

A STUDY ON PRODUCTION PLANNING AND CONTROL DESIGN (PPC) AT TRIDENT COATING PVT LTD.

Submitted in partial fulfillment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

by

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SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC

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This is to certify that this Project Report is the bonafide work of **GUNASEKARAN K 41410108** who carried out the project entitled "**A STUDY ON PRODUCTION PLANNING AND CONTROL DESIGN (PPC) AT TRIDENT COATINGS PVT.LTD.**" under my supervision from January 2023 to March 2023.

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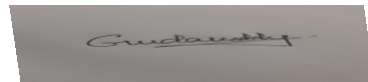
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DECLARATION

I **GUNASEKARAN K (41410108)** hereby declare that the Project Report entitled “**A STUDY ON PRODUCTION PLANNING AND CONTROL DESIGN (PPC) AT TRIDENT COATING PVT.LTD**” done by me under the guidance of **DR.R THAMILSELVAN M.COM., M.B.A., M.PHIL., B.Ed., Ph.D.** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE: 05/05/2023

PLACE: Chennai

A rectangular box containing a handwritten signature in black ink. The signature appears to be 'Gunasekaran K'.

SIGNATURE OF THE CANDIDATE

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ABSTRACT

Production planning is a pre-production activity. It is the pre-determination of manufacturing requirements such as manpower, materials, machines and manufacturing process. Ray wild defines "Production planning is the determination, acquisition and arrangement of all facilities necessary for future production of products." It represents the design of production system. Apart from planning the resources, it is going to organize the production. Based on the estimated demand for company's products, it is going to establish the production programme to meet the targets set using the various resources. Through this study, the researcher tries to identify the key areas to be enhanced in the development of production planning and control design at Trident Coatings Pvt Ltd.

The objectives of this study includes analyze the various benefits & advantages offered by production planning and control, assess the effectiveness of training provided for production planning and control, crucial step in the implementation of production planning and control, factors that need to be improved in the production system and know the satisfaction level of employees about the existing production planning and control design.

Manufacturing companies use quality assurance programs to gain a competitive advantage in the marketplace and reduce defect rates on the production line. Production control is a critical part of such programs, because it aims to remove waste from manufacturing processes through planning and organizing. Its many benefits can be discussed with production line workers and managers. The study enables the Trident Coatings Pvt Ltd to assess the various factors necessary for developing a new design for their existing production planning and control activities.

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CHAPTER 1

1.1 INTRODUCTION

The present techno-economic scenario of India emphasize on competitiveness in manufacturing. Indian industries have to streamline the production activities and attain the maximum utilization of firms' resources to enhance the productivity. Production planning and control serves as a useful tool to coordinate the activities of the production system by proper planning and control system. Production system can be compared to the nervous system with PPC as a brain. Production planning and control is needed to achieve:

1. Effective utilization of firms' resources.
2. To achieve the production objectives with respect to quality, quantity, cost and timeliness of delivery.
3. To obtain the uninterrupted production flow in order to meet customers varied demand with respect to quality and committed delivery schedule.
4. To help the company to supply good quality products to the customer on the continuous basis at competitive rates.

Production Control

Inspite of planning to the minute details, most of the time it is not possible to achieve production 100 per cent as per the plan. There may be innumerable factors which affect the production system and because of which there is a deviation from the actual plan. Some of the factors that affect are:

1. Non-availability of materials (due to shortage, etc.);
2. Plant, equipment and machine breakdown;
3. Changes in demand and rush orders;
4. Absenteeism of workers; and
5. Lack of coordination and communication between various functional areas of business.

Thus, if there is a deviation between actual production and planned production, the control function comes into action. Production control through control mechanism tries

to take corrective action to match the planned and actual production. Thus, production control reviews the progress of the work, and takes corrective steps in order to ensure that programmed production takes place. The essential steps in control activity are:

1. Initiating the production,
2. Progressing, and
3. Corrective action based upon the feedback and reporting back to the production planning.

Manufacturing companies use quality assurance programs to gain a competitive advantage in the marketplace and reduce defect rates on the production line. Production control is a critical part of such programs, because it aims to remove waste from manufacturing processes through planning and organizing. Its many benefits can be discussed with production line workers and managers.

Higher Product Quality

Product quality directly impacts customer satisfaction, brand reputation and bottom-line profit. If customers purchase defective products, businesses may lose their customer base and future revenue-generating capability. Production control helps managers, line supervisors and employees catch defects before they reach the customer. Analyzing the captured defects helps to identify system errors that, once corrected, can lead to process improvement initiatives. Producing high-quality products is one of the most effective ways manufacturers can outperform their competition.

Reduced Waste

Overprocessing, scrap, rework and excess transport are a few of the wastes that can exist in a production facility. It is challenging to identify waste and remove it without using a standardized approach. Production control incorporates technical measurements and quality assurance principles to eradicate manufacturing inefficiencies. Implemented properly, production control can improve production turnaround times. It can also enhance employee morale, because efficient operations make it easier to perform job duties.

Lower Operating Costs

Better Decision Making

Without the right information, it is hard for operations managers to direct their personnel and monitor production systems. Quality tools such as control charts allow management to discern normal process variations from serious process deficiencies. Special causes of variation are attributable to flawed equipment, ineffective procedures or human error. Production control identifies system deficiencies, allowing management to make better decisions about operations.

Production Planning and Control

Stephen C. Graves had pointed out in the Massachusetts Institute of Technology November 1999 Production planning and control address decisions on the acquisition, utilization and allocation of production resources to satisfy customer requirements in the most efficient and effective way. Typical decisions include work force level, production lot sizes, assignment of overtime and sequencing of production runs. Optimization models are widely applicable for providing decision support in this context. In this article we focus on optimization models for production planning for discrete-parts, batch manufacturing environments. We do not cover detailed scheduling or sequencing models (e. g., Graves, 1981), nor do we address production planning for continuous processes (e. g., Shapiro, 1993). We consider only discrete-time models, and do not include continuous-time models such as developed by Hackman and Leachman (1989). Our intent is to provide an overview of applicable optimization models; we present the most generic formulations and briefly describe how these models are solved. There is an enormous range of problem contexts and model formulations, as well as solution methods. We make no effort to be exhaustive in the treatment herein. Rather, we have made choices of what to include based on personal judgment and preferences. We have organized the article into four major sections. In the first section we present a framework for the decisions, issues and tradeoffs involved in implementing an optimization model for discrete-part production planning. The remaining three sections present and discuss three distinct types of models. In the second section we discuss linear programming models for production planning, in which we have linear costs. This category is of great practical interest, as many important problem features can be captured with these models and powerful solution methods for linear programs are readily available. In the third section, we

present a production-planning model for a single aggregate product with quadratic costs; this model is of historical significance as it represents one of the earliest applications of optimization to manufacturing planning. In the final section we introduce the multi-item capacitated lot-size problem, which is modeled as a mixed integer linear program. This is an important model as it introduces economies of scale in production, due to the presence of production setups.

Framework

There are a variety of considerations that go into the development and implementation of an optimization model for manufacturing planning and control. In this section we highlight and comment upon a number of key issues and questions that should be addressed. Excellent general references on production planning are Thomas and McClain(1993), Shapiro (1993) and Silver et al. (1998).

Any planning problem starts with a specification of customer *demand* that is to be met by the production plan. In most contexts, future demand is at best only partially known, and often is not known at all. Consequently, one relies on a forecast for the future demand. To the extent that any forecast is inevitably inaccurate, one must decide how to account for or react to this demand uncertainty. The optimization models described in this article treat demand as being known; as such they must be periodically revised and rerun to account for forecast updates.

A key choice is what planning decisions to include in the model. By definition, production-planning models include decisions on production and inventory quantities. But in addition, there might be resource acquisition and allocation decision, such as adding to the work force and upgrading the training of the current work force. In many planning contexts, an important construct is to set a Planning Hierarchy. Namely, one structures the planning process in a hierarchical way by ordering the decisions according to their relative importance. Hax and Meal (1975) introduced the notion of hierarchical production planning and provide a specific framework for this, whereby there is an optimization model with each level of the hierarchy. Each optimization model imposes a constraint on the model at the next level of the hierarchy.

Associated with the production function, such as uncertain yields or lead times. One might only include the most critical or limiting resource in the planning problem, e. g.,

a bottleneck. Alternatively, when there is not a dominant resource, then one must model the resources that could limit production. We describe in this article two types of production functions. The first assumes a linear relationship between the production quantity and the resource consumption. The second assumes that there is a required fixed charge or setup to initiate production and then a linear relationship between the production quantity and resource usage.

Related to these choices is the selection of the time period and planning horizon. The

planning literature distinguishes between “big bucket” and “small bucket” time periods. A time period is a big bucket if multiple items are typically produced within a time period; a small bucket is such that at most one item would be produced in the time period. For big bucket models, one has to worry about how to schedule or sequence the production runs assigned to any time period. The choice of planning horizon is dictated by the lead times to enact production and resource-related decisions, as well as the quality of knowledge about future demand.

Planning is typically done in a rolling horizon fashion. A plan is created for the planning

horizon, but only the decisions in the first few periods are implemented before a revised plan is issued. Indeed, as noted above, the plan must be periodically revised due to the uncertainties in the demand forecasts and production. For instance a firm might plan for the next 26 weeks, but then revise this once a month to incorporate new information on demand and production.

Production planning is usually done at an aggregate level, for both products and resources. Distinct but similar products are combined into aggregate product families that can be planned together so as to reduce planning complexity. Similarly production resources, such as distinct machines or labor pools, are aggregated into an aggregate machine or labor resource. Care is required when specifying these aggregates to assure that the resulting aggregate plan can be reasonably disaggregated into feasible production schedules. Finally for complex products, one must decide the level and extent of the product structure to include in the planning process. For instance, in some contexts it is sufficient to just plan the production of end items; the production plan for

components and subassemblies is subservient to the master production schedule for end items. In other contexts, planning just the end items is sub-optimal, as there are critical resource constraints applicable to multiple levels of the product structure. In this instance, a multistage planning model allows for the simultaneous planning of end items and components or subassemblies. Of course, this produces a much larger model.

Production Planning & Control

Thomson Reuters, had pointed out in the 2009 Journal Citation Reports Published by Taylor & Francis that production planning and control has the aims and scope.

1.2 COMPANY PROFILE

Trident Coatings Pvt Ltd in Vandalur, Chennai is known to satisfactorily cater to the demands of its customer base. The business came into existence in 2005 and has, since then, been a known name in its field. It stands located at No 1/590, Near Iraniyamman Koil, Gst Road, Vandalur-600048. Near Iraniyamman Koil is a prominent landmark in the area and this establishment is in close proximity to the same. It has earned stamps like Jd Verified, Jd Trusted, Jd Escrow substantiating the credentials of the business. The business strives to make for a positive experience through its offerings. The accepted modes of payment such as Cheques, American Express Card, Credit Card make every business transaction easy and seamless, contributing to making the entire process even more effective. Customer centricity is at the core of Trident Coatings Pvt Ltd in Vandalur, Chennai and it is this belief that has led the business to build long-term relationships.

Ensuring a positive customer experience, making available goods and/or services that are of top-notch quality is given prime importance. India's leading B2B market place, Jd Mart ensures engaging in business activities is a seamless process for small and medium enterprises as well as large businesses. In a wake to enable these businesses to reach their audience, this portal lets them showcase their offerings in terms of the products and/or services through a digital catalogue. This business has a wide range

of product offerings and the product/catalogue list includes Metal Sheet, Powder Coating etc.

Trident Coatings Private Limited ranks 348th in India and 46th in Tamil Nadu for its registered line of business Manufacture of paints, varnishes, enamels or lacquers, while there are total 539 companies in India and 64 in Tamil Nadu which are registered with MCA having same line of business. Trident Coatings Private Limited ranks 744th in India and 53rd in Tamil Nadu for its registered parent line of business Manufacture of paints, varnishes and similar coatings, printing ink and mastics, while there are total 1187 companies in India and 93 in Tamil Nadu which are registered with MCA having same parent line of business. Trident Coatings Private Limited ranks 12218th in India and 834th in Tamil Nadu for its registered top line of business Manufacture of other chemical products, while there are total 22246 companies in India and 1361 in Tamil Nadu which are registered with MCA having same top line of business. Score calculated using the 3CiScore 1.2 model, this score ranges from 0 to 100 and measures overall strength of corporation. Scores are calculated using customer satisfaction index, popularity and various publicly available data.

