

Focusing Agility towards Small and Medium Scale Enterprises

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Abstract

Due to the growing International Manufacturing competitiveness and the recent movement towards globalization, the Small and Medium Enterprises (SME) are also competing for the favour of the customers. 'Design anywhere, manufacture anywhere and market anywhere in the world' is becoming increasingly possible, which may spell death knell for the less prepared organizations to take on the global challenge. Agile manufacturing recognizes the instability of the marketplace and attempts to improve the competitiveness of firms by meeting the changing requirements of customers. Therefore to continue, survive and grow, an organization needs to develop robust new products, which meet customer expectations in an agile manner. As the market is inherently unstable and complex, the capability to manage change, uncertainty and complexity is imperative. The pillar of such prime capability is employee involvement; the key to drive agility. This paper proposes a method to maintain the identity of a production system through the effective participation of workers. A detailed survey was made at Southern Rims (P) Ltd, Madurai, on employee satisfaction on the work aspects related to their working positions and the results were discussed.

1. Introduction

Radical changes taking place due to globalization in reshaping the industrial landscape of Indian economies. The marketplace has become truly global. There is increasing fragmentation of almost all markets. Customers are requiring smaller quantities of more customized products. Customers want to be treated individually. Most companies have much wider product ranges, are introducing more new products more quickly, and are focusing their marketing. We are on the cusp of the information age and these changes are ushering in new and exciting challenges for our Indian manufacturers. In the 1970's and 80's we struggled to bring our manufacturing operations

under control through the use of formal production and materials planning, shop floor scheduling and control, and systems like MRP II (Manufacturing Resource Planning) and ERP (Enterprise Resource Planning). With varying degrees of success, in the 1990's we struggled to bring our companies to world class status. We implemented TQM (Total Quality Management) methods to bring our processes under control and create continuous improvement. We introduced just-in-time manufacturing techniques like cellular manufacturing, quick change-over, one piece part flow, kanban, and zero inventories. Spurred by success stories and social change we moved to team-based continuous improvement and experimented with self-directed work teams. We studied best practice and benchmarked ourselves and our customers pressed us into greater flexibility, shorter lead times, and more varied products and services.

The aim of the paper is to focus the agile manufacturing concept to Small and Medium Scale Enterprises (SME) and highlight the important in today's market. As a first step a detailed survey was made between employer and the employee in Southern Rims (P) Ltd, Madurai, on employee satisfaction on the work aspects related to their working positions and the results were discussed. The outline of the paper is as follows. Section 2 deals with the comparison of agile with world class manufacturing. Section 3 discusses the survey in the company. Section deals with scope for further improvement and we finally conclude the paper with some comments.

2. Agile Manufacturing Vs World Class Manufacturing

As we are approaching the end of the 2010's we must build upon these improvements to develop truly agile manufacturing approaches to SME. How does agile manufacturing differ from world class or lean manufacturing? Lean or

world class manufacturing is being very good at doing the things you can control. Agile manufacturing deals with the things we can NOT control. Agility is the ability to thrive and prosper in an environment of constant and unpredictable change. Agility is not only to accommodate change but to relish the opportunities inherent within a turbulent environment. Here are some of the axioms of agile manufacturing: Everything is changing very fast and unpredictably. The market requires low volume, high quality, custom and specific products. These products have very short life-cycles and very short development and production lead times are required. Mass production is moribund (at the point of death). Customers want to be treated as individuals. This leads to a people intensive, relationship driven operation. Perfect quality and very high levels of service are expected and required. Products and services become information-rich.

Lean was started in 1950s and widely applied in early 1980s. Though lean has many beneficial properties like Mass production, Squeezing more work from few workers, Out-sourcing, Increased workforce productivity, Satisfied utility of plant capacity. It takes valuable limitations like Fixed term production, Resistant to change over to the new demands of the global markets making it to have fragile efficiency, Vulnerable to production disruptions, Monotonous work to labour force. These limitations of lean led to the agile manufacturing, which builds on the streamlined work process of lean manufacturing.

