Production Planning and Control at Mass – Tech Controls Pvt Ltd, Jalgaon: A Case Study

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Abstract:

Success of an manufacturing unit depends largely upon understanding the dynamic equilibrium between demand and supply and optimal utilization of all resources including man, machine, material and money. Optimum utilization leads to increased efficiency. Due to this the quality of product is enhanced while the cost is reduced. This results into market victory. The strategy is simple. The present work is case study on production planning and control (PPC) in an electronic industry named Mass Tech Controls Pvt Ltd, Jalgaon. The entire process of PPC in the industry has been thoroughly and vis.-a-vis. assessed through primary and secondary data sources. Based upon this the points of success and un-success of PPC implementation have been highlighted and suggestions have been given to overcome points of un-success. If implemented properly the PPC suggestions will improve product quality hence the profit of the organization. It will also be a useful database for similar other industries.

Key words: Production Planning and Control, Case Study, Efficiency.

1. Introduction:

Dr Ajay Mishra (2023) has defined Project Management and Control Techniques as A project plan is the glue holding the components of a project together for a successful outcome. Thus the project plan will enable the manager to easily assign tasks, monitor progress and costs as well as communicate project status to interested parties and produce reports [1]. PPC ensure better performance. It ascertains better outcome and higher efficiency. PPC does not talk of maximisation, it talks of optimization for higher overall outcome. There are four important PPC techniques: brain storming, cause and effect diagram, critical path analysis and Gantt charts.

1.1 Brainstorming: technique focuses creativity and help the team discover solutions. In this techniques all concerns sit together for an open minded discussion. It is a creative process designed to encourage random and lateral thinking. Brainstorming useful for highlighting potential problems and raising concerns that do not seem obvious immediately [2].

1.2 **Cause and Effect diagrams**: they are also known as “fishbone” or Ishikawa diagrams. They are especially useful or gathering and identifying all issues that may be problematic. They give an instant overview of the components of a project in a clear way. A view not hampered by bottlenecks like schedules, dependencies and milestones [3].

1.3 **Critical Path Analysis**: large and complex projects involve a large number of activities that could be performed in parallel and are interwoven also. Critical Path Analysis’ is a very effective technique to describe mutual dependencies of activities.it helps in finding out priorities [4].

1.4 **Gantt chart:** throughout the project it is used for scheduling and monitoring tasks, for showing costs and expenditure at all stages. It is also used for communicating progress and producing reports. Being diagrammatic they are easy to interpret [5].

The PPCs mentioned above are the most widely accepted PPCs. Many authors have mentioned other techniques of PPC also. The industries which apply the PPC techniques, perform better. They lead the market. The present work is related with the industry Mass Tech Controls Pvt Ltd, Jalgaon. The overall performance of the industry has been examined in the light of PPC and suggestions are given for improvements.

2. The Industry under study:

Location map and front view of the industry Mass -Tech is given in fig. 1. The industry was established in 1993 [6]. Initially it focused on production of DC Systems. Gradually Mass -Tech has been arose as a leading manufacturer of Battery chargers, Convertors and Low voltage switchgear and Control panels. The industry has established ties with Indian Electrical Power Industry slowly yet steadily in a planned manner. It has technological collaboration with companies like FRONIUS (Austria) and CONVERTRONIC (Germany).

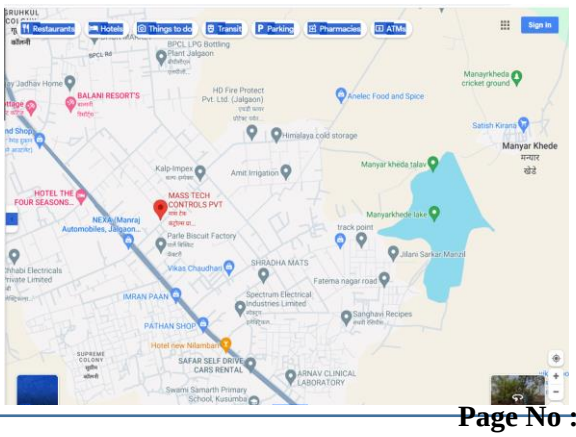

Fig 1.: Location sketch and front view of Mass Tech Controls.

The company wants to achieve continual growth through sustained innovation for total customer satisfaction and fair return to all other stakeholders. In order to meet this objective focusing on producing quality products at optimum cost and marketing them at reasonable prices.

