MANAGEMENT OF AGILITY PROCESS FOR SURVIVING IN THE COMPETITIVE BUSINESS ENVIRONMENT

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ABSTRACT: Business environment and changing markets are the competitive challenges of today. There is not one universal solution for this, but agility is the key of success in creating the customer responsiveness and in mastering uncertainty, which are two of the most relevant items in managing performance. The integration of agile systems in the organization structure is improving the permanently interaction with the customers wishes. The study of agility’s indicators, including also the concepts of AM are far from new, but can they contribute in constructing an agile supply chain. The constantly changing in global environment, has a directly impact in the future of the company, and one of the most important questions will be how to achieve supply chain agility. And this paper will try to find an answer to the question in how to achieve competitive advantages in the global market and to improve financial performance of the company.

1. INTRODUCTION

The step to the Information Society in which we live, was put into reality by a wave of technological renewal adapted in all social plans. The integrated vision from this millennium times, combined with a performing management and a high software and hardware automation level, has transformed the modelling of industrial process from concept in necessity. Unprecedented dynamism, due to global market competition, frequently leads to production rehabilitation, to a permanent improvement of company resources control with a special attention on the non-manageable hidden resource, time. In the ’70, the Japanese are improving a big step in production activities management, by putting in practice the lean system, which, afterwards will be completed by the Kaizen philosophy of continuous improvement.

2. AGILE VERSUS LEAN

The great variety of products and the increasing demands of lower prices and higher quality, forced the companies to make various changes in the traditional way of mass production. Improving manufacturing processes by implementing lean or agile manufacturing was the first step. The beginning was with lean manufacturing and after bettering the principles appear agile manufacturing, which includes the best from lean. Pros and cons will always be between them, but there are advantages and drawbacks easy to be highlighted. [15]

"Lean system, needs only half of human effort, half of production space, half of investment in tools and machines, half of the needed time for introduction of new products in analogy with mass production system.” [12]. This production type or manufacturing philosophy was first implemented by Toyota Motors, in order to consider “expenditure of resources for anything other than creation of value for the end customer as wasteful, and thus a target for elimination. Lean implies more with less.”[15]. The results of the company were better and better, that means the adoption of this Lean approach was the best future solution. The purpose was optimizing the workflow for achieving a higher productivity by using all the advantages of Lean. The most important of them are:

- The improvement of product quality through all new possibilities;
- Attempting of products, and the use of feedback, eliminate almost all the risks;
- Reducing cost and growing process efficiency;
- Attention on learning and improving all the time.[16]

Comparing Lean manufacturing with Mass production is already made, but it is important to understand and to notice that Lean manufacturing is like a guideline of mass production, because of just in time deliveries, higher products quality, the use of flexible production systems and not at last the continuous improvement, in front of the acceptable quality level of the mass production.

Figure 1. Lean versus Agile [15]

Figure 2. Lean Manufacturing [15]
Agility is the synthesized use of the developed and well-known technologies and methods of manufacturing [11].

“AM is the assimilation of all flexible production technologies, together with experience gained from total quality management (TQM)” [9].

Agile manufacturing is based on flexible and easy adaptable targets to the changes required by the new concepts where the qualified workforce has an important role. The ability of the company to respond to the changes often creates problems. So, using mathematical statistics with new analyzes methods led to a systemic management approach, by perceiving of each entity like a component system which interacts permanently. The system concept means that it is possible that the whole expert knowledge could be captured and stored in a computer memory where it exists all the time the possibility to be invoked and applied by other persons when necessary.

In a larger vision, agility means a continuous transition and a complete adaptation to the unpredictable changes that permitted the build of innovative systems carefully close to leadership and new market opportunities. [5]

The ability to adjust to internal and external changes can be done at the enterprise level, because of the suitability of agile principles in work co-operation. Also, as other advantages of agile production can be mentioned the enhance of cooperation. [15]

The every day changes need a perfect technical support and a quick response to all new market demands. Lean manufacturing principles can be applied in the floor level of a factory, for facilitating the ability to adapt to the demanding changes and to bear competition.

While meeting rapidly changing of the market, at Iacocca Institute of Lehigh University from USA was born a new manufacturing system with hard and software technologies named “agility”.

Agile manufacturing (AM) is the ability of surviving and prospering in a competitive environment of continuous and unpredictable change by reacting quickly and effectively to changing markets, driven by customer-defined products and services.” [8]

“Agility is a rapid and proactive adaptation of enterprise elements to unexpected and unpredicted changes”. [9]

“Agility is the synthesized use of the developed and well-known technologies and methods of manufacturing” [11]

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So, there were created performance methods for storing and information processing as well as management system for relational databases. Is important here to be mentioned the difference between the notion of knowledge (cause-effect dependence between the same characteristics of the same object, or two different objects) and the data notion (represented by particular values in some certain moment). That means that knowledge can not exist in the absence of data, and the computer transformation from one engine into a collaborator became very useful to the manager. [2]

3. AGILE SYSTEMS INTEGRATION INTO THE DIGITAL ECONOMY STRUCTURE

The internet interaction between the electronic techniques applied to the economical-engineering systems, led to the implementation of the digital economy concept, by creating models based on e-business, e-commerce, e-banking. Some of the most important characteristics are:

- The new ideas source for business developing is the consumer with his needs and wishes;
- The link between demand and supply requires cooperation of all stakeholders involved;
- Conception of new products by adding value means the respecting of certain rigorous principle.

