is identification of proper machines, identification of raw materials, identification of skilled, semi skilled and unskilled work force to handle this process. Hence, the Production, Planning and Control routing will take place an important role. Any discrepancy in the designated path/route will not only cause delay/obstruction in production but also financial loss, manpower loss, idle machine time in toto will put the organization into a loss making one.

iii. Scheduling: Next to routing the other important operation is scheduling; meaning in scheduling element of time takes important place and it specifies every operation either by the machine or by the operator should take the required time and any deviation from the set standard time will have bearing not only on the production line but also the planning will get disturbed and the organization instead of running in a smooth way will have difficulties in completing the schedule. After routing, the scheduling is done by dividing the operations in a production line and fixing the time schedules that each operation has to be completed failing which the product moves to the next schedule leaving behind incomplete operation thereby the product is rejected at the inspection level.

iv. Loading: Loading as defined in the manufacturing process in general is the process of determine the idle time/idle work load to employees and machines that are used in accordance with their capacity. In loading, the production manager can identify the potential manpower shortage or challenges in any of the work stations by properly loading without disturbing the sequence of operation as per the schedule and routing one can implement proactive measures that can prevent the bottlenecks that may arise and can be converted into positive productivity.

v. Dispatch: It is not enough a proper planning, routing and scheduling in any production organization but ultimately product has to go to the market to get the returns on the investment made. Dispatching is nothing but the implementation of all the planned operations mentioned above into an actual production and this as a whole can be classified into two namely Centralized where orders are provided by a specific authority or decentralized where instructions are issued by all involved in the organization.

vi. Expediting: In any organization especially in manufacturing units, the other important element is follow up – meaning to evaluate the effectiveness of the whole production process and to identify the bottlenecks/hindrances that are causing delay in production thereby unable to meet the deadlines. The purpose of introduction of expediting is to compare the initial planning process or initial plans against the actual results of production process. In expediting will result in identifying the inefficiencies in the process, the idle times of a machine of an operator and also to analyze whether any of the operations men or machine can be improved or eliminated or extended or introduced to get more production thereby the organization will have more profits and is in a better position in that category.

vii. Inspection: As mentioned above inspection is also an operation of expediting and it is a follow up operation. Any organization inspection will take a special place that will result in the production planning controlling process by identifying whether the operations are going as determined previously and maintaining the quality of the product. In inspection since it is not possible to inspect every product that is being manufactured, a regular random inspection will help to identify the situations that are causing quality of the product or service promised and supplied by the organization. This process of inspection will reduce and some times eliminate the product that cannot be classified as one that will beat the set determined specifications.

ix. Collection: Once the steps that are expediting inspection are properly undertaken, the production department will make necessary modifications/alterations so as to eliminate such identified standards that are far below the quality of that product. This kind of correction in any organization enables the organization especially production managers to enhance the production process and implement pre planning and control techniques in a more efficient manner.

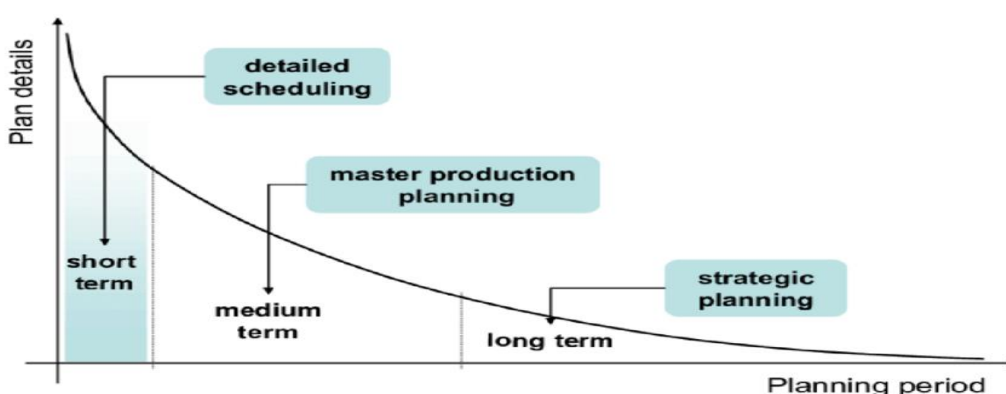
x. Safety culture: The word safety culture will apply not only in the manufacturing organization but also any corporate business entity because safety is the paramount obligation of the management to protect the lives of the personnel working in the organization and also to look into the environmental safety so that the organization will not cause loss or hardship to the inmates but also to the people living around the organization. That is why every state will have pollution control board where they will monitor and inspect the unit if it causes any pollution forgoing the safety such as air pollution, noise pollution, water pollution and how the waste material coming out of the factor either in the liquid form/gaseous form/solid waste is being disposed off safely by implementing the rules and regulations of the pollution control board so as to see that he surrounding environment of the factory/organization is not causing any unsafe measures.

