



A Study on Production Planning and Control Design (PPC)

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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 program to meet the targets set using the various resources.

I. 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,

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

Production Control

In spite 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:

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

The essential steps in control activity are:

- Initiating the production,
- Progressing, and
- 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.

Objectives of the study

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

II. REVIEW AND LITERATURE

Jai Prakash Sharma. 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.

Gnoni. M.G. 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.

O. Maxie Burns. Critical Success Factors in Manufacturing Resource Planning Implementation they analysis 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 organizational change, such as Manufacturing Resource Planning (MRP II). The study reported here was conducted to identify factors which affect the success of the implementation.

III. STATEMENT OF THE PROBLEM

- The Thermox polymers company issues in the Production planning Control and Design and not able to met Productivity target. the interval data are in both of the objective function and constraints.
- The existing results concerning the qualitative and quantitative analysis of basic notions in parametric production planning problem.
- These notions are the set of feasible parameters, the solvability set and the stability set of the first kind.

IV. 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.

LIMITATIONS

- Time is one major constraint, which limits the effective data collection.
- Non-availability of data collection from all the employees of Thermox Polymers was one of the major constraints for the study.

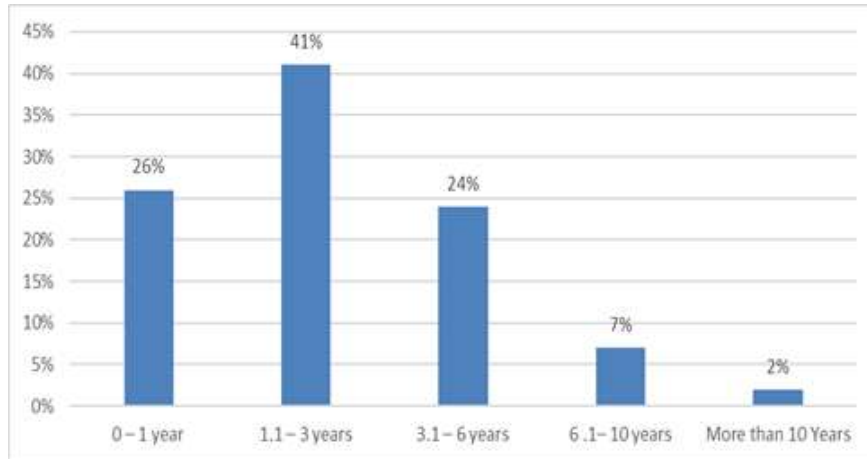
V. ANALYSIS & INTERPRETATION

Analysis and interpretation deal with the analysis of the data collected for the study and the interpretation of the results obtained.

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%



Interpretation

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

STATISTICAL TOOLS AND ANALYSIS

CHI- SQUARE TEST I – (χ^2)

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.

