SHOP MANAGEMENT COMPRISING OF RESEARCH PROJECT PROTOTYPE AT RESEARCH & DEVELOPMENT WORKSHOP

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ABSTRACT:
At the time manufacturing a new product, there are always new challenges; especially when one tries to work on unit production line. Generally at R&D workshop such unit production lines are exist because variety of project prototypes is present there to manufacture and hence no definite or standard production line can be establish. The shop management relates with application of various techniques that support better utilisation of available resources, floor space achieving safe working environment. Hence to achieve these objectives of shop management one must need to provide attention towards indirect manufacturing of such a new product so that indefinite, nonstandard production line will get utilised more effectively.
KEYWORDS: Research and Development, Skill Identification System, Advance manufacturing process, Advance manufacturing technique, Tungsten inert gas, Metal inert gas

INTRODUCTION:

Christer Carlsson et al. (1) said that innovations are unpredictable, and thus involve large uncertainties with respect to both the development of opportunities in existing product market and those in production processes. R&D projects possess the following properties:(i) long life cycles (taking into account their possible impacts on other investments), (ii) uncertain (i.e. vague), sometimes overly optimistic or pessimistic future cash flow estimates,(iii) uncertain (i.e. biased), sometimes questionable profitability estimates,(iv) imprecise assessments of future effects on productivity, market positions, competitive advantages and shareholder value, and v) the ability to generate series of further investments. Claudia M. Eckert and P. John Clarkson (2) suggested that in industry, a multitude of plans are used in parallel each focusing on a different aspect. They have taken a very broad view of what constitutes a plan, and include, for example, plans to prescribe behaviour as well as plans to monitor and record activities. They have suggested that scheduling is useful in manufacturing where production steps can be accurately timed, but is more difficult to apply to design, which is frequently riddled with uncertainty. They conclude that plans are generated with one primary purpose in mind, but can serve different functions during their life span in an organization. The challenges of planning in industry that they have discussed as Achieving the right overlap between tasks, Expressing task dependency, Processes awareness amongst designers, Partial understanding of processes, Obtaining time estimates, Contingencies. At the end of paper they said that current planning tools do address the need for industry to express and evaluate design plans. Jorge Let al. (3) suggested that the factors or main problems are related to maintenance, installation and setup, supplier relationships, investment justification process, decision and analysis process, lack of

SKILL IDENTIFICATION SYSTEM

Generally at R&D workshop trial and error method is followed with non-standard application of processes. Here failure, mistake, and rework such things are obvious hence in case of management one should try development of product with less but effective effort. Generally these projects needs veriety of technical operations in workshop while manufacturing a product. At the stage of development at well facilated

knowledge, custom, failures, and differences with the ordered AMT(Advance Manufacturing Technique). The various problems that may occur during implementation of AMP (Advance Manufacturing Process) are Investment justification, Training to the maintenance personal, Senior manager support, Workers support, Training of the operative personal, Training of techniques and engineers, High interest rates, Maintain good relationships with suppliers, Lack of knowledge of the benefits, Inter-department conflicts and culture, Integration of manual an automatic tasks, Integration of a team for the AMT, Client support from the supplier, Uncertainly of world economics, Requires special infrastructure, Incomplete economic analysis, Government regulations, Software development for the AMT, Short life cycle of a product, Customs duties, Lack of politics for modernization, Interface software–hardware, Acquisition and delivery of hardware for AMT, Comparison with the status, Incapability of evaluate intangible attributes. Ali Noruzy et al. (4) have determined relations between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance. Organizational learning directly and positively influenced knowledge management of manufacturing firms. They suggest that Knowledge management includes activities regarding the use, sharing, and capture of knowledge within an organization. Knowledge management is a technique of using a set of management tools to add or create knowledge value. In fact, knowledge management is the mechanisms that creates and stores data to increase an organization's response time and create innovation through the collection, storage, and study of organizational information. They said that more and more organizations have recognized the importance of efficient enterprise knowledge construction, extraction, and management.