It is important to note that to implement all these procedures the key is dedication, sincerity, involvement and cooperation among the employees. Without this making agility into reality is virtually impossible. We stress on employee involvement because when they see the industry improving everyday based on their own suggestions they become more involved and committed to their jobs.

3. A Case Study on Employee involvement

Employee involvement is a process of empowering members of organization to make decisions and solve problems appropriate to their levels in the organization. It is the most important quality to process if the firm really wants to become really agile. We adopted a small-scale industry, producing matches and

conducted a survey to check the employee's involvement.

3.1 About the industry

The Southern Rims (P) Limited is a small scale cycle rims manufacturing industry operating in Madurai district in Tamil Nadu. It has 4 members working in the management side and it has employed 56 labours. It has fairly successful business in the states of Tamil Nadu, Andhra, Karnataka, Kerala and northeast India. It also has future plans of extending the sales to all over India. They have recently invested to install latest automated machinery to increase the production with enriching quality.

3.2 The Survey

We adopted this industry and a case study was conducted to check if it followed the principles of agility. A questionnaire was prepared on brain storming for this purpose. The questions were all affirmative type and the answers were evaluated on a 10-point scale with the following meanings.

0.0 – strongly Disagree

2.5 – Disagree

5.0 – Neutral

7.5 – Agree

10 – Strongly Agree

The workers were given the option of choosing between any value ranging from 0 to 10 according to their will and choice. The survey was conducted on fair basis. The whole process must be secret in order to preserve worker's identity, thus avoiding constraints by immediate higher echelons (Level organization position), correlating answers to the impression on their personality.

4. The Questionnaire

4.1 Employee Orientation*

1. Company has clear vision, objectives and policy statement
2. Your valuable suggestions taken into account.
3. Your contribution is properly recognized
4. I have full confident about my product quality
5. Work instructions are clear and easy to understand.
6. Work instructions are placed in accessible and visible places.

7. Meeting conducted periodically
8. I receive the necessary training to do my work.
9. I am totally aware of what you are doing.
10. Good job satisfaction
11. Employees are given greater freedom and thus also a greater responsibility for the work carried out.
12. Employees have strong spirit of cooperation in the organization.
13. Management cares for the employees.
14. Responsibility for decision making is delegated to individual employees (empowerment).
15. Good salary package

4.2 Layout of the work station**

16. Proper work place layout is maintained.
17. Effective hand movements between me and the machine.
18. I can reach easily all materials and resources I use
19. I can easily clean my work place.
20. I need to walk a very little to operate my job.

4.3 Safety and health**

21. I feel safe when I walk in manufacturing unit.
22. Equipments and resources I use for my work are safe.
23. I don't feel tired at the end of the day's work due proper ergonomics study
24. I covered with accidental Insurance policy

4.4 Environment**

25. Lighting is done adequately without any irritation.
26. Plant heat sources are well insulated and away from me.
27. Noise in my working position is quite acceptable.
28. Air circulation in my work place is quite good.

4.5 Equipments and accessories**

29. Flow of Raw material is adequate all times
30. Change in work place can be easily adopted.

4.6 Management***

31. Work load distributed eventually
32. There is a strong sense of unity among the labours.

33. Customer satisfaction is regularly measured, and a deliberate effort is put into identifying future customer needs.
34. The production rate is controlled according to the customer feedback.
35. Optimal inventory
36. Good inspection technique is followed
37. Are you providing good salary package
38. Employees are motivated to show initiative, and are rewarded
39. Is your sales volume increasing periodically
40. Products are subject to segmentation via the variation of packaging, service on delivery, guarantee commitments and so on.
41. Prices are determined individually for a number of customer segments
42. Integration across companies
43. Employees are given proper training
44. Good service is provided after sales
45. On time delivery of products

Note: *Questions from 1 to 15 common to all.
 **Questions 16 to 30 exclusively to the labour force.
 ***Questions 31 to 45 exclusively to the managers.

5. Interpretations of the survey

Question with more than 8 points can be considered as the Strengths of the industry while the questions with less than 5 points can be considered as extreme weakness of the industry and need to be immediately dealt with. Questions with intermediate points i.e. between 5 and 8 can be considered neutral. The aim of taking these initiatives has been to increase product quality and to reduce costs and time consumption in order to achieve increased price competition and a faster response to market requirements.