1.3 INDUSTRY PROFILE

The Indian sub-continent has established itself as the most exciting and dynamic emerging market in the world and is one full of potential and investment opportunities. With a population greater than China but with a polymer demand less than 20%, the region is expected to enjoy the fastest growth in polymer demand anywhere in the world over the next five years; outstripping China and other emerging economies. According to a recently published study by Applied Market Information Ltd (AMI Consulting), there is now massive investment occurring in the region's petrochemical, polymer production and downstream plastic processing industries, driving strong growth in polymer demand. AMI forecasts that at the region's current rate of growth its thermoplastics market will surpass 20 million tons

by 2020. The market in the region is dominated by India on account of its huge population and high GDP. However, growth in the region on the whole is driven by its increasingly globally-minded governments that are introducing policies to encourage

foreign direct investment and facilitate closer integration with the worldwide economy, helping to drive investment in petrochemicals, polymer production and downstream plastic processing. Growth in the region is not only fuelled by such policy relaxations but also by rising urbanisation of a large, youthful, population, leading to greater consumer spending for items that require plastics - from packaged goods to mobile phones and automobiles. While much of these products are still imported, there is now considerable investment taking place in plastics processing operations to support manufacturing investments, driving growth in polymer demand. Although rapidly developing, the region does face substantial challenges. For example, lack of sufficient local polymer production is a major obstacle faced by many plastics processors in the region with each country besides India being heavily or even entirely reliant on resin imports depending on the country in question; these imports are mainly sourced from India, the Middle East and South East Asia. Exchange rate fluctuations of local currencies against the dollar add further uncertainty to the market, making it harder to compete against cheaper Chinese imports of finished goods. In general, power supply in the sub-continent is tight but also erratic and unreliable in many regions, which can dramatically reduce effective utilisation. However, India in particular, the government is seeking to address these issues by implementing strategies to tackle infrastructural and power limitations. In addition, in September 2014, it announced its “Make in India” initiative, designed to catalyse Indian manufacturing to make the country a globally recognised manufacturing hub for years to come. It is clear that plastics will be called on to play a vital role in this changing region and the plastics industry will benefit from national efforts to encourage and improve manufacturing. In its report, AMI forecasts 8% per year average increases in the Indian sub-continent over the next five years, with levels of annual growth varying from 5% in Sri Lanka to up to over 8% in India. Polymer demand in the India sub continent is currently as follows: PP at 30% of the total polymer demand, PVC at 21%, HDPE at 18%, LLDPE at 12%, LDPE at 4%, Engineering Plastics at 4%, EPS at 1%, GPPS and HIPS combined at 2%, PET at 8%.

India stands third in polymer consumption globally after China and US. Per capita consumption of plastic in India was low at 9.7 kg in 2012-13 as per Global Market Research. Despite the slowdown in the economy upto 2014, the polymer industry in India is believed to be finally on track. With an increase in demand the polymer consumption is expected to double by 2020, to about 20 million metric tons. The key

players of the market believe that the growth drivers of the sector are finally in place and with the insatiable manufacturing industry, supportive government policies and a freshly surging economy, the best is yet to come for this niche. As the third largest consumer of polymers, India ranks only after China and USA, with about 5.7% of the total market share, as of 2011. Evaluation of the polymer industry trends reveals strong growth prospects citing the increased usage of plastics across sectors. The sector is projected to grow at the rate of 5.4% in 2014 and 6.5% in 2015 citing the growing demand from various industries. Furthermore, with the key market players integrating more back-end exploration and refining businesses, alongside streamlining their sourcing operations, opportunities are expected to increase in the coming years. As polymers rapidly replace the traditional materials for packaging, other key long-term factors fuelling the growth of the sector include the recent surge in the annual car production that is predicted to grow to 9.3 mln vehicles by 2020 will further aid its growth, given that the automobile sector is one of the biggest users of polymer. Given the rising demand, the Indian government is also planning to increase its spend to about USD 1 trillion on the infrastructure requirements of the industry. Alongside, the market for electronic goods to grow by 700%, substantially triggered by the increased rural disposable income. This will inevitably cause the manufacturing sector to grow manifold, further boosting the domestic polymer industry. With the increased demand for polymer across the country India is expected to become the seventh largest consumer of polymer by 2025. In spite of all these latent opportunities, China still produces three to twenty times more of most polymers, as compared to India, even with the population of both the countries being relatively equal. However, market experts predict that it will be the growing demand for plastics, rising costs and economic challenges that will see the Indian market growing faster than its competitors.

Polymers account for around 70% of petrochemicals and that is the reason that they are the most important constituent of the Indian chemical industry.

Polymers are essentially used in the manufacture of various plastic products. In the consumption of the basic petrochemical, polymers form the bulk of demand with a share of around 55%.

The share of polymers in the product mix in India for various crackers ranges from 60% to 90%. The segment of polymers have registered a growth of 18% while there have been an increase of 26% in the capacities CAGR.

The various byproducts of polymers are:

- Polystyrene
- PVC
- Poly propylene
- LDPE/ LLDPE
- HDPE

Polystyrene, a byproduct of polymers has a ` 435 crore market size. Its market price was around ` 42.5 per kg in 1999. The major companies involved in the production of polystyrene are Rajasthan Polymers, Mc Dowell & Co., and Supreme Petrochem. PVC, a polymers byproduct, is in demand in the Indian market at 554,000 tons per annum.

This segment has been growing at the rate of 15% yearly. Around 54% of PVC is used in the manufacturing of pipes and 14% is used in the production of cable sheathing. The cost of PVC was ` 44.95 per kg in 1999. The main companies involved in the production of PVC are IPCL and RIL.

Polypropylene is a very light weight polymer and that is the main reason why it is used as a substitute for various other polymers. During 1997-1998, around 11,000 tons of poly propylene was imported. Over the last 3 years, the demand for this product has increased by 38% and now stands at 595,000 tons. The price of polypropylene was ` 47.50 per kg in 1999. It is mainly used in the manufacture of injection moulding, BOPP, ropes, twines, and

In India, low-density polyethylene (LDPE) and linear low density polyethylene (LLDPE) are also widely used polymers. This segment of polymers is growing at the rate of 12% per year. More than 50% of LDPE/ LLDPE is used by the packaging industry and they were priced at around ` 54.25 per kg in 1999. The companies which make LDPE/

LLDPE are Oswal, RIL, and IPCL. The second most used polymer in India is HDPE, with a share of 22%. The value of its domestic consumption is ` 2, 123 crore and it is growing at the rate of 15% per year. It cost around ` 50 per kg in 1999. HDPE is used in the manufacturing of raffia, blow moulding, injection moulding, and in the paper industry as well. The companies involved in the production of HDPE are NOCIL, RIL, and IPCL.

1.4 NEED FOR THE STUDY

Production planning is a pre-production activity. It is the pre-determination of manufacturing requirements such as manpower, materials, machines and manufacturing process. Ray wild defines “Production planning is the determination, acquisition and arrangement of all facilities necessary for future production of products.” It represents the design of production system. Apart from planning the resources, it is going to organize the production. Based on the estimated demand for company’s products, it is going to establish the production programme to meet the targets set using the various resources. Through this study, the researcher tries to identify the key areas to be enhanced in the development of production planning and control design at Trident Coatings Pvt Ltd

1.5 SCOPE OF THE STUDY

Manufacturing companies use quality assurance programs to gain a competitive advantage in the marketplace and reduce defect rates on the production line. Production control is a critical part of such programs, because it aims to remove waste from manufacturing processes through planning and organizing. Its many benefits can be discussed with production line workers and managers. The study enables the Trident Coatings Pvt Ltd to assess the various factors necessary for developing a new design for their existing production planning and control activities.

1.6 OBJECTIVES

PRIMARY OBJECTIVE

To study the production planning and control design at Trident Coatings Pvt Ltd

SECONDARY OBJECTIVES

1. To analyze the various benefits & advantages offered by production planning and control
2. To assess the effectiveness of training provided for production planning and control
3. To examine the most very crucial step in the implementation of production planning and control
4. To analyze the satisfaction level of employees about the existing production planning and control design
5. To study the factors that need to be improved in the production system
6. To make suggestions to improve the production planning and control design.

1.7 LIMITATIONS OF THE STUDY:

The following are some limitations what I faced:

1. Time is one major constraint, which limits the effective data collection.
2. Non-availability of data collection from all the employees of Trident Coatings Pvt Ltd
3. The sample size is only 120 so the sample may not be truly representative of the total population

CHAPTER 2

2.1. REVIEW OF LITERATURE

It covers a detailed review of literature on various aspects of production planning and control. The literature review includes the status of production planning and control in India and abroad, the studies carried out and the benefits accrued. It also includes the status of various techniques of production planning and control. Various approaches adopted for production planning and control have also been studied and presented in the Chapter.

1. Bitran and Tirupati (1993) provide a comprehensive survey of hierarchical planning methods and models. The identification of the *relevant costs* is also an important issue. For production planning, one typically needs to determine the variable production costs, including setup-related costs, inventory holding costs, and any relevant resource acquisition costs. There might also be costs associated with imperfect customer service, such as when demand is backordered. A planning problem exists because there are limited *production resources* that cannot be stored from period to period. Choices must be made as to which resources to include and how to model their capacity and behavior, and their costs. Also, there may be uncertainty.
2. Deepak Sharma, Jai Prakash Sharma .et al. (2014) in their study, "production planning and control" found that the Production activity takes place in a wide range of manufacturing and service sectors. Production system requires the optimal utilization of natural resources like men, money, machine, materials and time. Production planning and control coordinate with different departments: such as production, marketing, logistics, warehouse and other departments depending upon the nature of organization. Production planning and control receives data related to orders from marketing departments. Production plan based on marketing and production data is prepared in production planning and control. This production plan provides clear idea about utilization of

manufacturing resources for production. Prepared production plan is delivered to production department. Production department manufacture products according to that plan.

3. Andres Angulo , Heather Nachtmann. Et al. (2011) in their study “supply chain information sharing in a vendor managed inventory partnership” Vendor Managed Inventory (VMI) involves the vendor making the replenishment decision for products supplied to a customer based on various inventory and supply chain policies. Information sharing between supply chain members is required in VMI. Sometimes VMI decisions are delayed and/or the information shared is inaccurate. This research examines the effects of information delay and accuracy, and the sharing of sales and forecast information in a VMI environment facing stationary and nonstationary demand. The simulation experiments show the impact of information delay, information inaccuracy, and information sharing on a variety of performance measures, including inventory levels and fill rates.
4. Gnoni. M.G.et al. (2003) in their paper,” Production planning of a multi-site manufacturing system by hybrid modelling: A case study from the automotive industry” deals with lot sizing and scheduling problem (LSSP) of a multi-site manufacturing system with capacity constraints and uncertain multi-product and multi-period demand. LSSP is solved by an hybrid model resulting from the integration of a mixed-integer linear programming model and a simulation model.The hybrid modelling approach is adopted to test a local as well as a global production strategy in solving the LSSP concerned. The model proposed is applied to a supply chain of a multi-site manufacturing system of braking equipments for the automotive industry. Solutions obtained by the hybrid model under the local or the global production strategy are compared with an actual reference production plan. The approach could help decision making in adopting a cooperative, rather than competitive, production strategy.
5. Peter W. Turnbull et al. (1990) in his study, "A Review of Portfolio Planning Models for Industrial Marketing and Purchasing Management", he determined

the more important strategic portfolio planning approaches that have evolved since Markowitz originally postulated his portfolio theory are described and summarised. Based on this review the author suggests that for industrial marketing and purchasing management the interaction approach to portfolio planning provides a valuable and pragmatic framework of use to academic and practising managers alike.

6. Chris Caplice, Yossi Sheffi .et al. (1994) in their paper, "A Review and Evaluation of Logistics Metrics" they explain Performance measurement in the logistics function, like all business functions, begins at the individual metric level. A performance measurement system that is well designed at the strategic level can be flawed at the individual metric level; the Achilles' Heel of any measurement system. The pressing need is not for the development of novel performance metrics: there is a great abundance of sufficient metrics already in existence. Rather, there is a need for a method with which to evaluate existing metrics. They address this need by suggesting a set of evaluation criteria for individual logistics performance metrics and identifying the inherent trade-offs. Taxonomy of logistics performance metrics, organized by process rather than by function, is also presented and the metrics are evaluated using the established criteria.
7. Christian Bechtel .et al. (1997) in this study, "Supply Chain Management: A Strategic Perspective" In order to respond to competitive pressures, managers need to know more about the strategic aspects of supply chain management. This paper addresses this need by critically reviewing the supply chain management literature and by suggesting a research agenda for the future. A conceptual model is provided which helps to identify certain assumptions made in the literature that must be challenged. The model also provides a tool for identifying the major contributions in the literature. Finally, a research agenda is developed.