3. Methodology:

The first stage is data collection. Primary data is collected by direct observation and questionnaire. Secondary data has been collected by Internet & Websites, Business Magazines, Annual reports of company and Books. The present study data is mainly based on secondary data. The company has 210 employees with an estimated turnover of 35 crores per annum.

4. Limitation of Study:

Company's technical secrecy cannot be disclosed in this paper.

5. Strengths of the industry

Following strengths are observed directly:

Strong brand and leadership position in India

Experienced management and large pool of agriculture professionals.

Flexible and scalable business model.

Revenue generation for the year 2021 -22:

The company does not disclose the actual figures of earnings. Rather it gives the percentage production in sale of various goods prepared by it. It is given in table 1.

Table 1: Proportion of various items manufactured by the industry

Item	% Sales
DC chargers	64.7
Monitoring Units	22.6
SMPS Modules	7.5
Inverters	1.6
Other products	2.6

6. Internal Controls and Management Information Systems

6.1 ERP

The company has used E R P software platform. It has enabled simplified and standardized work processes across all facets of company's complex and diversified businesses. It has further enhanced the customer service culture and operating efficiencies.

6.2 SAP

SAP implementation has allowed a number of strategies to be implemented in internal control of the business application. It is done through process mapping, segregation of duties, authorizations.

6.3 Prospective Plan

The industry is going to integrate its infrastructure by rolling out SAP at foreign subsidiaries to further streamline manufacturing, supply chain, local and global reporting, and analysis in a common enterprise wide format. This will result into better collaboration with globally scattered units, and global operation will be more transparent and efficient.

6.4 Internal audit

It is a usual tradition of industry.

6.5 Quality Policy

The industry is ISO 9001-2000 certified. It rigorously tests final product before dispatch.

6.6 Steps in Production Planning and Control (PPC)

6.6.1 *Production planning*

The company does lot of research for doing production to meet annual demand and to avoid any dead blockage [7].

6.6.2 *Routing*

Routing defines the operations, their path and sequence. Accordingly required machines and man power are worked out. The company does this exercise very meticulously [8].

6.6.3 Scheduling

In this process the time required for individual components of processes is estimated considering various factors. Then the time required for complete route is determined. Company has established it. Production schedule, master schedule and manufacturing schedules are prepared [9].

6.6.4 *Loading*

Who will do the work as routing determines where is determined by loading. The industry does it carefully being a small organization where everyone has to do multitasking without alternatives available [10].

6.6.5 Production control

It starts with dispatching and ends up with corrective actions. It is the process of planning production in advance of operations, establishing the extract route of each individual item part, setting, starting and finishing for each important item, assembly or the finishing production and releasing the necessary orders as well as initiating the necessary follow-up. This ensures the smooth function. The industry under study has good production control.

6.6.6 Dispatching

It involves movement of materials, tolls and fixtures between workstations, beginning of each operation, recording of time and cost involved in each operation, flow of work from one operation to another in accordance with the route sheet, and inspecting of work [11].

6.6.7 Follow up

It involves determination of the progress of work in flow of work, removing bottlenecks and ensuring productive operations to go on with the plans [12].

7. Questionnaire Survey and interpretation:

(i) Do you think production planning and control is central to the success of any manufacturing unit?

Response:

Options	Yes	No
Response	210	0

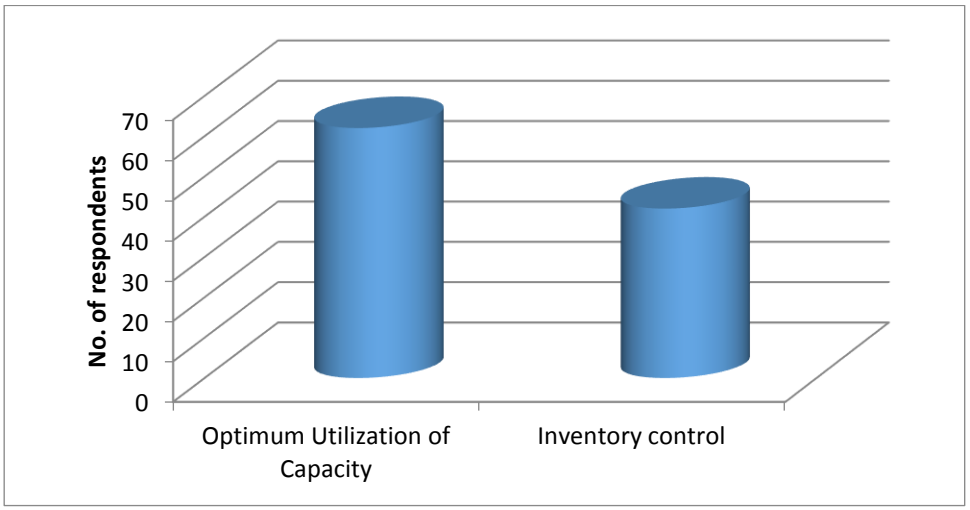

Fig 2.: Employees response about importance of PPC.