5.1 Weakness identified

- Lack of communication between the labours and the managers.
- Poor arrangement of materials and resources.
- Unsafe equipments and resources.
- Hot and noisy environment.
- Lack of instruction charts.
- Poor work organization.
- High inventory.

5.2 Suggestions

- Workers should be properly recognized for their contributions for good communications between worker and manager.
- Space should be made to keep the materials and resources so that they are easily accessible.
- Noise in the work area can't be reduced but it can be avoided by the use of earplugs.
- Though the materials and resources are unsafe proper safety measures are taken to ensure safety. If the labours are unsatisfied with the safety measures, more safety measures can be implemented.
- More instruction charts can be placed wherever necessary.
- JIT (Just in Time) concept can be applied to reduce inventory, which will lead to satisfied throughputs also.

5.3 Results and Discussions

After a month, we went to the company to verify the conclusion of improvement activities. This cycle is repeated once more. We saw considerable changes in points for the questions 6,12,13,14,16,21,24,25,26,31,32,33,38. There weren't much changes in the other questions. We are hoping that it may change and thus it may reach its destination - Agility. However, developing change competency is not easy. The difficulty is illustrated by the following five questions:

- How quickly could business strategies and products be modified and the required changes to technologies, organization, people, etc. are implemented?
- What would be the cost of such changes?
- How well would the reconfigured enterprise work in the immediate post-implementation period?
- What is the scope of the changes that could be realistically accommodated?
- How soon after the reconfiguration could a similar major change exercise be mounted?

Few companies today would score well on any one of these questions. Probably none would score well on all. Yet it is precisely this sort of capability that is implied by change competency. In a changing competitive environment, there is a need to develop organizations and facilities significantly more flexible and responsive than existing ones. It is essential that organizations continually re-examine how they compete and agility is the underlying paradigm to enable them to re-invent the content and processes of their competitive strategy. In agility, therefore, lies the capability to survive and prosper in a competitive environment of continuous and unpredictable change by reacting quickly and effectively to changing markets. A sufficient knowledge of the level of responsiveness, flexibility, cost and quality of goods or services, which customers are prepared to accept, is important to the long-term survival of the agile competitor. It is equally essential to link agile capabilities with product needs in the market place, and therefore the case that agility increases the emphasis on speed of response to new market opportunities.

6. Conclusion

Many industries and markets are increasingly requiring much greater flexibility and timeliness from their manufacturers. The need to manufacture small quantities of highly customized products with perfect quality and 100% on-time delivery, and at a low cost is forcing companies to abandon the old ideas of mass production; even lean or world class mass production. To compete in this changing and unpredictable marketplace, and to thrive upon it, companies are adopting agile manufacturing methods. To be a competitive enterprise, it should be able to meet the customer needs in short lead-time with zero defect quality. Introduction and implementation of agile manufacturing system in industries will help them to achieve the world-class standards. Manufacturing is our future, and we should invest the time, equipment and human resources to make that future possible. The three Mantras of Agile manufacturing are, know your customer, know your product, and know your process. On observation we noticed these changes are taking place very fast in many large scale industries, and more slowly in medium scale. Keeping in mind this paper started with a survey of pertinent issues in organizational strategy and enterprise responsiveness in small scale industries. The key issue is the ability of

the enterprise to deliver on competitive objectives of cost, flexibility, pro-activity, quality, innovation, profitability, speed of response. These competitive objectives are the sine of modern manufacturing. It is therefore imperative to discover the relationships between them and the enterprise attributes in order to determine analytical evaluation of agility. As a first step, small and medium scale companies need to understand the basic ideas and become intelligent respondents to the concepts. Agility is a long term issue for businesses? Achieving agility is a journey, not an objective to be attained before moving on to something else. The basic principles of production and company management are at present being reworked, and there is considerable uncertainty about how the management principles of the future will develop. The concept of Agile Manufacturing has been introduced in connection with an analysis of a series of trends in management which we can observe today.

Note: Due to the company confidential purpose, the exact grade points obtained in the questionnaires are hidid.

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