8. Lourdes D. Ferreira .et al. (1992) in their research, “Field Research in Management Accounting and Control: A Review and Evaluation” Surveys the field research literature in management accounting and control (MAC) published in the period 1984-1992. Proposes a definition of field research and compares the 82 published works that meet this definition with respect to their motivations, research designs and presentation formats. The comparison reveals the tremendous diversity among the field research publications. Evaluates the methods and contributions of this research field researchers usually choose interesting, relevant topics but many of the works have weaknesses in research design, data presentation and interpretation of findings. This survey Concludes with some observations on the costs, risks, and potential payoffs of field research.
9. O. Maxie Burns .et al. (1991) in their study, “Critical Success Factors in Manufacturing Resource Planning Implementation” they analyses The implementation process of any information system is a challenging task which becomes even more difficult when the system to be implemented is complex and requires significant organisational change, such as Manufacturing Resource Planning (MRP II). The study reported here was conducted to identify factors which affect the success of the implementation. This study extends prior research in the MRP II implementation area by evaluating more specific aspects of environmental and methodological factors such as an organisation’s willingness to change and consultant involvement in the MRP II implementation. This empirical study determined the association among environmental factors, methods of implementation, and MRP II success. A conceptual implementation model was developed and factors were identified which were associated with two measures of MRP II success. Two environmental factors and twelve methodological factors were identified as being associated with MRP II success. Based on the results of the study, an awareness and understanding of these factors will increase the success of future MRP II implementations.
10. Prasanta Kumar Dey .et al. (2014) in their research, “production & planning control” researchers have suggested many empirical criteria for green supply chain (GSC) performance measurement and proposed both qualitative and

quantitative frameworks. However, these are mainly operational in nature and specific to the focal company. This research develops an innovative GSC performance measurement framework by integrating supply chain processes (supplier relationship management, internal supply chain management and customer relationship management) with organisational decision levels (both strategic and operational). Environmental planning, environmental auditing, management commitment, environmental performance, economic performance and operational performance are the key level constructs. The proposed framework is then applied to three selected manufacturing organisations in the UK. Their GSC performance is measured and benchmarked by using the analytic hierarchy process (AHP), a multiple-attribute decision-making technique. The AHP-based framework offers an effective way to measure and benchmark organisations' GSC performance. This study has both theoretical and practical implications. Theoretically it contributes holistic constructs for designing a GSC and managing it for sustainability; and practically it helps industry practitioners to measure and improve the environmental performance of their supply chain.

11. KibumKim , Iksoo Song .et al. (2006) in their study, "Supply planning model for remanufacturing system in reverse logistics environment" discusses the remanufacturing process of reusable parts in reverse logistics, where the manufacturer has two alternatives for supplying parts: either ordering the required parts to external suppliers or overhauling returned products and bringing them back to 'as new' conditions. We propose a general framework for this remanufacturing environment and a mathematical model to maximize the total cost savings by optimally deciding the quantity of parts to be processed at each remanufacturing facilities, the number of purchased parts from subcontractor. The model is newly introduced and developed in the reverse logistics literatures. The model is validated through a set of experimental data reflecting practical business situation and sensitivity analyses are conducted on various parameters to gain insight into the proposed model

CHAPTER 3

3.1 RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem as it guides how research is done scientifically. It consists of different steps that are generally adopted by the researcher to study her research problem with the logic behind them. This research had used Descriptive research method.

3.2 RESEARCH DESIGN

Research design constitutes the blue print for the collection measurement and analysis of data. Thus research design is a conceptual framework within the research is conducted. The researcher has used convenient sampling method to collect the data from the respondent.

3.3 METHOD OF DATA COLLECTION

The two methods of data collection are

1. Primary Data
2. Secondary Data

Primary data

Primary data's are those which are collected for the first time by the researcher. It is the fresh data. In this project, the primary data was collected through questionnaire.

Secondary data

Secondary data are those which have already been collected. In this project, secondary source such as the company website, annual report, internet, certain published journals of the company have been used to collect the information.

3.4 RESEARCH INSTRUMENT

The instrument which has been utilized for the collection of data is the questionnaire. Questionnaire is a Performa containing sequence of questions to collect information from the respondent. Thus questionnaire consists of number of questions printed in a definite order on a form or set of forms. Here the researcher has used the structured and non – disguised questionnaire.

3.5 SAMPLE SIZE

Samples were collected from employees and workers of the organization. The total sample size of both is 120.

3.6 ANALYTICAL TOOLS

The data collected were edited, coded and processed. Percentage technique is used in order to simplify the figure for diagrammatic representation. The following techniques are used to analyze the collected data and information.

- ✓ Percentage Analysis
- ✓ Chi-Square Analysis
- ✓ Correlation
- ✓ One way Anova

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

TABLE NO 4.1: EDUCATIONAL QUALIFICATION

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
UG	56	47%
PG	36	30%
Diploma	21	17%
Others	7	6%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 47% of the respondents are completed UG, 30% of the respondents are completed PG. Therefore most of the respondents are completed UG.

CHART- 4.1

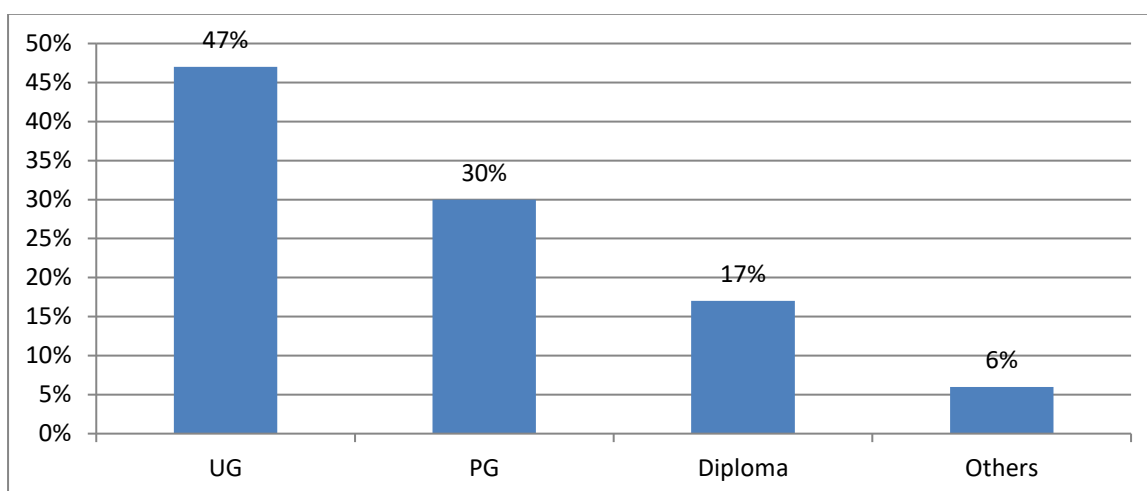


TABLE NO 4.2: EXPERIENCE

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
0 – 1 year	31	26%
1.1 – 3 years	49	41%
3.1 – 6 years	29	24%
6 .1– 10 years	8	7%
More than 10 Years	3	2%
TOTAL	120	100%

SOURCES:PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 41% of the respondents have experience of 3years, 24% of the respondents have experience of 6 years.

Therefore most of the respondents have the maximum experience of 3years.

CHART- 4.2

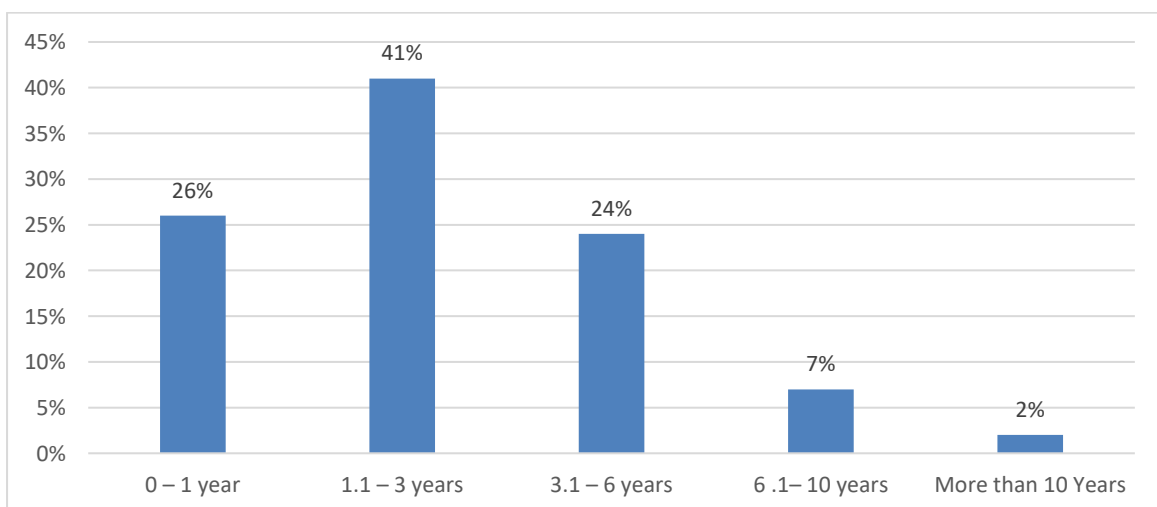


TABLE NO 4.3: AGE

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
21 to 25 years	23	19%
26 to 30 years	27	23%
31 to 35 years	31	26%
Above 35 years	39	32%
TOTAL	120	100%

SOURCES:PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 32% of the respondents are above the age of 35years, 23% of the respondents are the age of 26-30years.

Therefore most of the respondents are above the age of 35years

CHART- 4.3

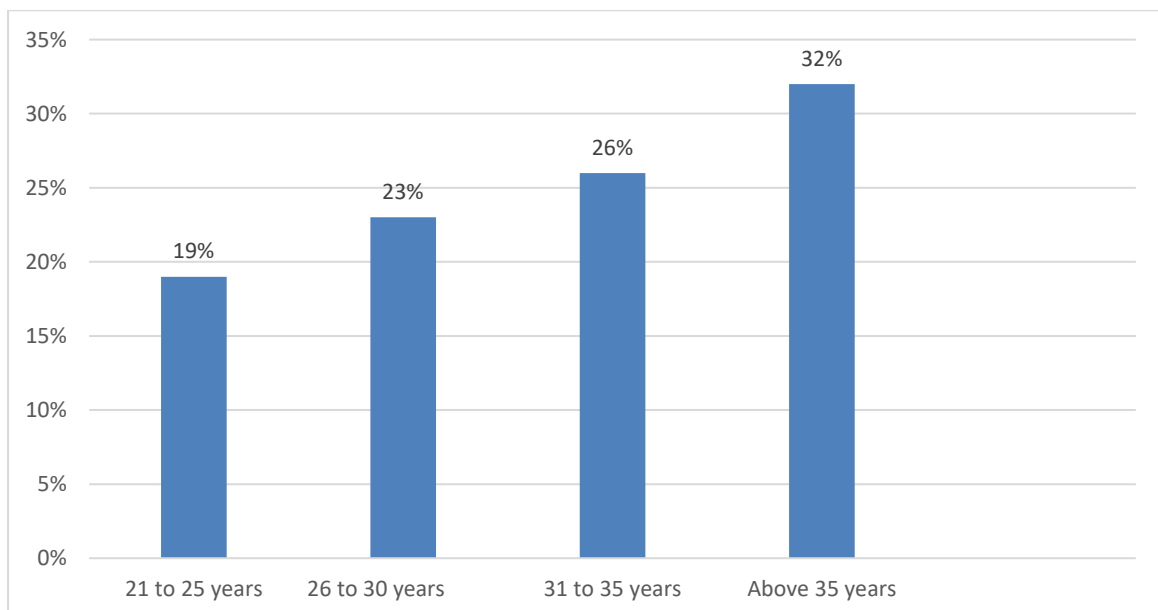


TABLE NO 4.4: GENDER

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Male	83	69%
Female	37	31%
TOTAL	120	100%

SOURCES:PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 69% of the respondents are Male, 31% of the respondents are female.

Therefore most of the respondents are Males in the organization.

CHART- 4.4

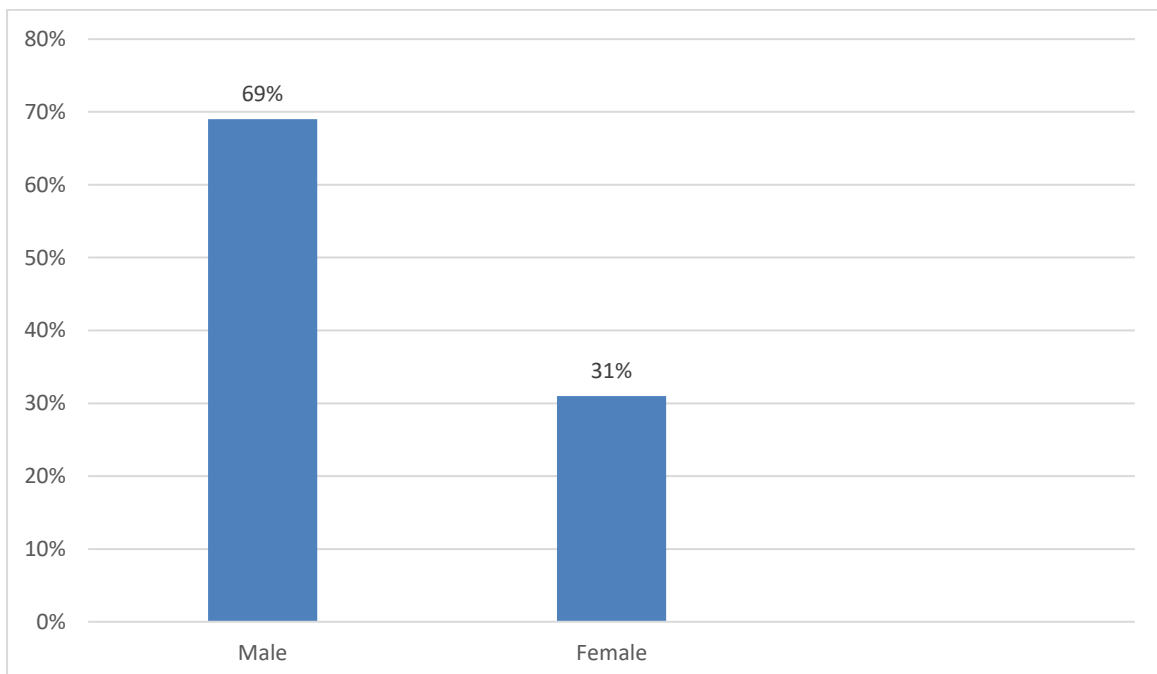


TABLE NO 4.5: INCOME

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
<10,000	21	18%
10,001-25,000	38	31%
25,001-50,000	41	34%
Above 50,000	20	17%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 34% of the respondent's income are around 50,000, 18% of the respondent's income are less than 10,000. Therefore most of the respondents are earning the income of 50,000.