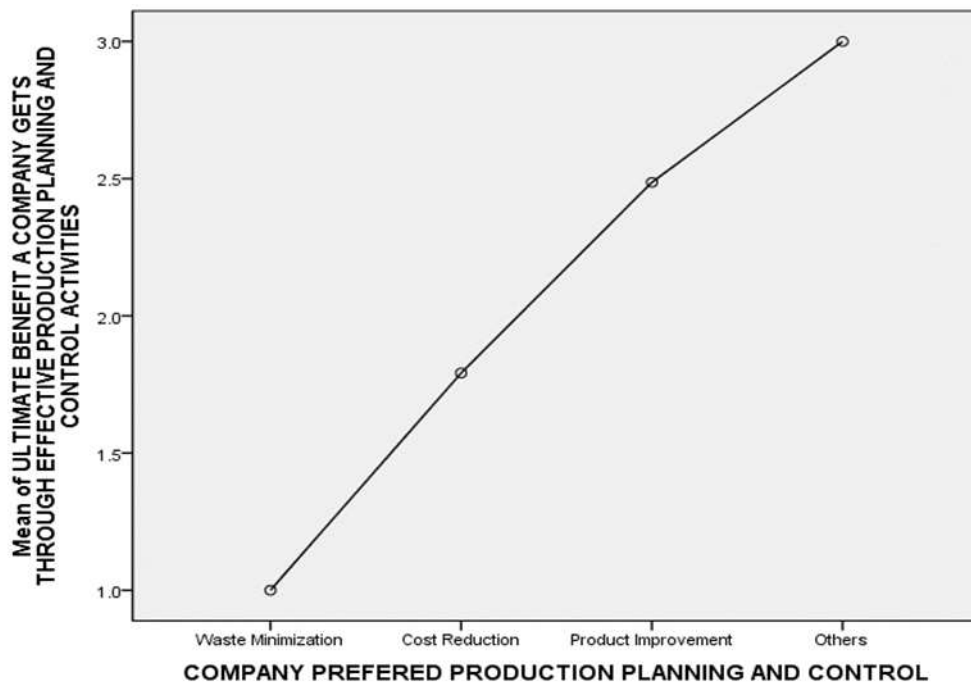
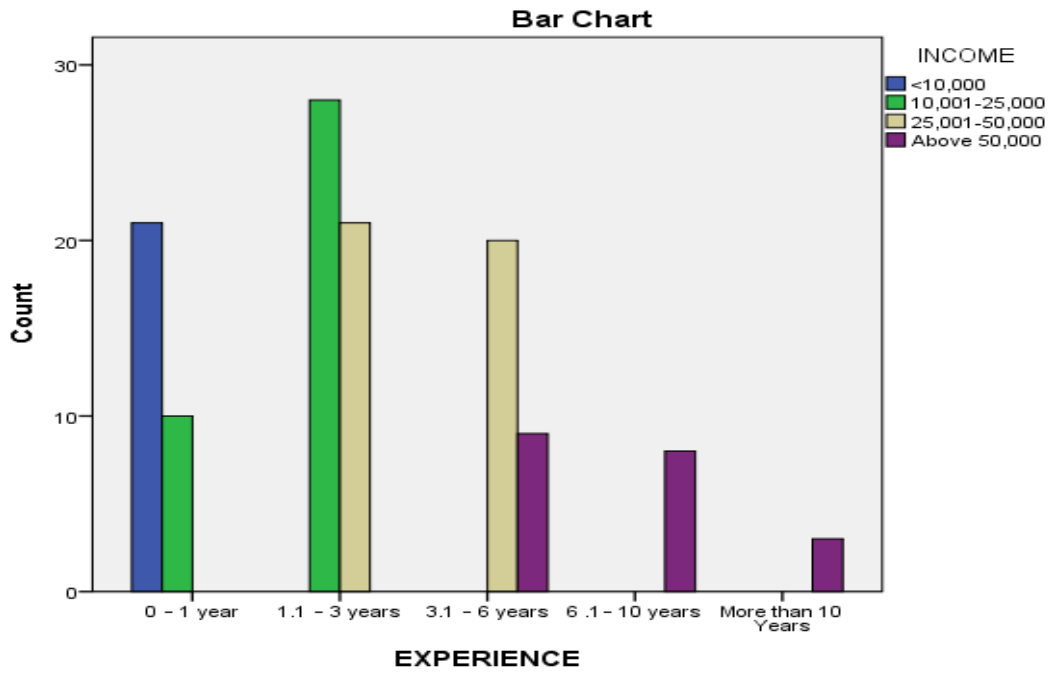
Null hypothesis (Ho):

There is no 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%

There is relationship between the Experience and the Income.



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.

Descriptives

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

	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

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.

VI. 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.

REFERENCE

- Gupta, S.P., Statistical Methods, New Delhi, Sultan Chant & Sons Publishers, Thirty Fourth Edition, 2005.
- Production And Operation Management – by S.A. Chunawalla, Patel
- Production planning and control – by k. Shridhara bhat & K.Aswhathappa.
- Kothari, C.R., Research Methodology - Methods & Techniques , New Delhi, New Age international (P) Ltd., Publishers, Second Edition,2004.
- P.N. Arora and S. Arora, Statistics for Management, New Delhi, Sultan Chand & Company Ltd, First Edition, 2003.