MANAGEMENT ORIENTATIONS TO SAFEGUARD THE BUSINESS COMPETITIVENESS IN THE CURRENT INTERNATIONAL CRISIS

Prof. Francesco Scalera*
University of Bari “Aldo Moro”, II Faculty of Economics - Taranto (Italy)
Department of Business and Law Studies, V. B. Grimaldi 15/B - 70123 - Bari (Italy)
E-mail: roby_sca@virgilio.it, *Corresponding author

Abstract
The present work starts with the observation of the current international crisis that has not spared the business world, affecting mainly the industrial sector. Thus, companies are now more than ever called upon to ensure their competitiveness by meeting some critical success factors that are not only related to quality and product innovation, but also to the production efficiency which can be achieved through minimizing both production and delivery costs.
The difficulty of combining the fulfilment of these objectives which seem to be in contrast with each other, has led companies to experiment different management philosophies to find the most suitable to be adopted in the competitive scene in which they operate, and aimed at ensuring the best business performance in the medium-long term.
As a result, the research aims, first, at investigating whether there are management philosophies that are able to meet these objectives, supported by operational approaches that are compatible with their basic criteria; secondly, it is meant to assess whether these models may cover the whole industrial sector rather than a single sector alone, as well as whether they can be used in both large companies and SMEs (Small and Medium Enterprises) and, finally, whether they can be extended to service companies as well.

Key words: International crisis, Firms, Strategies, WCM, Six Sigma.

JEL Classification: L10, L26, M11

1. Introduction

Through analysing the current phase of globalization, it turns out that, like the previous ones, it is characterized by a series of historical events (such as the American merchant banks’ bankruptcy and the recent wars in the Middle East), that are having serious economic, social and financial repercussions on the international markets.

However, unlike earlier phases, it is to be noted that the current one is marked by its own distinguishing feature, namely the growing importance of the human being in the decision-making process, concerning the product demand and supply.

In fact, in modern economies, it is the customer that “leads” the market and that, by his choices, makes a firm either successful or unsuccessful according to the quality and efficiency offered.

Nevertheless, the above two factors of corporate success can be fulfilled solely through better exploiting the role played by man in the firm, since the latter relies on this resource to implement plans aimed at improving the corporate production process in order to ensure increased competitiveness of the firm in the market.

What is described above leads to a consideration on the current industrial scene showing a clear contrast between two main competitive trends, namely those related to the simultaneous maximization of efficiency and effectiveness; the former is achieved through a drastic reduction in the cost of the product from its being conceived until its decline (life cycle cost); the latter is reached through shortened delivery time and increased flexibility to match promptly the changes involving the market which, as it is described above, is increasingly controlled by the final consumer.

As a result, companies are increasingly required to implement management policies that are able to operate with a view to constantly improving not only the product and the production process but also the other business components such as the staff, the management, the executive and...
Starting from this consideration, the present paper is aimed at investigating first, the management philosophy that companies are willing to implement to meet the critical success factors mentioned above; such a philosophy seems to have been identified, at least in the automotive sector, in the approach that is known as World Class Manufacturing (WCM), namely an integrated system aimed at preventing production waste.

Obviously, to be successful, this approach should also be supported by an “operational philosophy” preventing both defects and errors; such a philosophy seems to have been identified in “Six Sigma” methodology, pertaining the telecommunications industry.

Thus, starting from the literature on the subject and after introducing the automotive industry competitive context where WCM management philosophy has developed, the principles on which it is based will be discussed later and subsequently compared with those underpinning “Six Sigma” which covers a different sector; then, by examining the production and financial data concerning companies from various industrial sectors, it will be possible to assess the effectiveness of the two approaches in terms of a cost-benefit analysis.

For this reason, the only way of reining in such a situation is to reorganize and not only to readjust the company’s logistics and production process in order to make it lean, fast and responsive, with no waste and fully under control (Champy and Hammer 1994; Drucker 1999; Johansson et al. 1994; Mariotti 1994; Ostinelli and Toscano 1993).

In fact, the evolution of markets has led to the change of the primary factors that brought about the “Lean revolution”; such factors can be described as follows:
- the gradual reduction in the life cycle of the product;
- the difficulty of reliably predicting demand for the final product and its components;
- the impossibility of correctly calculating the load input to the production system which, therefore, turns out to be irregular;
- the increased range of final products demanded by the market, needed to satisfy increasingly demanding and prepared customers through increasingly wide and varied supply;
- the growing and overwhelming competition from emerging countries’ competitors that are difficult to be countered both on the cost and on the quality side.

From the above, it is clear that it is no longer possible to focus exclusively on optimizing the processing cycle, but it is necessary “to learn to identify” waste in transfers, handling, stock, controls, defects, lead time, errors, repairs, etc., which represent the bulk of the costs to be borne without any added value for the customer.