CHART- 4.5

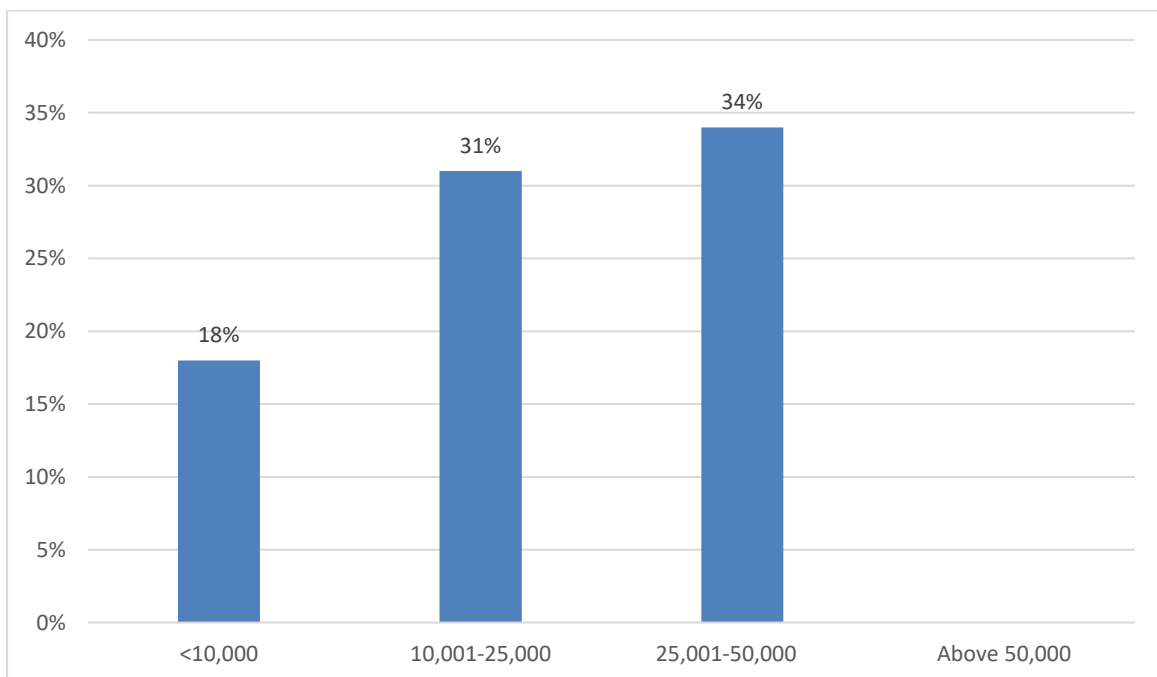


TABLE NO 4.6: HAVE BEEN INVOLVED IN THE PRODUCTION PLANNING AND CONTROL ACTIVITIES

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Less than one year	25	21%
1-5 years	51	42%
5.1-10 years	36	30%
More than 10 years	8	7%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 42% of the respondents have been involved in production and planning control for more than 5 years, 21% of the respondents have been involved in production and planning control for less than 10 years. Therefore most of the respondents have been involved in production and planning control for more than 5 years.

CHART- 4.6

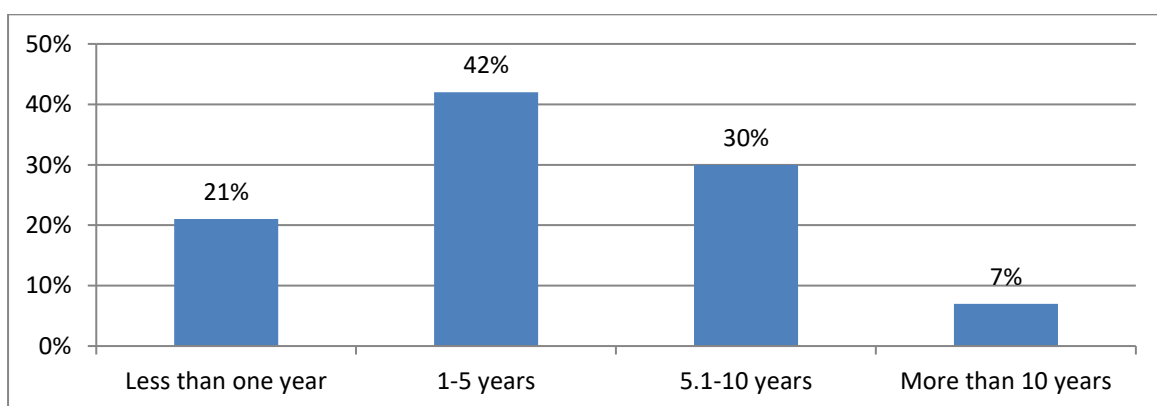


TABLE NO 4.7: VERY CRUCIAL STEP IN THE IMPLEMENTATION OF PRODUCTION PLANNING AND CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Initiating the production	15	12%
Progressing	19	16%
Corrective action based upon the feedback and reporting back to the production planning	27	23%
All the above	59	49%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 49% of the respondents prefer all the above statement are very crucial step in the implementation of production planning and control, 23% of the respondents prefer corrective action based upon the feedback and reporting back to the production planning are very crucial step in the implementation of production planning and control.

CHART- 4.7

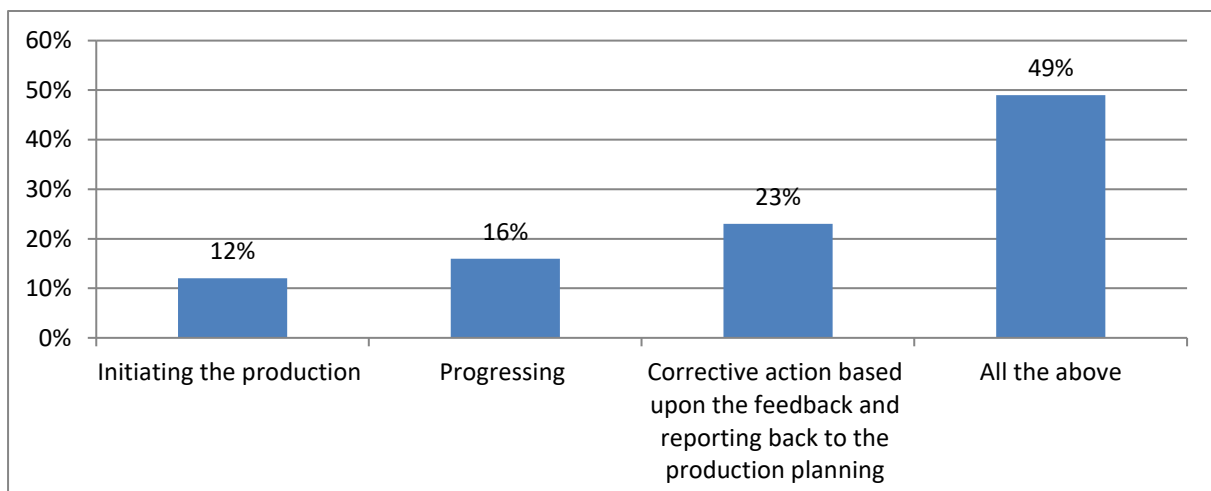


TABLE NO 4.8: ULTIMATE BENEFIT A COMPANY GETS THROUGH EFFECTIVE PRODUCTION PLANNING AND CONTROL ACTIVITIES

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Enhanced customer satisfaction	36	30%
Increased value from your existing customers	57	48%
Improved profitability	27	22%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 48% of the respondent says increased value from your existing customers is the ultimate benefit a company can get through effective production planning and control activities, 30% of the respondent says Enhanced customer satisfaction is the ultimate benefit a company can get through effective production planning and control activities.

CHART-4.8

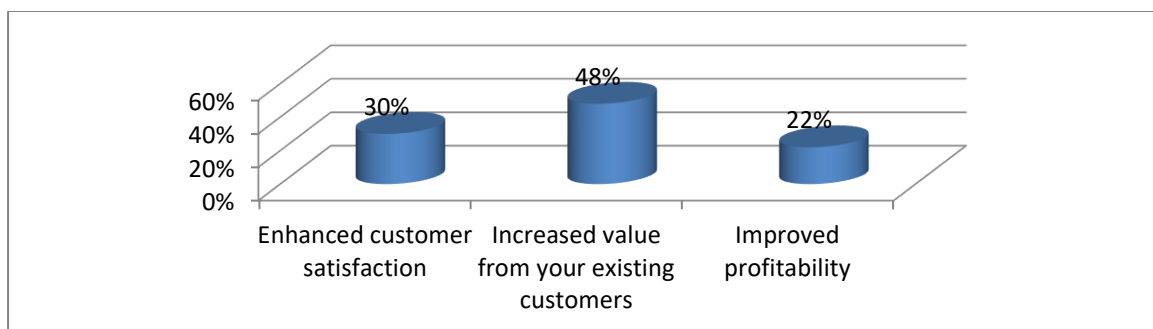


TABLE NO 4.9: PRODUCTION PLANNING AND CONTROL ENSURES A REGULAR AND STEADY FLOW OF PRODUCTION

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Strongly agree	52	43%
Agree	37	31%
Neutral	16	13%
Disagree	9	8%
Strongly Disagree	6	5%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 43% of the respondents are strongly agrees that production planning and control ensure a regular and steady flow of production, 31% of the respondents are agrees that production planning and control ensure a regular and steady flow of production.

Therefore most of the respondents are strongly agrees that production planning and control ensure a regular and steady flow of production.

CHART- 4.9

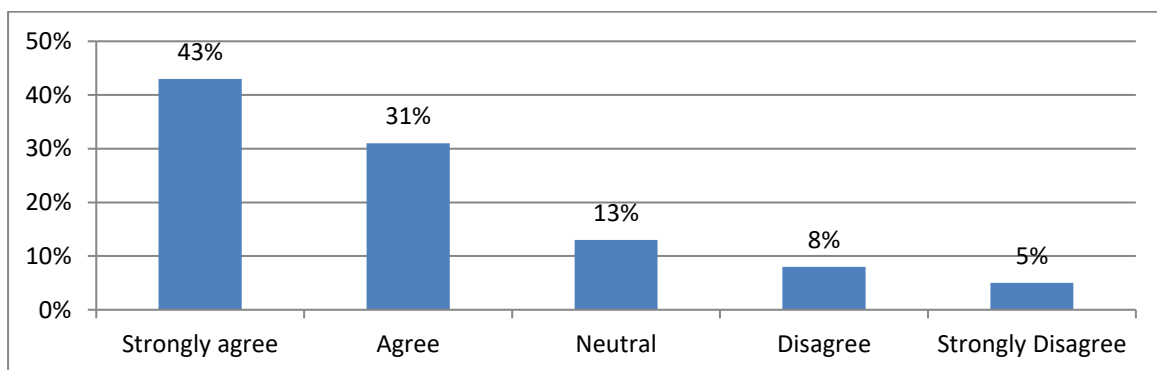


TABLE NO 4.10: THE MAIN ADVANTAGE OF ROBUST PRODUCTION CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Ensure a smooth flow of all production processes	11	9%
Ensure production cost savings thereby improving the bottom line	49	41%
Control wastage of resources	39	32%
It maintains standard of quality through the production life cycle	21	18%
TOTAL	120	100%

SOURCES: PRIMARY DATA**INTERPRETATION**

From the above table it can be inferred 41% of the respondent think Ensure production cost savings thereby improving the bottom line is the main advantage of robust production control, 32% of the respondent think Control wastage of resources is the main advantage of robust production control.