It can be seen that the employees are very well aware of the importance of PPC techniques. *(ii) Capacity planning should be done for the efficient use of facilities and equipment in Mass-Tech?*

Options	Yes	No
Response	168	42

It can be seen that the employees are in favor of capacity planning to be adopted by the industry.

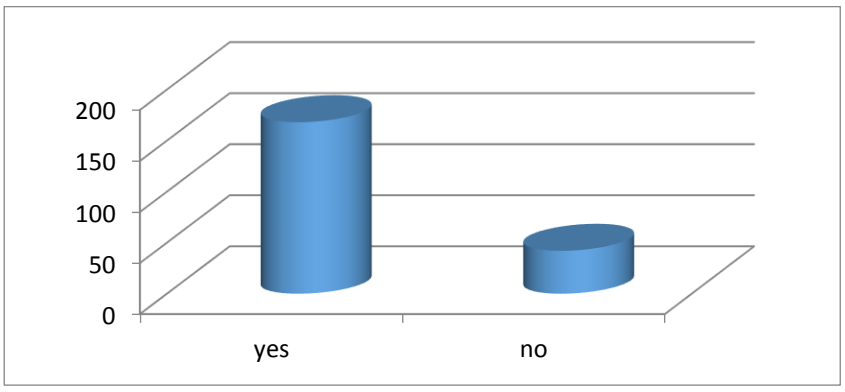

Fig 3.: Employees response about necessity of capacity building initiatives in the industry.

(ii) What is the main objective of Production Planning in your view?

a) Optimum Utilization of Capacity

b) Inventory control

c) Economy in Production Time

d) Ensure Quality

e) Waste reduction and increased profit

Options	A	b	c	d	E
Response	62	42	48	58	20

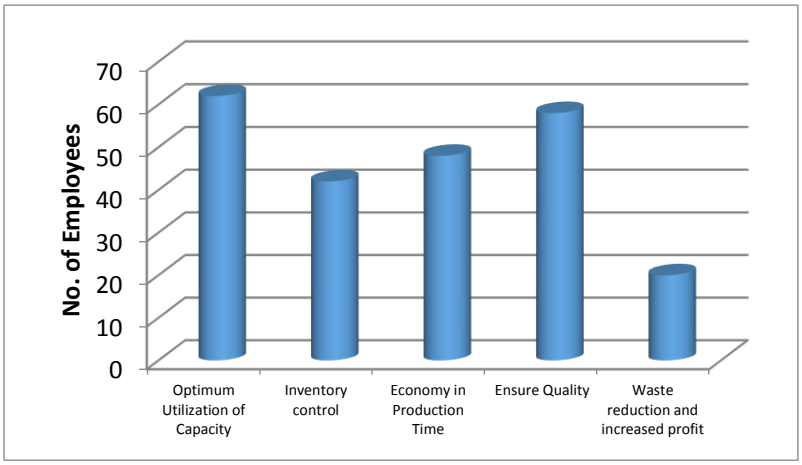

Fig 4.: Employee response regarding relative importance of production planning components.

All the respondents believe that optimum utilization of capacity and quality ensuring are the main objectives of production planning.

The other objective of production planning is inventory control, economy in production time, and quality insurance.

iv) Are you aware that the Production Planning and Capacity Planning are interrelated?

