



ORIGINAL RESEARCH PAPER

Management

PRODUCTION PLANNING AND CONTROL

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ABSTRACT

Production planning and control (PPC) seeks to provide an optimal and effective measure so as to counter the underlying risk and uncertainty in the firm's operations and its capability to meet the market expectations and is hence one of the key variables impacting the operations of a contemporary business organization. Choice of appropriate method is critical to efficiently operate and sustain operations in the complex business environment that we witness today. Moreover, the PPC methods must be dynamic to "fit-in" with the changing environmental requirements while ensuring the optimization of delivery. In response to the above requirement, Enterprise Resource Planning (ERP) has evolved over a period of time and come to be recognized as the most important resource planning and control mechanism. No wonder, it enjoys a wide spread applicability today. ERP basically manages the manufacturing process by effecting harmony and integration amongst the various production planning and control functions resulting in optimization of resource usage. This paper closely examines the recent changes that have occurred in PPC methods and how they have impacted the manufacturing firm. Limitations of the existing techniques have been highlighted while suggesting improvement measures for optimizing the organisational efficiency.

INTRODUCTION

Planning is considered to be the back bone of firm's strategic orientation, the compass which guides the organization and gives direction to it by coordinating and controlling its various functions necessary to achieve its objective. Production is the stage in a firm's operations where the factor inputs are converted into end commodity. While the nature of production activity may differ across organizations (services, manufacturing), the commonality is that this stage converts inputs into outputs.

Production planning and control (PPC) function includes job scheduling, work assignment and master scheduling etc and acts as glue that binds the diverse activities related to firm's manufacturing process, logistics, ware housing and outward delivery. Based on the feedback received from the field staff, the firm's marketing division places request for finished products. This is routed to PPC centre which coordinates the entire sequence of operations and ensures timely delivery of products and services by maximising the resource utilization. The PPC function can be classified under three different heads-

Pre-planning function

It starts with demand forecasting and moves on to product and process design and creating the lay out.

Planning function

Planning function includes material resource planning, manufacturing resource planning and routing and scheduling functions.

Controlling function

Control typically includes despatching, inspection and expediting functions.

Enterprise Resource Planning (ERP) systems have come to play a critical role in the operations of today's manufacturing and services organisations. ERP systems seek to create centralized data base by effecting automation across various processes. It facilitates seamless information flow across the organization from a single unified source, increasing data authenticity and reliability. ERP systems help in creating "a single view" of the market place and the customers. Some of the main ERP modules adopted by the organizations are:

- Manufacturing Module
- Human Resource (HR) Module
- Customer Relationship Management (CRM) Module
- Accounting Module
- Inventory Module

However ERP systems are not without their share of defects or limitations. The more prominent among these are:

- The underlying costs associated with ERP systems can be exorbitantly high requiring massive amount of investment in IT infrastructure and implementation. Further, the indirect costs and overheads are likely to increase many fold.
- The gestation period is often too high, with 2 to 4 years being the average time for ERP systems to be fully functional.
- The extent of customisation required to be done is at best of the times difficult to determine. Organisations often find it difficult to maintain the delicate balance between customization and flexibility.
- The benefits from adoption of ERP systems are difficult to estimate accurately.
- Migrating to ERP system requires the unstinted support of the top management and equal participation of the various departments associated in its implementation. This may be difficult to achieve.
- Evaluating the success of ERP program may not be easy.

OBJECTIVES OF PRODUCTION PLANNING AND CONTROL

- Ensuring optimal utilization of scarce resources
- Achieving the highest level of operational efficiency
- Analyzing the competitors strategy and market forces accurately
- Ascertaining the need for new offering by the firm
- Enhancing customer satisfaction
- Efficient planning of production functions
- Minimizing operational costs
- Efficient deployment and scheduling of resources.
- Ensuring uninterrupted production flow.
- Eliminating wastage of resources
- Meeting delivery deadlines
- Maximizing capacity utilization
- Keeping the downtime to minimum possible level

FACTORS AFFECTING PRODUCTION PLANNING AND CONTROL

- Accuracy of Forecast in estimating sales
- Demand fluctuations due to cyclical and seasonal factors
- Suitability of project planning method adopted
- Feasibility of operations in master production schedule (MPS)
- Stabilizing inventory requirements and material flow
- Flexibility in operations
- Changes in product design and service delivery
- Spoilage and rejection rate
- Pressure on production facility due to high replacement rate
- Adverse effect of extraneous variables

PRODUCTION PLANNING FUNCTIONS

Production Planning Functions:-

- Sales forecasting
- Finalizing the product
- Estimating resource requirement

- Selection of product design
- Choosing the appropriate production method,
- Deciding about the quantity to be produced
- Capacity planning
- Routing
- Scheduling
- Loading-finite/infinite
- Production Planning
- Production Control
- Quality and Cost Control
- Inventory Control and.
- Maintenance and Replacement of Machines.

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Production Control Functions

- Production scheduling
- Dispatching
- Management of stock and inventory items
- Expediting and follow-up
- Minimizing shortages and stock out costs
- Load analysis
- Inspection

PPC AND SUPPLY CHAIN MANAGEMENT

Production planning and control (PPC) modules play a pivotal role in reducing the risk and uncertainty inherent in the firm's supply chain by focussing on both upstream and downstream activities and hence bring about the harmonization and integration of supply chain with the production planning and control measures adopted by the organization. It thus helps in minimising the market as well as the process uncertainty.

Role of Master Production Schedule in PPC

Master Production Schedule (MPS) is the blue print for production indicating the breakdown of output to be produced in a specified time frame. It is based on the estimation of demand for the firm's output in identified time period. MPS helps the firm's production process "stay-on-course" by aligning it with the market demand and the capacity planning.

It is based on aggregate planning which "identifies" the volume of output required to be produced in a production cycle. Master Production Schedule breaks down this volume into smaller, manageable units and results in the fixation of (weekly, monthly) target. It helps in accurate determination of capacity requirements for achieving the production target and paves the way for capacity planning. MPS hence helps the firm decide about its resource utilization rate and acts as a safeguard against stock out costs and unforeseen scheduling delays.

CONCLUSION

Production planning and control (PPC) is critical to the success of manufacturing operations of a contemporary business organization. By providing accurate, reliable and systematic flow of information to the various departments, it helps in optimal decision making, planning and control. It is a prerequisite for optimal utilization of scarce organizational resources and integrates the activities and efforts of different functional areas within the firm.

PPC effects better utilisation of man and machine resources, minimizes plant down time, reduces idle time and lifts employee morale. It hence results in a better work environment which brings about quality improvement and reduces the overall cost of production.

It facilitates better stock and inventory management, reduces spoilage, waste, breakages, damages and results in higher overall productivity and helps the organisation attain market leadership and sustain the market advantage over its competitors. Effective Production planning and control (PPC) measures adopted by a firm yield better output and services to the customers, thereby improving the firm's goodwill and bring in better dividends for the firm.

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