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Overview impact of planning in production of a manufacturing sector

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Abstract: Every manufacturing sector that must attain maximum output with minimum input of resources will result in high marginal profit needs to pay more attention to planning. Production planning enhanced the coordination of production flow, thereby eliminating any constraint that may cause any disruption in the production line, hence highly demanded in organizational management. This paper revealed the impact of planning in production of a manufacturing sector. The main objectives is to identify the impact and challenges of planning in production sector of a manufacturing industry. Production planning determines the kind of activity to be carried out and the amount of time needed to perform this activity which is ultimate guide to any production line before its commencement. This article looked into the impact of planning in the production of the manufacturing sector. This will improve and foster productivity through high organization structuring.

Keywords: Production, Scheduling, Planning, Manufacturing, Sector

1. Introduction

The process of planning scheduling production and manufacturing pattern in an organization or industry is referred to as production planning [1]. Production planning is made effective by using those resources from allocations of employees' activities, production capacity, and materials to satisfy different customers [2]. According to Kaplan the information required for internal planning and control invariably started during the first half of the 20th century where different firms like textile mills and railroads among others [2], implemented internal administrative procedures for coordinating multiple job processes involved in the performance of some fundamental activities (the conversion of raw materials into finished goods by textile mills, the transportation of passengers and freight by the railroads) [3].



1.1 Overview of Production Planning

The main restriction to attaining maximum and successful productivity is improper planning before the commencement of production [4]. Production planning and management is an analytic technique that deals with a transformation of raw materials or components into finished products, incorporated in a systematic way to minimize waste both in time and finance to give the maximum profit [5]. Production planning is considered a systematic way of forecasting each step in a stretch series of different operations with each step to be carried out at the appropriate timing and place, and each step performed with maximum efficiency. Production planning has a direct connection with sales [6]. The main production policy goal is to see that goods and services are made available in the appropriate quantity of the desired quality at the required time frame, and all achieved at an affordable cost [7]. There exist diverse methods of production. These include single item manufacturing, batch production, mass production, continuous production, etc. Each of these methods has its form of the production planning system. For effective production, production planning combined with production control, and also with enterprise resource planning. Diverse industries that utilize production planning in production include the following, among others: the agriculture industry, oil & gas industry, postal industry, packaging, and e-commerce industry, amusement industry [4].

A production plan is periodically needed within a specific time frame [5]. These include the action to ensure that the desired product components and factory load meet customers' request, combining the desired level of production with the available resources [6], Scheduling and selecting the exact work to commence on in the manufacturing facility, and Setting up and delivering production orders to production facilities [7]. For adequate planning, it is demanded that the marketing or sales department is consulted. They can assist in making available some sales forecasts or customer listing orders that will aid inadequate planning [8]. This is as a result that the duty is always chosen from different product types, which may demand various resources and offer different customers. The accurate evaluation of the productive capacity of available resources is one of the main factors in production planning [9]. Hence, material availability, resource availability, and knowledge of future demand should always be considered during production planning [10]. The different forms of production planning include; advanced planning and Scheduling, capacity planning, master production schedule, material requirements planning, Scheduling, and workflow [11]. The production planning system involves the comparison of sales requirements and production capabilities and the inclusion of budget and supporting plans for materials and workforce requirements and also production plan [12]. It aims at establishing production rates to attain goals of pleasing the demands of the clients, which in turn boost organizational output. Production planning forecast demand, determining production option and select the options that maximize resources, and monitor and control the process with any desired adjust needed [13]. The kind of activity to be carried out and the amount of time required to perform this activity can be determined by production planning.

2. Objectives of Production Planning

The desire of every production company is profit maximization, and to accomplish this ambitious goal; the company needs to meet up with the demand of its customers. Market demands are defined in two terms viz could be real or forecast demand [13]. In pursuit of the goals, the company set out production strategies by preparing a production schedule plan of how the various products will be made over a specific time with the number of such products to be sold. Production planning is aimed at planning the production of the company such that a company can effectively meet up and satisfy the production requirements as possible [14]. A series of production processes are involved, and due to the hierarchical nature of the system, it operates on a different time scale [12].

Production systems comprise of inputs, transformations, products, and proper superintendence systems. Traditionally it has been impeded to contrivance and counteracts fruit forwhy of limitations in the

delineation methods and forasmuch as unplanned substitute happens in the query, give and means. In the novel donkey's years, further complication has risen since the emphasis of Production has distributed from restraint definite establish to coordinate the supply and delivery link [10]. The work one may, therefore, be geographically scattered, and the systems in the distinct one, which is not unavoidably part of the same association, may not complete carelessly with the others. The moment is that many assemblies find it stubborn to foresee the benefit directly by the worth. They also find it troublesome to yield hint accordingly to their plot vex significant developments in computer-aided production planning and system understanding. Mismatch of various parts gives rise to difficulties in production planning [12]. When design and restraint are not thoroughly adopted and fulfill, in working order (predicate) expense will extend, Which could induce a potential breakdown of a brigade? This degraded, unfit touching of fruit diagram and guide will influence the improvement border of concern organizations [15]

The main objective of production is the provision and effective use of resources for the future market. This is done through long term planning to set up networks of workload and develop production processes. Production planning is done regularly once in a year or otherwise, as stated by the management of the establishment. Enhancement of labor productivity improves labor productivity and workforce, primarily if adequately managed and labor welfare is appropriately taken care of [16]. Gaurav highlighted some of the objectives of production planning such as practical usage of resources [19, 20], continuous flow of production: [11], resources evaluation: [12], coordination of departmental duties: [20-22], reduction of raw material wastage, optimum inventory is attained: [18], coordination of departmental functions: [13], and offer a more conducive working environment.