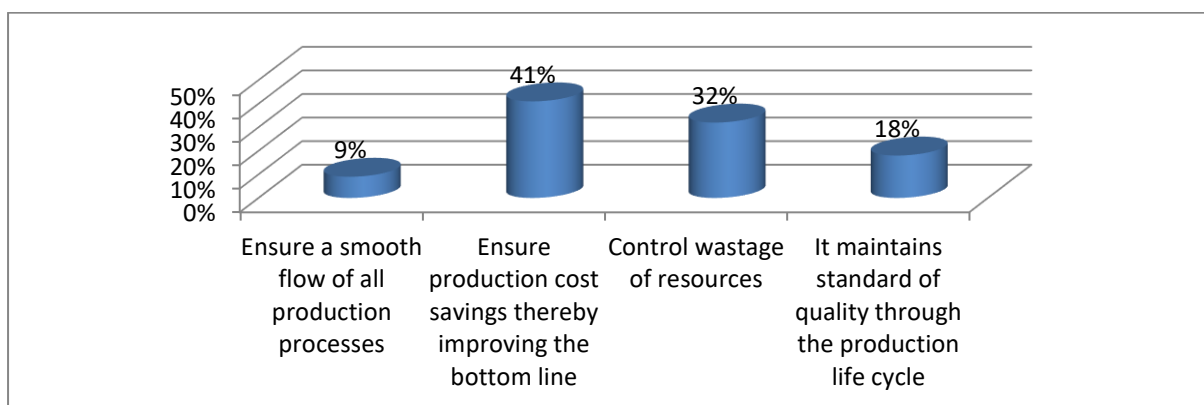
CHART- 4.10

TABLE NO 4.11: PRODUCTION CONTROL MAKES IT POSSIBLE TO LOWER THE COSTS ASSOCIATED WITH POOR QUALITY

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Strongly agree	67	56%
Agree	33	28%
Neutral	11	9%
Disagree	9	7%
Strongly Disagree	0	0%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 56% of the respondents strongly agreed with production control makes it possible to lower the costs associated with poor quality, 28% of the respondents of the respondents agreed with production control makes it possible to lower the costs associated with poor quality.

CHART- 4.11

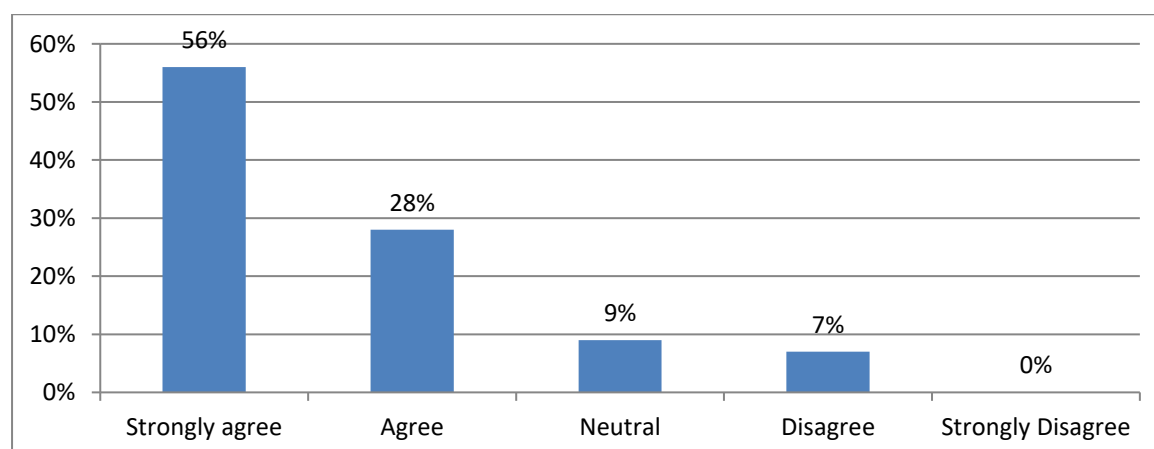


TABLE NO 4.12: COMPANY PREFERED PRODUCTION PLANNING AND CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Waste Minimization	26	21%
Cost Reduction	48	40%
Product Improvement	37	31%
Others	9	8%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 40% of the respondent says company preferred cost reduction planning and control, 31% of the respondent says company preferred production improvement planning and control.

Therefore most of the respondent says company preferred cost reduction planning and control.

CHART- 4.12

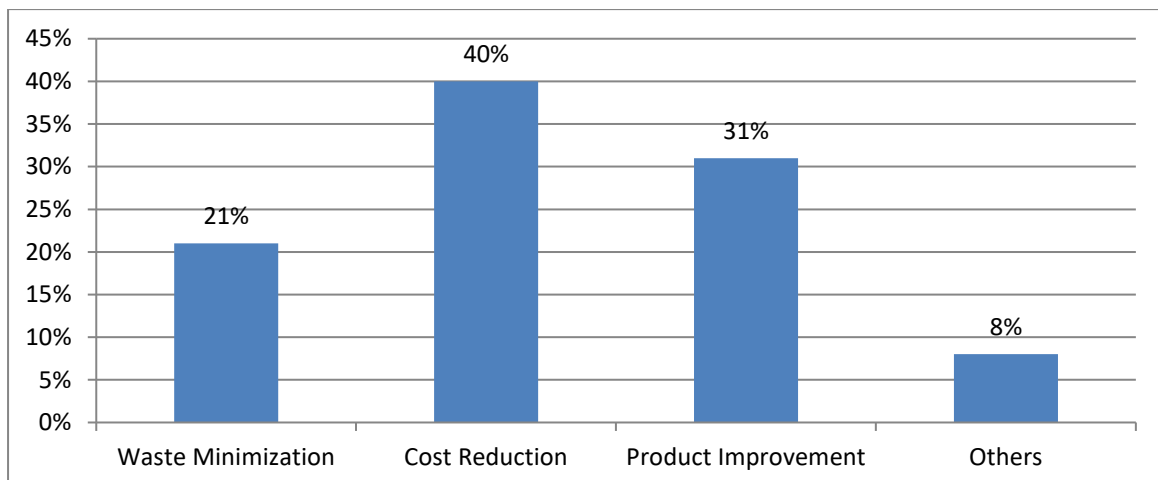


TABLE NO 4.13: COMPANY PROVIDES TRAINING ABOUT THE LATEST ADVANCEMENTS IN PRODUCTION PLANNING AND CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Only Once	24	20%
Once in a year	34	29%
For every new updates	58	48%
Not given	4	3%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 48% of the respondent says company provides training for every new updates about the latest advancements in production planning and control, 29% of the respondent says company provides training once in a year about the latest advancements in production planning and control.

Therefore most of the respondent says company provides training for every new updates about the latest advancements in production planning and control.

CHART- 4.13

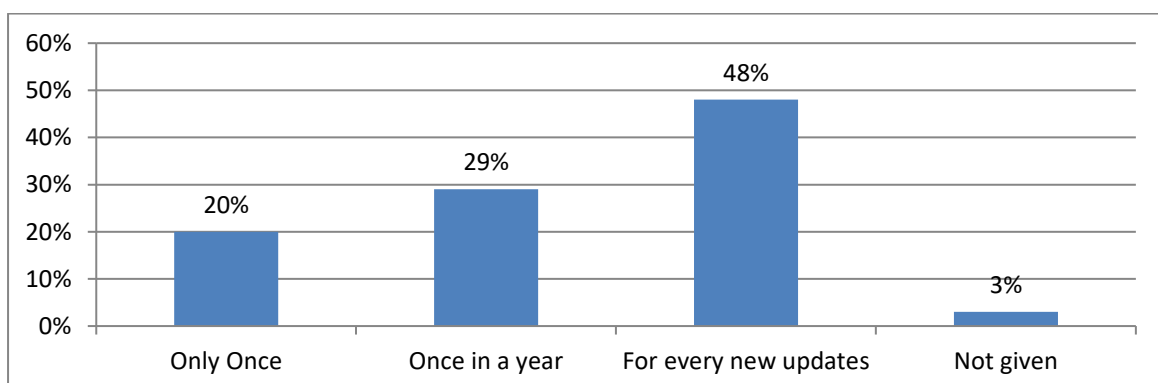


TABLE NO 4.14: TYPE OF TRAINERS IS USED FOR CONDUCTING THESE PRODUCTIONS PLANNING AND CONTROL TRAINING PROGRAMMERS

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Internal	61	51%
External	48	40%
Both	11	9%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred 51% of the respondents thinks internal type of trainers is used for conducting these production planning and control training programmers, 40% of the respondents thinks external type of trainers is used for conducting these production planning and control training programmers.

Therefore most of the respondents think internal type of trainers is used for conducting these production planning and control training programmers.

CHART- 4.14

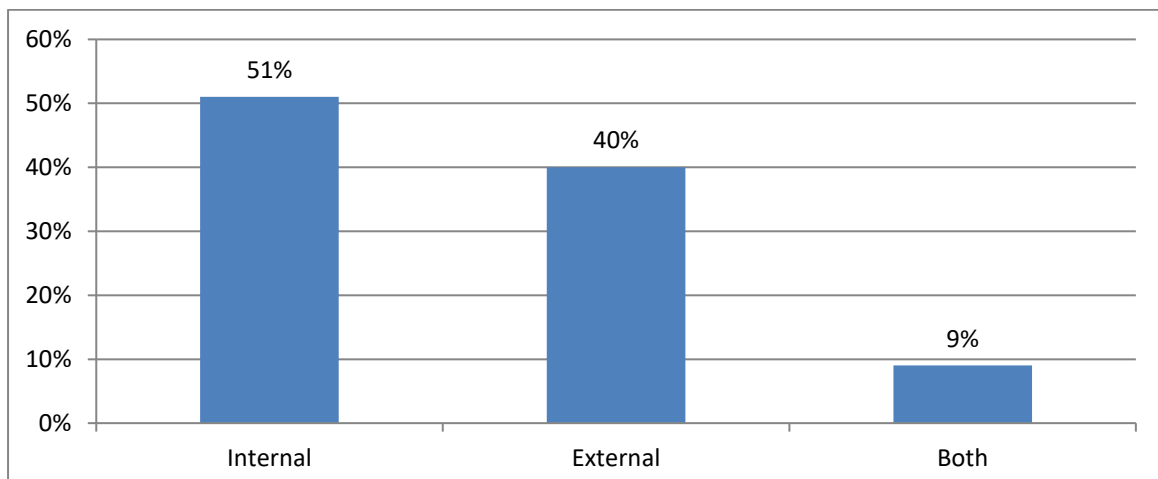


TABLE NO 4.15: TRAINING MATERIALS GIVEN DURING THESE PRODUCTIONS PLANNING AND CONTROL TRAINING PROGRAMMERS IS EFFECTIVE

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Adequate	74	62%
Covered few related information	32	27%
Inadequate	14	11%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 62% of the respondents says adequate training materials given during these productions planning and control training programmers is effective, 27% of the respondents says covered few related information the training materials given during these productions planning and control training programmers is effective.

Therefore most of the respondents say adequate the training materials given during these productions planning and control training programmers is effective.

CHART- 4.15

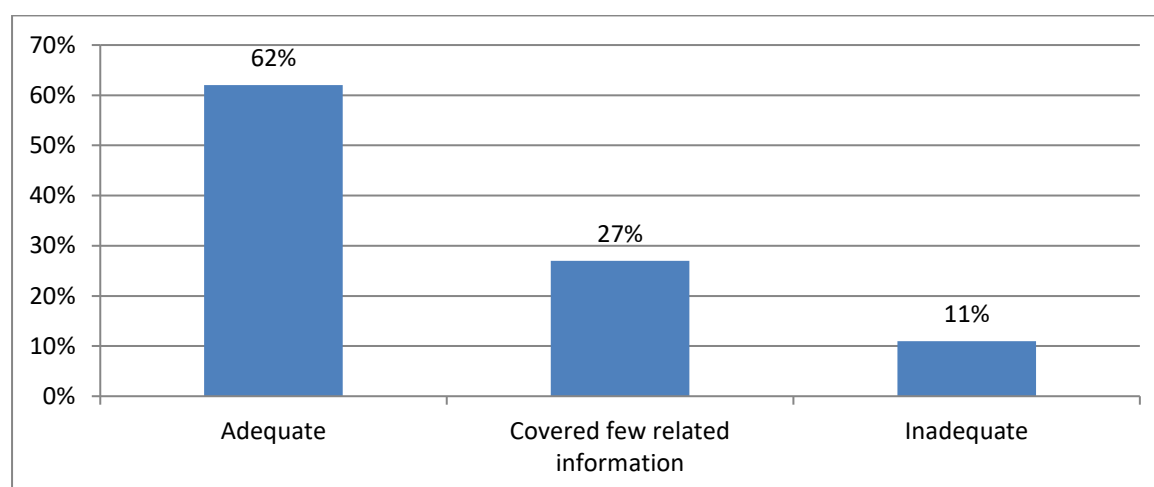


TABLE NO 4.16: OVERALL SATISFACTION LEVEL ABOUT THE TRAINING GIVEN FOR PRODUCTION PLANNING AND CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Highly satisfied	48	40%
Satisfied	39	33%
Neutral	28	23%
Dissatisfied	3	3%
Highly Dissatisfied	2	1%

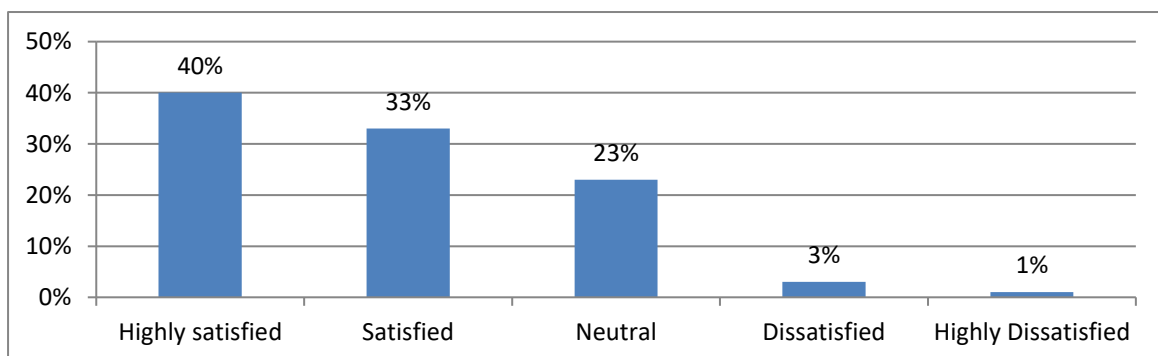
SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 40% of the respondents are highly satisfied about the training given for production planning and control, 33 % of the respondents are satisfied about the training given for production planning and control.