The communication techniques of digital economy involve productivity growth, investing in innovation became one of the reducing production costs methods. Encouraging the implementation in small and medium companies of the informatics systems of digital economy led to advantages like:

- Collaboration liberalization between suppliers and customers;
- Rapid internet access;
- Allowing digital signatures;
- Modern infrastructure, international adapted with involved employees;
- Loyal cooperation in innovation and creativity, respecting the intellectual rights.

The companies based on intellectual systems of knowing are the intelligent pillars of the digital economy that determine the evolution based on innovation and creativity. The knowledge storage into the agile company database is the performance key of global strategies. [3]

4. MANAGEMENT OF AGILE MANUFACTURING PROCESS

The business engineer has a leadership role in agile manufacturing management. Four of the most important features are: mission, responsibility, ties and performance evaluation criteria from inside the company. He has the formation of a team responsibility, in which he must be trainer of views for an efficient business developing through optimizations to progress into the competitor market. The business engineer improves in the technique, commercial and administration domain and also in the sale of the business as a specific product for a particular customer.

In order to innovate, a new approach in business modeling is reengineering of company correlations with the market into a unitary holistic concept. In the current industry context the growth of holistic indicators of quality, performance and customer satisfaction, require the business redesign according
to correlation between technology and market, production and marketing, managerial and business process. To this purpose, the business will be reviewed and holistic redesigned by respecting all new correlation between productive, managerial, commercial and decisional process. A flexible management, easy adaptable to the market changes will have to think through reengineering, a new production system which will achieve profit on a market with customer satisfaction. Event teams made from responsible and qualified specialists, and on-line assisted by a manager, understand the business process as a whole one, and will work on promptly solving any radical transformation. [2]

Applying reengineering, increase people involvement, and their role will pass from the great decision makers’ specialist area, to one of self control and self lead. In reengineering is essential the changes impact review on market customers, not devoid the interest of a together work for a better understanding of the business from their point of view, as well as for the synthesis of new ideas from the market. [1]

5. PROFITABILITY INDICATORS OF AGILE MANUFACTURING SYSTEMS

Some of the essential indicators of AM are:” speed, flexibility, innovation, pro activity, quality, and profitability. In this framework can be included four core concepts of AM: core competence management, virtual enterprise formation, capability for re-configuration, and knowledge-driven enterprise.”[11]

There are identified four main aspects of AM:

1. agility drivers-that is about the influence of external environment,
2. strategic abilities- competency, flexibility,
3. agility providers- organization, technology, people, and innovation., and
4. agility capabilities- a company’s ability that is providing the basis for productivity, efficiency, and effectiveness .[10]

![Figure 4. A conceptual model for agile manufacturing](image)

Because of the multidimensionality of agile manufacturing concept, the main structure is defined by the next four parameters: production (plant, equipment, materials), market (external environment), people (level of training), and information (the ability of capturing and managing them). Working pairs like: innovative ideas and right decision, flexibility and integration, proactive behavior and formation of new partnership, quality and costs or speed of responsiveness to external changes, are agility attributes that are influencing the competitive bases of a company.

6. AGILE SUPPLY CHAIN STRATEGIES

Finding a solution that will respond to the competitive challenge of today’s reality will be a difficult task, but agility is a concept that is responding to it. The constantly changing global environment, has a directly impact in the future of the company, and one of the most important questions will be how to achieve supply chain agility. The existing flexibilities of the supply chain will be the first step in the development of its agility. [4] The unpredictability of production industry made organization reconsidering ways in finding new solutions for old problems, and for this they have to allow a good communication between operations, management and vendors, and to try to establish an audit of agility in the supply chain.

While mastering market turbulence, the key of success will be customer responsiveness, because agility is about creating that responsiveness and mastering uncertainty. These elements are far from new, but they can contribute in constructing an agile supply chain.

![Figure 5. Elements of supply chain agility](image)

“The world is in the era of supply chain competition, where organization no longer acts in isolation as an independent entity, but as a supply chain to create value delivery systems that are more responsive to fast-changing markets, more consistent and reliable.” [6] The two most important strategies in supply chain are lean, which is developing value by eliminating any waste and agility which is transferring all opportunities from a virtual market to a supply chain, and newly is accepted as a business unit.

For being agile, a must have for the supply chain is: market sensitivity, virtuality, process integration, and networking. Taking the best features from Lean and adding some new was born a new manufacturing strategy, focused on the ability of the company to have a flexible organization, to have an innovative staff and relationship with customer, based on knowledge. [7]
Figure 6. Characteristics of supply chain

Market sensitivity includes customer understanding and rapid response, virtual integration relates to leveraging information, process integration is mastering changes and network integration relates cooperating to complete. Through all this, measurement is an all-round element, measuring the capabilities in achieving competitive advantage, and the supply chain is part of it, and behaving to improve financial performance of the company.

Figure 7. Link between Agile Supply Chain and Competitive Strategies [13]

“The strategy of agile supply chain, is the “change” which is the only constant thing in the business environment and if the company is not agile, it just can’t do it, because customer expectations are never static “[6]. Companies today are faced with a lot of new challenges like demand variability, shorter customer times or lowering costs, increasing quality and competency of services, and in order to survive into this environment, they need to respond quickly and with great agility to the market changes, and the strategy of an agile supply chain is the answer.

7. CONCLUSIONS

In the complex business environment of todays, agility is a major factor of influence, which is determining winning strategies for the company. Achieving success is a hard work, where the organizations had to focus all their efforts in building an agile strategy and aligning it to market’s objectives, and for this, the company should implement all solutions for growing the responsibility and flexibility in adapting new plans for change.

8. REFERENCES

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