In order to achieve this goal, World Class Manufacturing (WCM) (Keegan 2003; Strever 2008) was worked out, which represents a modern evolution of the Japanese model known as the “Toyota Production System” (Cusumano 1985; Liker 2004) that developed in the automotive industry in the eighties and consists in an Innovative Production System based on such techniques as Lean Production, Total Quality Management (TQM), Total Productive Maintenance (TPM) and Just-in Time (Golhar and Stamm 1991), aimed at a rapid and continuous improvement in the whole logistics and production cycle of the company, through eliminating any kind of waste and loss (Muda), which can be achieved only by involving the company’s human resources at all organisational levels, through the strict application of the suitable standards and methodologies such as “Six Sigma” (Adams et al. 2003; Basu and Wright 2004; Brue 2003; George 2002; Gruppo 2G 2010; Schonberger 1987).

3. Managerial and operational models to tackle the international crisis

What is described above shows that the main purpose of WCM is, therefore, to be successful on the market with high quality products at competitive prices, by meeting customer needs and ensuring maximum flexibility, through the strict application of “zero defects in everything” formula, namely the “nine zeros” on which this management philosophy relies, represented by: zero customer dissatisfaction, zero mismatches, zero bureaucracy, zero shareholders’ dissatisfaction, zero waste, zero non-value adding work, zero stops, zero missed opportunities, and zero lost information (Strever 2008).

From a purely strategic point of view, WCM System is based on three meanings (Bordogna 1994):
- the sense of innovation, meant as the search for a way to do something better than it has ever been done before;
- the sense of achieving quality through constantly pursuing a perfection standard made up of details;
- the sense of efficiency, as a result of reduced waste.

In order to achieve these goals, the key actions to be pursued when applying this philosophy are thus summarized as follows:
- improving processes;
- avoiding waste and correcting errors;
- detecting errors before they become defects;
- investing the resources saved in Value adding activities for the customer;
- displaying waste through scientific observation and a graphic display of flows.

After explaining the principles supporting WCM, it is necessary to assess the validity of this management philosophy, to understand whether it is likely to match the current competitive context and to benefit the companies adopting it, both economically and qualitatively. The analysis carried out has revealed that WCM is able to achieve significant results such as:
- 100% increased productivity;
- 90% shrinkage in both stock and production time;
- 50% reduction in both errors for the customer and in scraps for the process;
- 50% reduction in Time to Market;
- low extra cost supply of a wider range of products;
- very modest investment.

Besides, once adopted, WCM allows productivity to be doubled, over time, through incremental improvements over two or three years, as well as stock-in-trade, errors and time to be halved over the same space of time.

Among the most developed WCM-based operational methodologies, the so-called “Six Sigma” is worth mentioning; it is a modern and very rigorous approach to running a business, whose aim is pursuing excellence, based on TQM and Continuous Improvement principles.

It is an “operational philosophy” that can be described as an approach to the business improvement, aiming at identifying the critical points and the causes of defects in order to eliminate the most relevant and damaging mistakes, by reducing time and transaction costs, improving productivity and better meeting customer needs.

Introduced in the early eighties from Motorola, a leader in the field of mobile phones, this methodology has gained considerable credibility over time, so that its guidelines have been agreed upon by such organizations like General Electric, Toyota, Honeywell, and Fiat (the last one has implemented it in its Italian factories as well as abroad, namely in the newly-born plant in Kragujevac, in Serbia) (Scalera 2011), thus certifying worldwide “Six Sigma” approach (Vergnano 2010), as a real philosophy for analysing, measuring, as well as improving the business processes; in addition, Motorola was identified as the international reference for its quality approach.

“Sigma”, as the methodology is known, comes from the Greek letter that is used in statistics to indicate the value of a process variance, namely a parameter fluctuation against its average value (the so-called standard deviation).

The indicator is calculated using a simple algorithm that will define the number of "Defects Per Million Opportunities" (DPMO) using the following formula:

$$DPMO = \frac{D}{N \times O} \times 1,000,000$$

where:
D = Defects produced per unit of time.
N = Number of output produced per unit of time.
O = Number of defect opportunities per unit of output.

The sigma scale is an exponential conversion scale associating each DPMO with a sigma value: the lower the DPMO, the higher the sigma value.

The highest quality attainable by applying “Six Sigma” methodology is just equal to “six” and the more this value is approached, the more the process is stable and therefore less subject to the variance.

A “Six Sigma” quality reaches 99.99966% accuracy rate, which means no more than 3.4 defects per million items produced (Brun 2008).

Going further into details, the necessary steps to develop this methodology can be described as follows:
• obtaining support by the top management;
• appointing either the Steering Committee or the Business Quality Council members;
• gathering information through contacts with customers, suppliers and partners;
• training and awakening the management, as well as the employees to the methodology;
• developing the monitoring system by defining objectives, resources and performance indicators (by establishing the project charter);
• creating working groups and selecting the processes to be improved;
• launching the projects with special care to the first measurable results achieved.
The above methodology is very popular for a number of advantages:
a) - simple and easy to be used;
b) - the opportunity to compare processes that are very heterogeneous between them;
c) - helping the company to set ambitious targets to be achieved through Continuous Improvement approach;
d) - spreading and applying the approach aimed at involving both the employees and the management.