Following are some of the safety operations to maintain safety culture that production managers use to execute and monitor their production planning and control systems.

a. Periodical inspection and auditing by using pre existing production, inventory and quality related checkups. These measures are not same for every organization but depends upon the nature, manufacturing operations and the raw materials that are being used. To name a few, pharmaceutical industry will have to apply more safety measures not only in letting out the waste that contains harmful materials such as Acids etc. without properly treating and maintaining treatment plants before sending out the waste material especially in liquid form. Every Organization should have a separate department to identify safety problems, measures taken and a periodical inspection to make sure that such planned measures are working properly and are giving good results. This inspection department should send periodical reports to the production department and also to the management by clearly identifying the areas where improvement is needed, the areas where new equipment has to be installed, the areas where the existing plant and machinery needs a replacement because of wear and tear or became obsolete.

In addition the plant should be properly ventilated and all safety equipment are installed to protect the lives of the men working and also route maps to show how to escape in emergency situations by the operators – that includes alarms to bring attention of the men in work that there is a safety problem and one has to be away from the area of operation etc. A well developed organization either in the manufacturing or in the service sector will have a route map by way of sign boards fixed on the walls both in English and vernacular language to escape from the uneventful situation from the safety. The other important aspect is communication – means a periodical upgrading the knowledge of the men in work to safeguard themselves and the others in such events/situations and how to tackle such uneventful situations to minimize the loss of men, materials and machines. This can be achieved by introducing periodical lectures by eminent persons in these tasks to educate the personnel and to upgrade their knowledge.

It is important and necessary the different functions of Production Planning and Control in a graphical manner as mentioned below:



LITERATURE REVIEW

In an article titled, “***Improvement Analysis of Production Planning and Control System***” written by Tsegaye Amare, Dr. Balkeshwar Singh, Dr. Guteta Kabata and Dr. Bhaskaran J, Department of Mechanical Design and Manufacturing Engineering, Adama Science and Technology, Adama, Ethiopia published in Industrial Engineering & Management Journal on 17th March, 2021, the author made some interesting points regarding challenges in Production, Planning and Control.

One of the most significant PPC significant challenges instead of preparations is managing production, since disruptions and accidents common to the production process may interrupt the organizational program causing delays and extra cost. In order to make this PPC viable, it is important to study its evolution over time and thus the factors that contributed to the changes. These causes will indicate the influence and interaction of all sections involved in the production process. As mentioned earlier, it is important to have periodical inspections, the production planning control system of any organization whether it is going online or any modifications are needed to make smooth running.

In another article titled, “***What is production planning? Types, importance and advantages – Production Planning establishes a company’s strategy for producing goods and services***” written by Tempo Team published in www.tempo.io, the author made a categorical subsections that are embedded in production planning control namely a. Production Targets, B. Manufacturing Process, C. Material Requirement and Planning, D. Staffing and equipment requirements, E. Goals, F. Production Process Schedules, G. Market Analysis and finally H. Demand Forecast.

In addition the author also identified the importance of production planning in any organization and are supply chain management, b. production schedule, c. material requirements planning, d. Production lead time, and finally e. capacity planning. The author also emphasized the need for accurate assessment of manufacturing costs, to minimize waste by optimizing process, customer satisfaction etc.

In another article titled “***Importance of Production Planning and Production Control***” published in Delight ERP, the author appropriately identified the importance of production planning and production control in his article and made out some objectives which are relevant to be present here.