Therefore most of the respondents are highly satisfied about the training given for production planning and control.

CHART- 4.16



**TABLE NO 17: OPINION ABOUT THE FACTORS THAT NEED TO BE IMPROVED
IN THE PRODUCTION SYSTEM**

SOURCES: PRIMARY DATA

INTERPRETATION

PARTICULARS	Stron gly Agre e	%	Agr ee	%	Neut ral	%	Disa gree	%	Str ong ly Dis agr ee	%	TOT AL
Non-availability of materials	48	40 %	38	32 %	21	17 %	7	6 %	6	5%	120
Plant, equipment and machine breakdown	54	45 %	45	38 %	13	11 %	5	4 %	3	2%	120
Changes in demand and rush orders	44	37 %	39	33 %	25	21 %	8	6 %	4	3%	120
Absenteeism of workers	47	39 %	52	43 %	18	15 %	2	2 %	1	1%	120
Lack of coordination and communication between various functional areas of business	52	43 %	37	31 %	31	26 %	0	0 %	0	0%	120

From the above table it can be inferred that 40% of the respondents strongly agreed with non- availability of materials, 32% of the respondents agreed with non- availability of materials.

45% of the respondents strongly agreed with Plant, equipment and machine breakdown, 38% of the respondents agreed with Plant, equipment and machine breakdown.

37% of the respondents strongly agreed with changes in demand and rush orders, 33% of the respondents agreed with Changes in demand and rush orders

43% of the respondents agreed with absenteeism of workers, 39% of the respondents strongly agreed with absenteeism of workers.

43% of the respondents strongly agreed with Lack of coordination and communication between various functional areas of business, 31% of the respondents agreed with Lack of coordination and communication between various functional areas of business.

CHART- 4.17

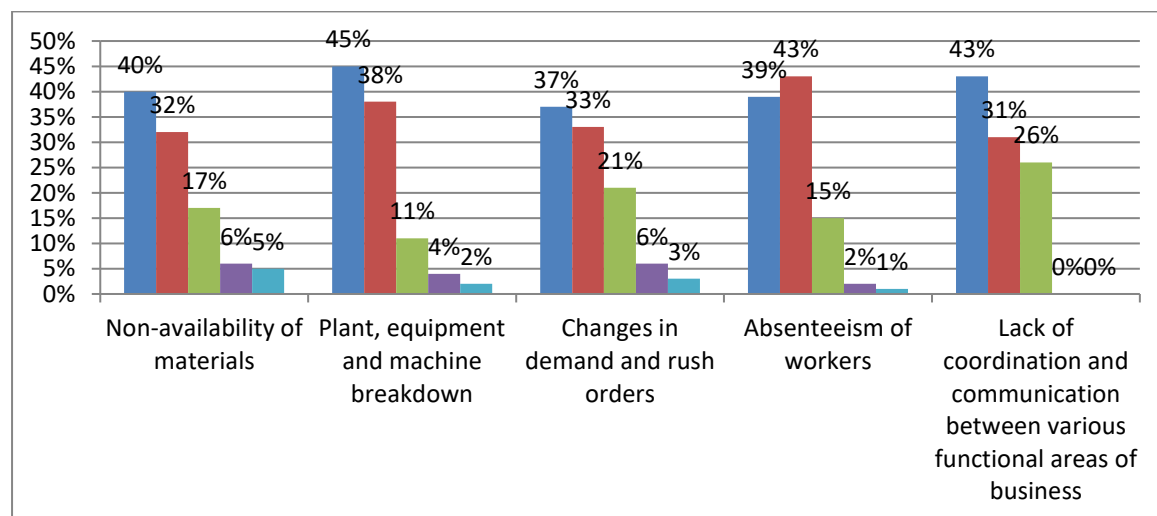


TABLE NO 4.18: THE PROCEDURE TO IMPLEMENT THE PRODUCTION PLANNING AND CONTROL

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Very Easy	56	47%
Easy	40	33%
Average	19	16%
Difficult	4	3%
Very Difficult	1	1%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 47% of the respondent considers that it is very easy to procedure to implement the production planning and control, 33% of the respondent considers that it is easy to procedure to implement the production planning and control.

Therefore most of the respondent considers that it is very easy to procedure to implement the production planning and control.

CHART- 4.18

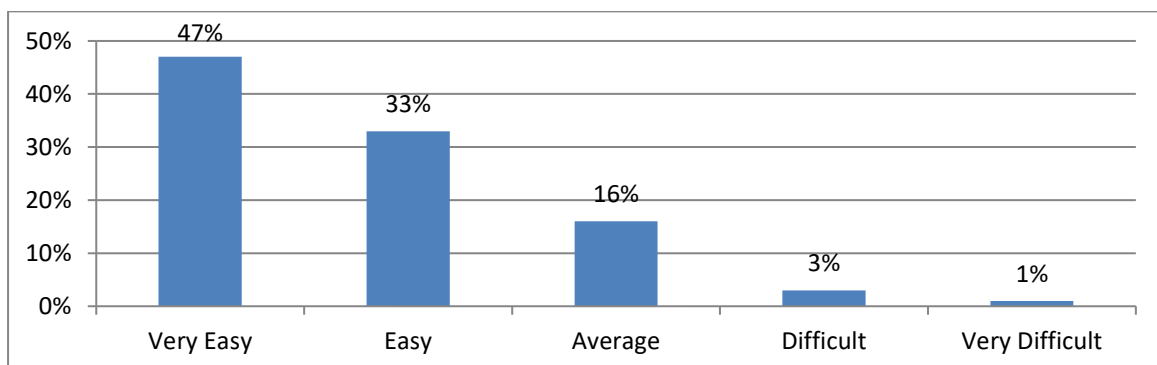


TABLE NO 4.19: SATISFACTION LEVEL WITH THE CURRENT PRODUCTION PLANNING AND CONTROL ACTIVITIES ABOUT THE COMPANY

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Highly satisfied	49	41%
Satisfied	42	35%
Neutral	16	13%
Dissatisfied	9	8%
Highly Dissatisfied	4	3%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 41% of the respondents are highly satisfied with the current production planning and control activities at Trident Coatings Pvt Ltd, 35% of the respondents are satisfied with the current production planning and control activities at Trident Coatings Pvt Ltd.

Therefore most of the respondents are highly satisfied with the current production planning and control activities at Trident Coatings Pvt Ltd.

CHART- 4.19

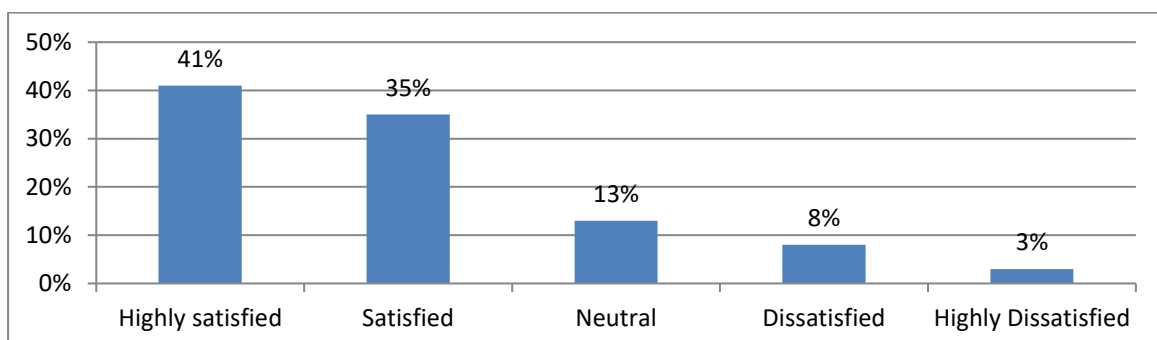


TABLE NO 4.20: CLASSIFICATION OF RAW MATERIALS AND WIP

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Finished Material	38	32%
Standard Parts	47	39%
Direct Material	27	22%
Indirect Material	8	7%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 39% of the respondent's standards parts with the Raw materials and WIP, 32% of the respondents finished material with the Raw materials and WIP.

Therefore most of the respondents standards parts with the Raw materials and WIP.

CHART- 4.20

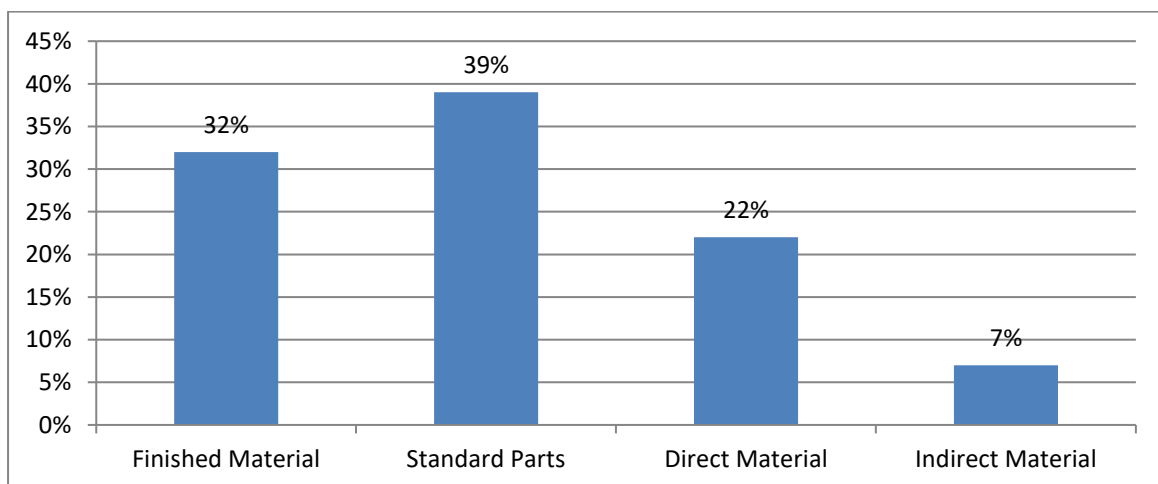


TABLE NO 4.21: AWARENESS OF AREAS IN COMPANY

PARTICULARS	Yes	%	No	%	TOTAL
Incoming Materials	116	97%	4	3%	120
In-Process Materials	118	98%	2	2%	120
Hold Materials	115	96%	5	4%	120
Rejected Materials	119	99%	1	1%	120
Finished Products	117	98%	3	2%	120

SOURCES: PRIMARY DATA**INTERPRETATION**

From the above table it can be inferred that 99% of the respondent are aware about the rejected materials in the company area, 1% of the respondent are doesn't aware about the rejected materials in the company area.

98% of the respondent are aware about the In-Process Materials in the company area, 2% of the respondent are doesn't aware about the -Process Materials in the company area.

98% of the respondent are aware about the Finished products in the company area, 2% of the respondent are doesn't aware about the Finished products in the company area.

97% of the respondent are aware about the Incoming materials in the company area, 3% of the respondent are doesn't aware about the Incoming materials in the company area.

96% of the respondent are aware about the Hold materials in the company area, 4% of the respondents are doesn't aware about the Hold materials in the company area.