workshop one must need to provide attension towards their available skill and improvement in required skill. For this purpose analysis of all the technical processes that are required for projects of all division is being necessary; and according to that manufacturing division need to take steps towards fullfiling these requirments. Skill identification is the assignment that helps to develop knowledge management skill of workshop supervisor or

manager. Under this concept one can observe and analyse available skills of their present labours. It will help them to become confident about any technical processes that one shoud carry out in any workshop; and remaining processes that they should not carry out must need to develop skill towards achieving same. This assignment will find labours of any particuler workshop with their qualities, capabilities, strenghths, weaknesses, hidden qualities, etc.; by means of this data and prediction of upcoming projects one can analyse required skills and related skilled lobours. To improve available skill of workshop one must need to provide attension towards development of individual skill of their each and every labour; and this could be achieved by training, new recruitment, arranging expert lectures, proper guidence etc. at below example of such skill identification system is shown. It is in the form of matrix where each and every available technical process in any particuler workshop will get examined with respect to strenght, weekness, quality, hidden quality etc. for every labor individually. The system shown in below contains various processes with their identification.

Skill Identification System

Sr N o.	Nam e	Technical process										Re mar k
		Fitting	TIG weld	MIG weld	ARC weld	Gas cut	Brazing	Milling	Lathe work	Discipline	etc…	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
-												
-												

Skill identification process majorly follows observation in workshop, feedback from manager, supervisors opinion, etc. In RTIC-INFRA while implimenting this assignment same things are followed. In this identification of available skills of lobours at workshop is done with reference to supervisors experience and observation. The quessionary to support observation or judgement is provided in below:

- Certification
- Work carrying capacity (heavy / medium / light)
- Decision power / self driven ability
- M/C handelling knowledge
- M/C handelling skill

Here each point contains marks out of ten where highest will be best. Here every points contain marks out of ten and total out of fifty. The total of these point will consider out of ten and will become standard for SIS. The detail for marking to these aspects are shown in below:

1. Certification:
- Certification in any particuler profession provides marks more than 8 to that particuler process.
- Certification in different profession but experince in any particuler profession provides marks less than 8 as per available skill in that perticuler process.

2. Work carrying capacity:
- Heavy – Provides mark more than 8 less than 10
- Medium – Provides mark more than 6 less than 8
- Low – Provides mark more than 2 less than 6

3. Decision power / self driven ability:
Completely dependent on superviser's remark based on judgment, experience, and personal observation in workshop as follows:
- Excelent / Best – Provides mark 9/10
- Better – Provides mark more than 7 less than 9
- Good – Provides mark more than 6 less than 8
- Average – Provides mark 5/6
- Poor – Provides mark less than 5

Case 4 i.e. M/C handelling knowledge, case 5 i.e. M/C handelling skill, and case of descipline follows mark as per case 3. Here the last coloumn of SIS is made for decipline. At this stage the marks will be provided regarding three points as sincearity, punctuality, and safety awereness. The marks obtained from these will be out of thirty and will get consider out of ten as a standard for SIS. Application of Skill Identification System as explained in above helps manger to get exact idea about his labors that what kind of technical process they may work out in their workshop and then he will be able to take necessary step towards achieving remaining processes that they should not work out. This can be achieved by analising the labour with their quality, strenght, weekness, in every particular required technical process. A manager should have to motivate his labor for their strength and simillerly he need to overcome their weeknesses by providing proper training, arranging expert's guidence, maintaining sheduled programme of same, etc. With help of available data obtained from SIS manager can make new recruitment as per requirement that is being impartant to make shop more facilated with more and more technical facilities.

CONCLUSION:
As we have discussed managing R&D workshop with nonstandard production line, having uncertain challenges is difficult job. Here shop management relates with application of various techniques that support better utilisation of available resources, with safe working environment. These objectives may achieved by provide attention towards indirect manufacturing of such a new product so that indefinite, nonstandard production line will get utilised more effectively. The system introduced in this paper relates with application of system, in which effective utilisation of available human resources those are directly involved in project manufacturing could achieve more effectively. This system helps

supervisor or manager to allocate best suitable manpower to any particular project as per requirement. It also helps to make any particular workshop with full of facilities as explained in above. It improves knowledge management skill of workshop supervisor or manager which is most important aspect of effective management. This system is showing very good results achieving better utilisation of available resources after successful application at technical workshop.

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