They are

- a. Inventory Management,
- b. Utilization of resources,
- c. Quality and Quantity,
- d. Target demand and people and in addition

The author also identified some of the important tasks such as,

- a. Purchase Management,
- b. Quality control,
- c. Production Estimate time and in addition
 - i. routing and scheduling,
 - ii. loading and dispatching,
 - iii. follow up and inspection and finally

iv. correction and feedback.

The author also identified that by implementing those steps production planning control operations can have optimal utilization that will result in ***“Study flow, Production resources and estimations, Stock level and updates and departmental activity coordination, resource wastage, manpower utilization and finally quality satisfaction”***.

The same author also mentioned, how to handle product life cycle management easily with ERP.

In another article, titled ***“Improvement Analysis of Production Planning and Control System: Production Planning and Control – Capacity Planning – Master Production Scheduling – Aggregate Production Planning”*** written by Baikeshwar Singh, Adama Science and Technolog University, Jagadeesan Bhaskaran, L&T ECC, Chennai, India published in Research Gate,

The author identified some of the important PPC Challenges such as,

I quote,

“Instead of preparation in managing production, since disruptions and accidents common to the production process may interrupt the original program, causing delays and extra costs. In order to make the PPC viable it is important to study the evolution over time and thus the factors that contributed to the changes. These causes will indicate the influence and interactions of all sectors involved in the production process.”

The author also taken out some of the points raised by other authors on the same subject matter and

I quote,

“Santos and Almada-Lobo (2012) [11] and later approached by Figueira et al. (2013) [12], a simulation model was suggested for the optimization process for the preparation and scheduling of integrated pulp and paper mills. Nyhuis & Wiendahl(2009)[12-14], which analyzed the efficiency of the production system, assess the achievement of goals such as short lead times, low work-in-progress (WIP) levels, high capacity utilization and high due date reliability.”

The author identified the main important function that is research gap which I quote,

“From the above literature survey, it has been determined that most researchers are involved in power cost minimization and logistic performance measurement, and a few researchers are looking at the overall performance of the production system. However, a new model has been developed in this research paper, primarily based on the current organizational structure that improves the company's productivity. This research paper examined the relevance of manufacturing planning and production control system in the pulp and paper industries

It has been determined that most researchers are involved in power cost minimization and logistic performance measurement and a few researchers are looking at the overall performance of the production system”.

However this researcher has evolved and developed a new model that makes it important because,

“Primarily based on the current organizational situation that improves the companies productivity, and examined the relevance of manufacturing planning and production control system in the pulp and paper industries. It is also vital to observe that the focus of all these studies was to bypass the manufacturing planning and control systems which addressed service, logistics, overall performance measurements and minimization of power costs.”

Finally he has come to the conclusion that,

“It is a vital to understand the integrated approach of the companies production system to solve the issues that contribute to poor capacity planning and this researchers research work helps to, ‘improve the existing structure by creating a new model for the implementation of the production planning and controlling systems of the industry.”

DISCUSSIONS AND ANALYSIS:

The importance of Production, Planning and Control in the present techno-economic scenario of a developing country like India, and the global competitiveness in manufacturing and to compete globally emphasis should be put on by all the manufacturing/service organizations give importance in Production, Planning and Control. It is the right time and opportune for the Indian industries to streamline the production activities to attain the maximum utilization of the firm’s resources and the market availability to be an industry reckon in the global market. The Production, Planning and Control is the useful tool to coordinate the activities on the production system by properly planning and controlling that particular system. As somebody said Production System in an Organization can be compared to nervous system with PPC has a brain.

The major importance and gains of Production, Planning and Control are,

- a. Effective utilization of organizations resources (men, material and equipment).
- b. To attain the production objectives in accordance with any organization by keeping emphasis on quality, quantity, cost and delivery of the goods/services as per schedule (in time).
- c. Proper Production, Planning and Control will put an Organization in uninterrupted Production flow so as to meet customers demand without compromise on quality and should deliver the goods as per schedule.
- d. This PPC took properly planned will help the organization to supply quality products to the genuine customers on the continuous basis at a competitive price.

However, the saying and writing is good looks appropriate but in practice there are stumbling blocks such as manpower, materials, machines and not but not the least process of manufacturing.

In this regard, the noted personality on the subject Mr. Ray defined PPC as

“Production Planning is the determination, acquisition and arrangement of all facilities necessary for future production of products.”