CHART- 4.21

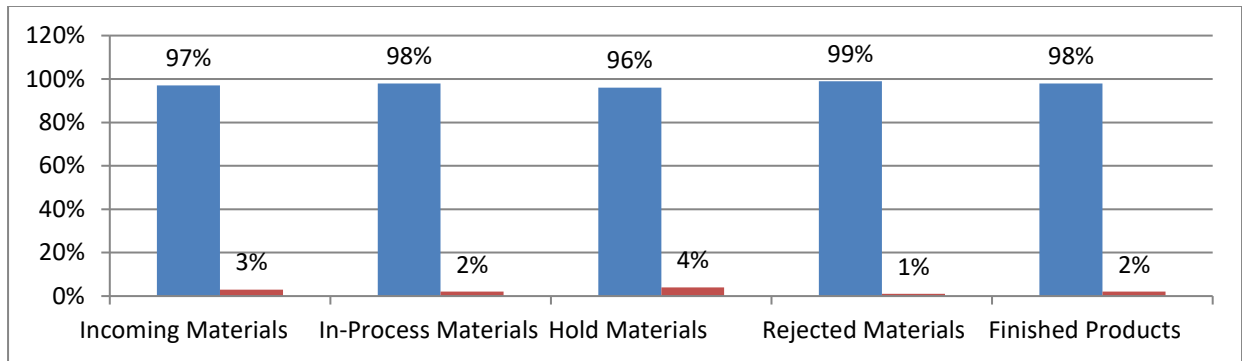


TABLE NO 4.22: PARAMETERS ARE REQUIRED TO OPERATE FIXED ORDER QUANTITY SYSTEM

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Standard reorder quantity	43	36%
Re-order point	36	30%
Maximum stock	15	12%
Minimum stock	26	22%
TOTAL	120	100%

SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 36% of the respondent says standard reorder quantity parameters are required to operate fixed order quantity, 30% of the respondent says re- reorder point quantity parameters are required to operate fixed order quantity. Therefore most of the respondent says standard reorder quantity parameters are required to operate fixed order quantity.

CHART- 4.22

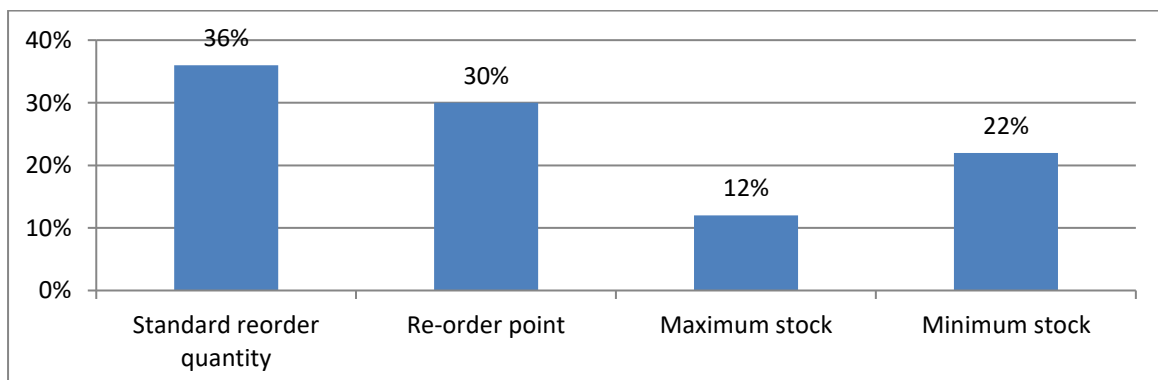


TABLE NO 4.23: WEAKNESSES OF PPC DEPARTMENT CAN BE STUDIED UNDER GROUNDS IN TRIDENT COATINGS PVT LTD

PARTICULARS	NO OF RESPONDENTS	PERCENTAGE
Addition of orders	26	22%
Failures in delivery commitment	34	28%
Cancellation of orders	31	26%
Complaints from customers	29	24%
TOTAL	120	100%

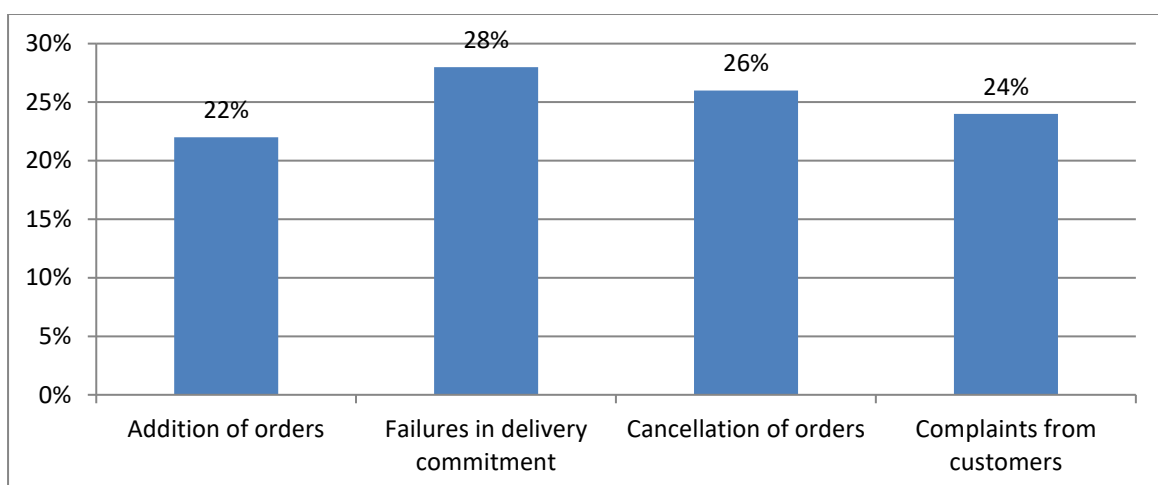
SOURCES: PRIMARY DATA

INTERPRETATION

From the above table it can be inferred that 28% of the respondents are failures in delivery commitment, 26% of the respondents gets complaints from customers.

Therefore most of the respondents are failures in delivery commitment.

CHART- 4.23



4.2 CHI- SQUARE ANALYSIS

Chi-square is the sum of the squared difference observed (o) and the expected (e) data (or the deviation, d), divided by the expected data in all possible categories.

Null hypothesis (H_0):

There is no relationship between the Experience and the Income.

Alternate hypothesis (H_1):

There is relationship between the Experience and the Income.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
EXPERIENCE * INCOME	120	100.0%	0	0.0%	120	100.0%

EXPERIENCE * INCOME Crosstabulation

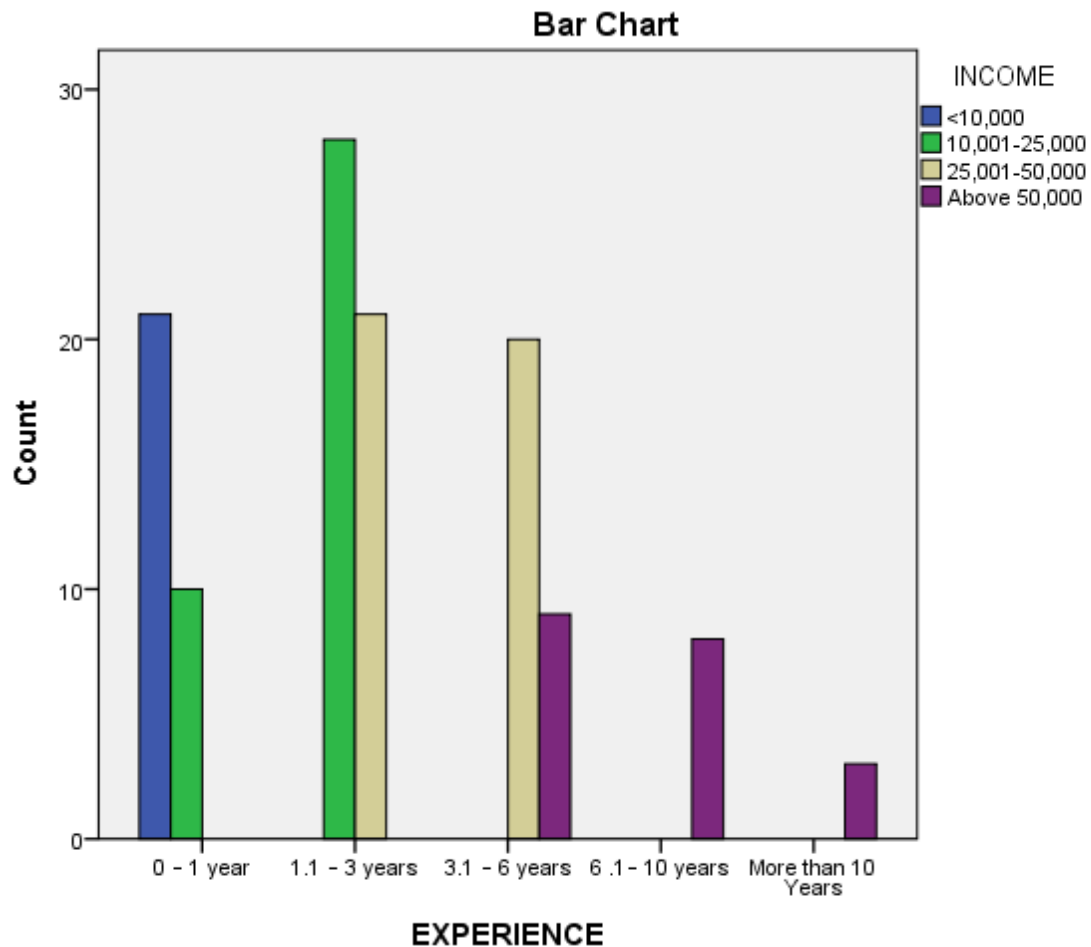
		INCOME				Total	
		<10,000	10,001-25,000	25,001-50,000	Above 50,000		
EXPERIENCE	0 – 1 year	Count	21	10	0	0	31
		% within EXPERIENCE	67.7%	32.3%	0.0%	0.0%	100.0%
		% within INCOME	100.0%	26.3%	0.0%	0.0%	25.8%
		% of Total	17.5%	8.3%	0.0%	0.0%	25.8%
	1.1 – 3 years	Count	0	28	21	0	49
		% within EXPERIENCE	0.0%	57.1%	42.9%	0.0%	100.0%
		% within INCOME	0.0%	73.7%	51.2%	0.0%	40.8%
		% of Total	0.0%	23.3%	17.5%	0.0%	40.8%
	3.1 – 6 years	Count	0	0	20	9	29
		% within EXPERIENCE	0.0%	0.0%	69.0%	31.0%	100.0%
		% within INCOME	0.0%	0.0%	48.8%	45.0%	24.2%
		% of Total	0.0%	0.0%	16.7%	7.5%	24.2%
	6.1– 10 years	Count	0	0	0	8	8

Total	More than 10 Years	% within EXPERIENCE	0.0%	0.0%	0.0%	100.0%	100.0 %
		% within INCOME	0.0%	0.0%	0.0%	40.0%	6.7%
		% of Total	0.0%	0.0%	0.0%	6.7%	6.7%
		Count	0	0	0	3	3
		% within EXPERIENCE	0.0%	0.0%	0.0%	100.0%	100.0 %
		% within INCOME	0.0%	0.0%	0.0%	15.0%	2.5%
		% of Total	0.0%	0.0%	0.0%	2.5%	2.5%
		Count	21	38	41	20	120
		% within EXPERIENCE	17.5%	31.7%	34.2%	16.7%	100.0 %
		% within INCOME	100.0 %	100.0%	100.0%	100.0%	100.0 %
		% of Total	17.5%	31.7%	34.2%	16.7%	100.0 %

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	171.474 ^a	12	.000
Likelihood Ratio	178.495	12	.000
Linear-by-Linear Association	88.142	1	.000
N of Valid Cases	120		

a. 9 cells (45.0%) have expected count less than 5. The minimum expected count is .50.



Degree of Freedom= $(r-1) * (c-1)$

$$= 4 * 3 = 12$$

Calculated value = 171.474

Tabulated value = 21.026

$Z = Z_{cal} > Z_{tab}$

$$Z = 171.474 > 21.026$$

Hence, the Alternate hypothesis $[H_1]$ is accepted

INFERENCE:

Since the calculated value is greater than the tabulated value, we accept the alternate hypothesis and hence there is a relationship between the Experience and the Income.

4.3 ONE-WAY ANOVA CLASSIFICATION

Null hypothesis (Ho):

There is a significance difference between ultimate benefit a company gets through effective production planning and control activities and the company preferred production planning and control.

Alternate hypothesis (H1):

There is no significance difference between ultimate benefit a company gets through effective production planning and control activities and the company preferred production planning and control.