Options	Yes	No
Response	140	70

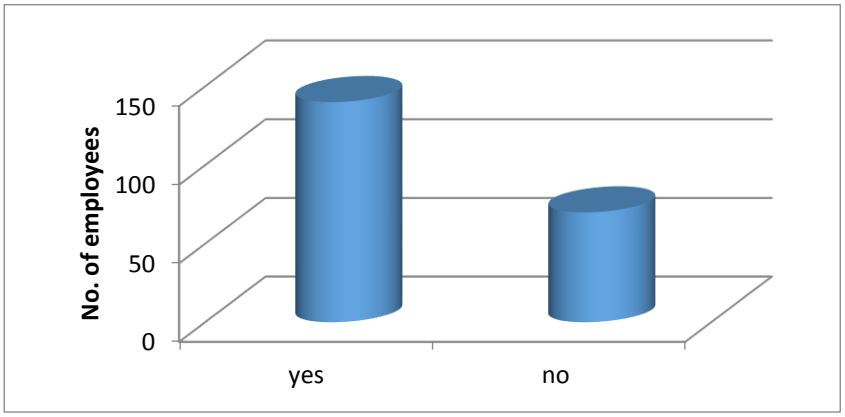

Fig 5.: Employee response regarding interrelationship between production planning and capacity building.

Majority of the respondents i.e. 70% believe that production planning and capacity planning are interrelated.

v) *What are the effects of mismatch of load and capacity?*

a) Lead time get affected

b) Increase in cost

c) Hurts the ability to satisfy customers

d) Other effects

Options	a	b	c	d
Response	0	80	110	20

Majority of respondents believe that the mismatch will hurt the ability to satisfy customers and may lead to cost increase.

vi) *On what basis do you plan your production?*

a) Customer needs (demand)

b) Target of Marketing Dept.

c) Resources available

d) Other factors

Options	a	b	c	d
Response	90	0	120	0

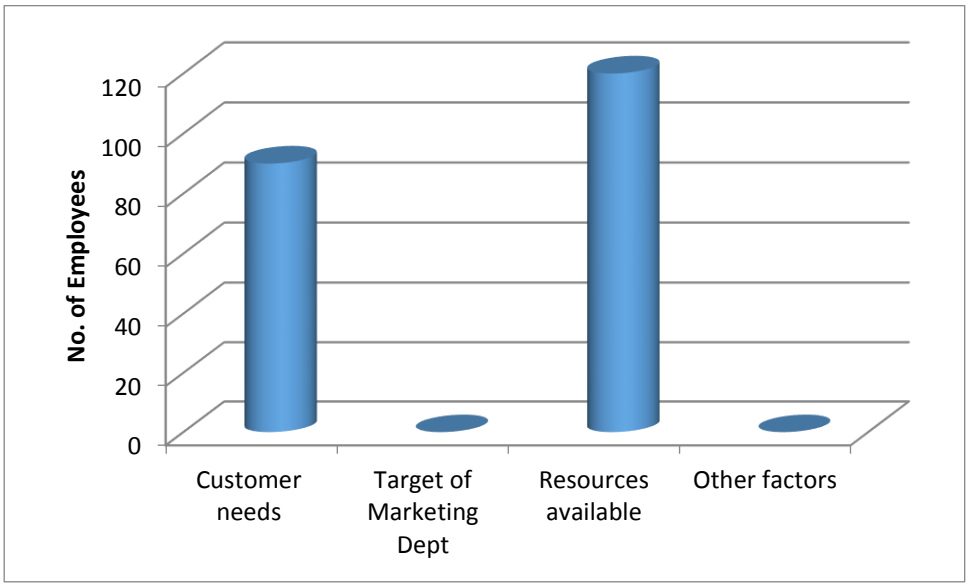

Fig 6.: Employee response regarding relative importance of bases for production planning.

Employees give more importance to customers' need and resources available for production planning. Target of marketing department and other factors are nil.

vii) *Do you feel "hung up" and "bottlenecks" in implementing Production Plans in your organization.*

a) Yes

b) No

Options	Yes	No
Response	80	130

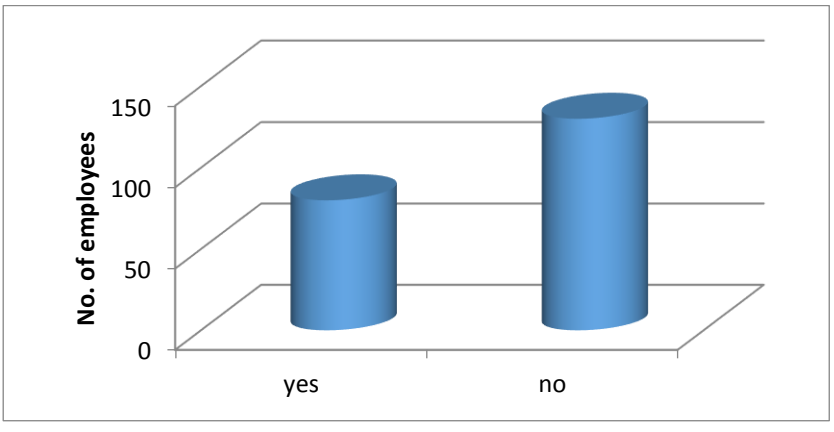

Fig 7.: Employee response regarding prevalence of bottlenecks.