While discussing about PPC in any organization the two more important aspect that plays a key role in any effective organization are,

i. Demand Forecast: It is the prediction of future customer demand for a product or service. To align Production schedules and inventory levels, guide resource allocation and helps in avoiding issues like overstocking and stockouts by using historical data, market trends and other influential factors like quantitative approach and qualitative approach. This accurate and timely estimates enable proactive decision making.

ii. Actual Production: Actual production differs from total or design capacity by excluding defective or substandard items and reflecting the true performance of the production system. This measure is critical for evaluating production efficiency, identifying areas for improvement, minimizing waste, and controlling production costs. In essence, actual production represents the usable, quality-compliant output ready for delivery or sale.

In Production Planning Control, the gap between demand forecast and actual production can arise due to many operational constraints like supply chain issues, machine breakdowns, workforce absenteeism, and inaccurate demand prediction. Managing this gap effectively ensures inventory optimization, cost control, and customer satisfaction by aligning manufacturing output closer to market demand.



It is nothing but the design of production system in addition to planning the resources to its optimal utilization based on the demand of the company's products, it is going to establish the production program to meet the targets by using the various resources that are available. In spite of planning to the minute details, most of the time it is not possible to achieve 100% production as per the plan some innumerable factors that will affect the production system and because of which one has to deviate from the set PPC standards planning. It is time to understand and identify such factors because of which one has to deviate from the set standard PPC at times are,

1. Non availability of materials (due to many factors such as, broken supply chain, non availability of required standard materials, breakdown in machinery, non availability of space etc.)
2. Variation in demand and supply is one of the factors especially in seasoned manufacturing units and consumables because the taste of the customer will differ, habits will differ and in addition the electronic media plays an important role in this regard.
3. Absenteeism of trained workmen especially machine operators is another hurdle in making PPC a successful roadmap of any organization.
4. The other important aspect not only in manufacturing organizations but also in every walks of life, Communication plays a vital role in any organization because a. Lack of communication, b. wrong communication, c. no communication, d. delay communication are the main, sometimes major interruptions in PPC. In a way to say that lack of coordination and communication between various functional areas in any organization this PPC will play a major role. Production Control through Control mechanism rise to take corrective action in the functioning of an organization and brings back its normal activities if proper communication is set. To say Production control reviews the progress of the work and take corrective steps in order to ensure that the programmed task of production takes place as per schedule. This type of communication in the hierarchy of Production Planning Control can alert the production manager to take corrective measures as per the feedback and reporting back to the different wings of the organization to minimize the interruptions thereby the loss of production and to minimize the anguish of the marketing department.

Depending on the finished goods, manufacturers use one of five production planning methodologies such as a. Batch Production Planning, b. Job Production Planning, c. Flow Production Planning, d. Mass Production Planning, e. Process Manufacturing Planning.

CONCLUSION

As already discussed above in detail the functions of production planning and control can be classified into

- a. Pre Planning function

b. Planning function

c. Control function

As already discussed above the importance of production planning and control in an organization, it is not enough if it appears on the paper but in execution lot of hurdles will come into play and one has to overcome those hurdles step by step in the preplanned, planned operations without disturbing the main Production Planning but at the same time to reduce if not eliminated totally the so-called stumbling blocks so that the functions of an organization right from the procurement of raw materials, proper utilization of resources, uninterrupted distribution network to meet the fluctuating demands of the market to be on the top of the sector in the chosen field. The other important aspect in PPC is dispatch and the organization should maintain proper dispatch schedules so that one cannot make room for the competitors to poke their nose in the established well settled market place. The other important tool in Production Planning Control is inspection at every stage of the production process and at the finished product stage where the product is certified for marketing. The other important aspect of PPC is evaluation and it is a crucial stage of product improvement and helps to identify the weak spots and the corrective actions that are needed in time with respect to pre planning and planning with the help of feedback. As already mentioned this can be achieved through proper communication, availability of data and information and analyzing such data in time will take proper and active action in time.

Finally to conclude one should keep an eye on, a. Customer service enhancement, b. Inventory control, c. equipment improvement, d. plant morale improvement, d. idle time reduction, and finally quality improvement.

Finally,

It is mandatory on the part of the production manager that a proper Production Planning and Control keep the Organization on the top most of the map of the production units and makes it an organization with simplicity planning and control.

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