Descriptives

ULTIMATE BENEFIT A COMPANY GETS THROUGH EFFECTIVE PRODUCTION PLANNING AND CONTROL ACTIVITIES

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Waste Minimization	26	1.00	.000	.000	1.00	1.00	1	1
Cost Reduction	48	1.79	.410	.059	1.67	1.91	1	2
Product Improvement	37	2.49	.507	.083	2.32	2.66	2	3
Others	9	3.00	.000	.000	3.00	3.00	3	3
Total	120	1.93	.724	.066	1.79	2.06	1	3

Test of Homogeneity of Variances

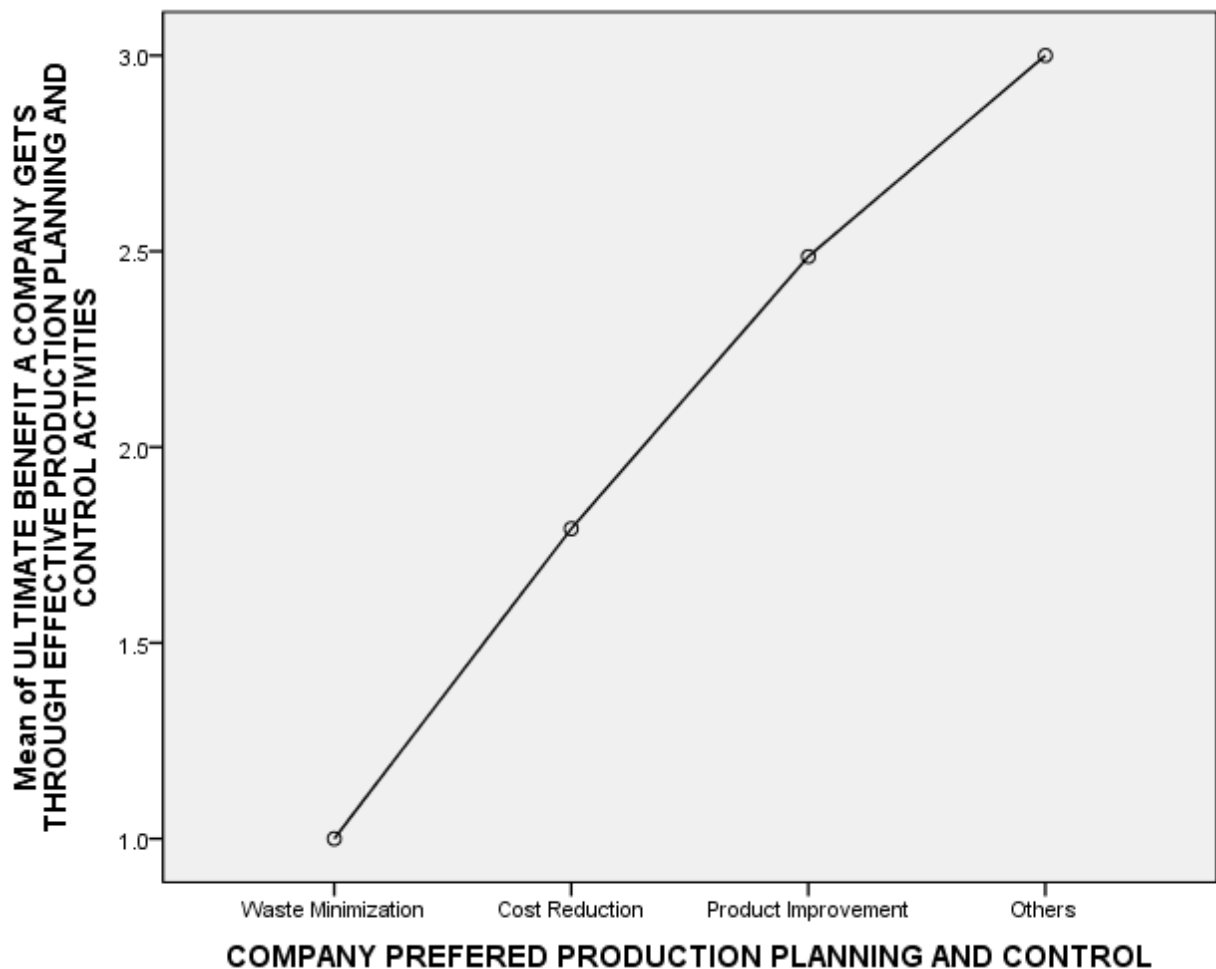
ULTIMATE BENEFIT A COMPANY GETS
THROUGH EFFECTIVE PRODUCTION
PLANNING AND CONTROL ACTIVITIES

Levene Statistic	df1	df2	Sig.
66.490	3	116	.000

ANOVA

ULTIMATE BENEFIT A COMPANY GETS THROUGH EFFECTIVE
PRODUCTION PLANNING AND CONTROL ACTIVITIES

	Sum Squares	df	Mean Square	F	Sig.
Between Groups	45.165	3	15.055	101.771	.000
Within Groups	17.160	116	.148		
Total	62.325	119			



Tabulated value = 2.70

Calculated value = 101.771

$F = F_{cal} > F_{tab}$ $F = 101.771 > 2.70$

Hence, the null hypothesis [H₀] is accepted.

INFERENCE:

Since the calculated value is greater than the tabulated value, we accept the alternate hypothesis and hence there is a relationship between ultimate benefit a company gets through effective production planning and control activities and the company preferred production planning and control.

4.4: CORRELATION ANALYSIS

ANALYSIS USING KARL PEARSON'S CORRELATION

Correlation analysis is the statistical tool used to measure the degree to which two variables are linearly related to each other. Correlation measures the degree of association between two variables.

Null hypothesis (H0):

There is positive relationship between types of trainers is used for conducting these productions planning and control training programmers and overall satisfaction level about the training given for production planning and control.

Alternate hypothesis (H1):

There is negative relationship between types of trainers is used for conducting these productions planning and control training programmers and overall satisfaction level about the training given for production planning and control.

Correlations

	TYPE OF TRAINERS IS USED FOR CONDUCTING THESE PRODUCTIONS PLANNING AND CONTROL TRAINING PROGRAMMERS	OVERALL SATISFACTION LEVEL ABOUT THE TRAINING GIVEN FOR PRODUCTION PLANNING AND CONTROL
TYPE OF TRAINERS IS USED FOR CONDUCTING THESE PRODUCTIONS PLANNING AND CONTROL TRAINING PROGRAMMERS	1	.853**
		.000
	120	120
OVERALL SATISFACTION LEVEL ABOUT THE TRAINING GIVEN FOR PRODUCTION PLANNING AND CONTROL	.853**	1
	.000	
	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$r = .853$$

INFERENCE:

Since r is positive, there is positive relationship between types of trainers is used for conducting these productions planning and control training programmers and overall satisfaction level about the training given for production planning and control.

CHAPTER 5

FINDINGS,SUGGESTIONS,CONCLUSION

5.1 FINDINGS

- Majority of the respondents are completed UG.
- Majority of the respondents have the maximum experience of 3years.
- Majority of the respondents are above the age of 35years
- Majority of the respondents are Males in the organization.
- Majority of the respondents are earning the income of 50,000.
- Majority of the respondents have been involved in production and planning control for more than 5 years.
- Majority of the respondents prefer all the above statement is very crucial step in the implementation of production planning and control.
- Majority of the respondent of the respondent says increased value from your existing customers is the ultimate benefit a company can get through effective production planning and control activities.
- Majority of the respondents are strongly agree that production planning and control ensure a regular and steady flow of production.
- Majority of the respondent says production cost savings thereby improving the bottom line is the main advantage of robust production control.
- Majority of the respondents strongly agreed with production control makes it possible to lower the costs associated with poor quality.
- Majority of the respondent says company preferred cost reduction planning and control.
- Majority of the respondent says company provides training for every new updates about the latest advancements in production planning and control.
- Majority of the respondents think internal type of trainers is used for conducting these production planning and control training programmers.
- Majority of the respondents say adequate training materials given during these productions planning and control training programmers is effective.
- Majority of the respondents are highly satisfied about the training given for production planning and control.

- Majority of the respondents strongly agree that the factors that need to be improved in the production system are Plant, equipment and machine breakdown
- Majority of the respondent considers that it is very easy to procedure to implement the production planning and control.
- Majority of the respondents are highly satisfied with the current production planning and control activities at Trident Coatings Pvt Ltd.
- Majority of the respondent standards parts with the raw materials and WIP. of the respondent are aware about the rejected materials in the company area
- Majority of the respondent says standard reorder quantity parameters are required to operate fixed order quantity
- Majority of the respondents say that failures in delivery commitment helps us to study the weakness in planning and control department

5.2 SUGGESTIONS

1. Failures in delivery commitments of goods has be monitoring on a regular basis to study the weaknesses of production planning and control department. This will avoid the complaints from customers and improve the customer satisfaction
2. Company can post a self explanatory online training video about the production planning and control activities. This will save the training time and cost for the company. Employees can also use this online training video for their reference at any time.
3. Quality of the total productive maintenance need to be improved to prevent plant, equipment and machine breakdowns.
4. Internal communication system or mobile apps can be created to avoid the lack of coordination and communication between various functional areas of business.
5. Software for production & planning control can be used to ensure better management of production orders

5.3 CONCLUSION

Production planning and control involves generally the organization and planning of the manufacturing process. Specifically, it consists of the planning of the routing, scheduling, dispatching and inspection, co-ordination and the control of materials, methods, machines, tooling and operating times.

Based on this project, the researcher has identified the various weakness zones of production planning and controls like for the cancellation of orders, complaints from customers and failures in delivery commitment through survey and analysis using statistical tools. Based on the findings, few valuable suggestions have been given to improve the production planning and control design

ANNEXURE

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QUESTIONNAIRE

A STUDY ON DEVELOPMENT OF PRODUCTION PLANNING AND CONTROL DESIGN (PPC) @ TRIDENT COATINGS PVT LTD PVT. LTD

1. Name :

2. EDUCATIONAL QUALIFICATION:

1) UG 2) PG 3) Diploma 4) Others

3. EXPERIENCE

a) 0 – 1 year b) 1.1 – 3 years c) 3.1 – 6 years d) 6 .1– 10 years e) More than 10 Years

4. AGE:

1) 21 to 25 years 2) 26 to 30 years 3) 31 to 35 years 4) Above 35 years

5. GENDER:

a) Male b) Female

6. INCOME:

1) <10,000 2) 10,001-25,000 3) 25,001-50,000 4) Above 50,000

7. How long you have been involving in the production planning and control activities?

- a. Less than one year
- b. 1-5 years
- c. 5.1-10 years
- d. More than 10 years

8. Which among these is a very crucial step in the implementation of production planning and control?

- a. Initiating the production
- b. Progressing
- c. Corrective action based upon the feedback and reporting back to the production planning

- d. All the above
9. What is the ultimate benefit a company can get through effective production planning and control activities?
- a. Enhanced customer satisfaction
 - b. Increased value from your existing customers
 - c. Improved profitability
10. Production planning and control ensure a regular and steady flow of production?
- i. Strongly agree
 - ii. Agree
 - iii. Neutral
 - iv. Disagree
 - v. Strongly Disagree
11. What you think as the main advantage of robust production control?
- a. Ensure a smooth flow of all production processes
 - b. Ensure production cost savings thereby improving the bottom line
 - c. Control wastage of resources
 - d. It maintains standard of quality through the production life cycle.
12. Production control makes it possible to lower the costs associated with poor quality
- i. Strongly agree
 - ii. Agree
 - iii. Neutral
 - iv. Disagree
 - v. Strongly Disagree
13. Why every company prefer production planning and control?
- a. Waste Minimization
 - b. Cost Reduction
 - c. Product Improvement
 - d. Others

14. How often does Trident Coatings Pvt Ltd provide training about the latest advancements in production planning and control?

- i. Only Once
- ii. Once in a year
- iii. For every new updates
- iv. Not given

15. Which type of trainers is used for conducting these production planning and control training programmes?

- a) Internal () b) External () c) Both ()

16. How effective is the training materials given during these production planning and control training programmes ?

- a) Adequate () b) Covered few related information () c) Inadequate ()

17. What is your overall satisfaction level about the training given for production planning and control?

- 1. Highly satisfied
- 2. Satisfied
- 3. Neutral
- 4. Dissatisfied
- 5. Highly Dissatisfied

18. Share your opinion about the factors that need to be improved in the production system?

FACTORS	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Non-availability of materials					

2. Plant, equipment and machine breakdown					
3. Changes in demand and rush orders					
4. Absenteeism of workers					
5. Lack of coordination and communication between various functional areas of business					

19. How is the procedure to implement the production planning and control?

- a. Very Easy
- b. Easy
- c. Average
- d. Difficult
- e. Very Difficult

20. What is your satisfaction level with the current production planning and control activities at Trident Coatings Pvt Ltd?

Highly Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Highly Dissatisfied
1	2	3	4	5

21. Raw materials and WIP are classified under

- finished material
- standard parts
- direct material
- indirect material

22. Do you have separate areas for:

- Incoming Materials Yes / No
- In-Process Materials Yes / No
- Hold Materials Yes / No

- Rejected Materials Yes / No
- Finished Products Yes / No

23. To operate fixed order quantity system, following parameters are required to be fixed in company:-

- Standard reorder quantity
- Re-order point
- Maximum stock
- Minimum stock

24. Weaknesses of PPC department can be studied on following grounds in Trident Coatings Pvt Ltd:-

- Addition of orders
- Failures in delivery commitment
- Cancellation of orders
- Complaints from customers

25. Any other suggestions to improve the design of production planning and control at Trident Coatings Pvt Ltd?