3. Production and Quality Control

Production control involves the process of controlling production workflow in an establishment. It aids production planning. It is the activities that monitor and control any particular operation or production. Production control aids quality control in operation management [11]. It involves those activities which monitor and control large physical facility or dispersed service. Production control requires some set of actions and decisions to regulate production in meeting expectations [12]. It is a task that involves prediction, planning, and Scheduling of work in combination with the available workforce, materials, and cost to attain adequate quality and amount at the expected time frame [13]. Quality in production is the total characteristics and parameters of a product or service, which are significantly related to its ability to satisfy a particular demand [13]. These features or settings, among others, include physical dimensions, weight, hardness, color resistance [14]. Quality tends to be dependent on each person's perception. An acceptable quality product should have certain features that can show a certain level of satisfaction level. These features may be categorized as functional qualities performing certain functions with high reliability. Qualities that not practical, possessed intangible elements that can reflect in the individual judgment of quality [15]. For definite goals and objectives attainment, the utmost level of attention should always be given to issues related to quality for prompt resolution. Most quality challenges among others include; Human error: such as emotional factor, health challenges, fatigue, poor remuneration; Quality of raw materials [15]; Environmental factors such as inadequate lightening, level of humidity, dust, and temperature [16].

3.1 Impact of production planning

Production planning stands to be the hope of tomorrow's production industries [17]. Absence or poor product management and planning has brought broken promises of delivery schedules, which in most cases result in legal penalties as a result of a failure in capacity assessment, production timing, internal bureaucracies, idle time, and other excess production requirements [13]. For economical production, there must be a minimum interruption to flow due to a lack of work information with a balanced workload between departments. It

will enhance the high level of efficiency in production or during the setting up the production sites [11]. Capable production planning and management will offer the tenacity and capacity in production processes, thereby attending the projected demand for service. Planning ensures appropriate materials and components availability [20]. The continuous workflow is provided all around each department, thus creating balanced work between various departments involved in production operation. Appropriate manufacturing instructions are adopted to aid proper management, supervision, and documentation to make available adequate information to arrest any failure and delay, if any, [20]. The impact of production planning is a determinant of processing time and sequence in each manufacturing process for each order (depending on the product type such, e.g., jobbing, batch, and mass production type) to meet the delivery date and the organization manufacturing conditions. Detailed and comprehensive decisions while considering quality, cost, delivery dates, and several other indexes are required. In the Steel manufacturing industry, where large lots of production is the primary type of production, products of similar manufacturing steps are scheduled to have the advantage of saving some aspects in terms of cost and quality. It is pertinent to say here that production processes vary from process to process with varying delivery dates. To this end, it is necessary that production planning and schedule be made to extend for several production stages in consideration of costs, quality and delivery dates, these tasks, which depends on highly skilled labor with some level of expertise or experienced worker. Due to the increasing demand for technologies for supporting production planning and Scheduling, conditions for manufacturing are becoming more difficult as a result of a shift to high-grade steel and workloads reduction in the style of work [21]. Production planning and Scheduling in recent times are highly desirable in multiple production manufacturing processes, through this, several technological means of producing standard are deployed in preparation and supporting the schedule for manufacturing between larger lots and load leveling in the refining process. In manufacturing industries, lack of planning and control often leads to an increase in the cost of production, operational cost, unit cost rising, and customers' dissatisfaction. In other words, for a manufacturing company to meet its desired objective as stated earlier, which is profit-making and profit maximization, it is paramount for the 'decision-making' management of the organization to put in place a production plan schedule to actualize the production efficiency [22].

4. Conclusion

No organization can achieve any viable output without proper planning. Production planning is highly demanded in organizational management. Production planning thus facilitates corporate productivity performance. The appropriate workflow in productivity lies with the planning team. The planning team needs the combined effort of the budgeting department and the marketing department. Production planning fixes organization production goals and assists in the evaluation of those resources that are demanded to accomplish these goals. The purpose of this is to plan and control production planning for the organization to fulfill up with the needs viably. Production forms are tremendous and numerous in some assembling businesses, and all things considered, preparation of activity forms lessens or abbreviates the protracted production forms and enhancing prompt product delivery. With production planning the objectives of, future care challenges in the production line can be detected and eliminated. Production planning determines the kind of activity to be carried out and the amount of time needed to perform this activity. Production planning is, therefore, the ultimate guide to any production line before its commencement. This article looked into the impact of planning in the production of the manufacturing sector. This will improve and foster productivity through high organization structuring. The review was limited to manufacturing sector that must attain maximum output with minimum input of resources. Also the future impact of this work will foster on planning in the production of the manufacturing sector to enhance productivity through high organization structuring.

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