Though the majority feels that there is no bottleneck observed in implementing production plan, there is a considerably large number which feels that there are bottle necks.

viii) What are the bottlenecks?

a) Material unavailability
b) Delay in transport
c) Lack of coordination between departments
d) Stringent quality standards

Options	a	b	c	d
Responses	80	70	50	10

It is evident that the majority of employees consider the bottlenecks as material supply and transportation delays. Some also consider the departmental lack of coordination as bottleneck. But a very few believe that quality standards are also reason.

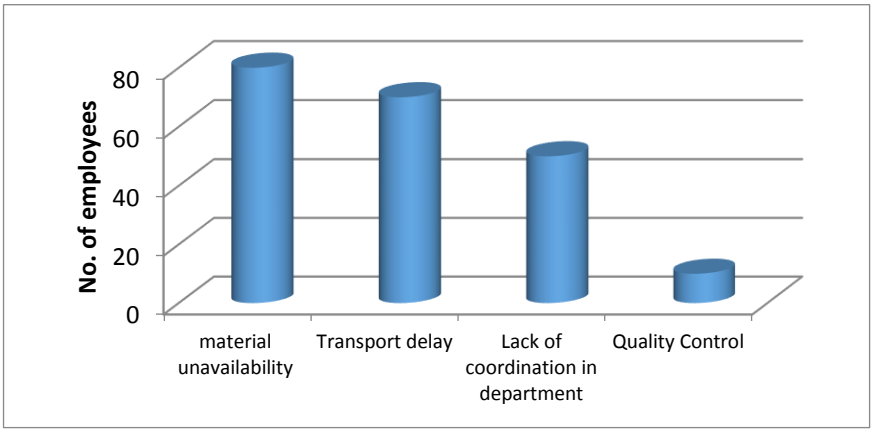

Fig 8.: Employee response regarding relative importance of bottlenecks in PPC implementation.

ix*) If the outputs are not according to the plans, what control measures need to betaken?*

a) Revision of Plan
b) Extra working to achieve target any how
c) Expert advice
d) Any other measures.

Options	Revision of Plan	Extra working to achieve the target anyhow	Expert advice	Other measures
Response	195	10	5	0

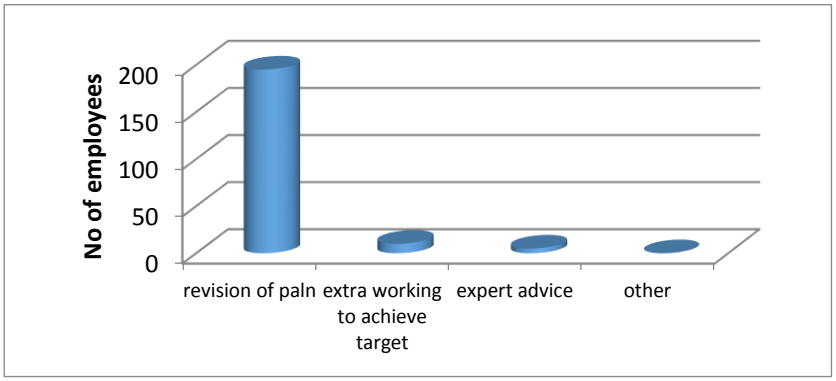

Fig 9.: Employee response regarding action taken if the planned target is not achieved.

It can be seen that most of the employees prefer the plan to be revised in case if it is not achieved.

8. Conclusions:

Employees in the Mass Tech organization are well aware of the Production Planning techniques and there implementation. In fact in majority they feel that the management is applying PPC successfully, yet there is a need of improving PPC implementation. Some recommendations for improvement is organization are as follows:

a. Materials Planning to be done properly because it is prime cause of delay in schedule.
b. Materials procurement must be purchased from multiple vendors
c. Sufficient safety stock must be there ,
d. Vendors must be fixed with the Lead time and responsibility
e. Sales team and the production team should coordinate better.

It is hoped that the present work will be a baseline for future planners and researchers.

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