However, in order that its application is actually successful, the top management must be convinced of the project effectiveness, invest in the employee’s training and spread a corporate culture within the firm, aimed at awakening the employee to taking on responsibility, at decentralizing decision-making as well as at promoting the initiative by the worker.

4. WCM and “Six Sigma” implementation case studies in Italian companies

At this point, starting from the analysis of some case studies, the object of the present study is to assess whether the use of WCM at a management level and of “Six Sigma” at an operational level can be applied successfully to Italian service companies, apart from production companies, as well as whether their use may be extended to SMEs.

- The first company to be considered is Leasys and Savarent (Fiat Group Automobiles), which is the long-term renting platform of Fiat Auto Group, that employs about 450 employees and covers about 150,000 vehicles. The implementation of “Six Sigma” has been directed at eliminating waste that, in a service business, leads to such malfunctions as stacked sheets and drawers crammed with papers (Doglio 2009).

  The use of the Kaizen week has allowed the introduction of the visual element within the continuous improvement system in order to show the defect, a result that was also achieved through the monthly interview on the customer network.

  However, in particular, Value Stream Mapping, namely the mapping of all the business processes considered as value flow for the customer rather than as an input/output system, developed within a week, has been essential to reduce the process variability and obtain a significant economic return amounting to about 5 million, against advice costs and 100% dedicated resources which resulted in a total investment of 400 million Euros.

- As regards Box Marche joint-stock company, it is a company operating in the field of graphic as well as paper and cardboard industry, that has set itself an ambitious economically and socially-oriented mission, namely that of achieving excellence on the basis of ethical principles that are able to promote comfort not only for customers but also for suppliers, employees, partners, the territory and the outside community (Del Baldo 2008).

  This result was achieved by introducing “Lean Six Sigma” culture, which led to highly satisfactory results; in fact, stock shrank by 25% and lead time was reduced, on average, by 10% (Greco 2009).

- Among SMEs, Emmevi limited company has successfully implemented “Lean Six Sigma” methodology; the company, dealing with designing and manufacturing small and medium power electric motors, has focused its attention on solving the problem concerning the reduction in the number of orders processed later than the time set by the customer (a week’s delay in 30% of cases and over a five days’ delay in 25% of cases).

  In particular, once the department has been identified, namely the fan department which was the critical quality feature, the application of the methodology made it possible, by a 20% reduction in non-value adding for the customer, to increase the daily productivity of over
1,000 pieces for each work shift thus reducing the order delay (Aggogeri and Sicorello 2009).

In the light of the cases analyzed and of the satisfactory results achieved through “Six Sigma” application, it can be seen that this methodology is a cross-sector one, as it is the most effective to improve any business area and any kind of performance.

However, it can be seen that the basic principles of Lean Production can be extended to the office context, as well as to services, although in Italy there are still few companies that have gone through this innovative step (Galgano 2005; Sganzerla 2004).

The reasons for this partial development are manifold.

First of all, there is to be noted, in fact, that in offices and services the production flow is less evident and, furthermore, the customer can often cause waste through interfering in the process.

Other reasons are accounted for by the fact that quality and productivity interfere with each other, that in these areas there is a clear human predominance against machinery and materials, and that individuals have little experience in identifying and separating what creates value from what does not create it.

Finally, it is shown that in these sectors, productivity improvements, when turned into economic benefits, negatively affect the redistribution of surplus staff.

5. Conclusions and implications

The present work was intended to identify a managerial philosophy that, properly supported by an operational methodology, enabled companies striving for competitiveness in the current international recession to pursue customer satisfaction, combining goals seemingly in contrast with each other, that is to say, the product quality and innovation on the one hand and production efficiency on the other one, through minimizing production and delivery costs.

The paper has established that these goals can be achieved by applying World Class Manufacturing (WCM) management philosophy to companies, aiming at eliminating defects in all business processes, working with a view to their improvement, that can be achieved by avoiding waste through correcting errors, in order to invest the resources saved in activities creating value for the customer.

The analysis has shown the validity of this philosophy that, if adequately supported by “Six Sigma” operational methodology based on the same principles, can successfully result in the following: 100% increased productivity, 90% reduced stock and production time, as well as 50% shrinkage in such items as Time to Market, errors for the customer and scraps for the process.

At this point, the object of the paper was to answer three questions, namely: understanding whether these approaches could be applied to the Italian context in all productive sectors, whether their validity could be influenced by the company’s size, as well as whether their use could also be extended to service companies.

The analysis of the case studies has shown that the answer is positive to all the three questions.

Indeed, in the light of the satisfactory results achieved by applying “Six Sigma”, it can be seen that this methodology is a cross-sector one, as it is the most effective to improve any business area and any kind of performance; besides, it can lead to satisfactory results, regardless of the company size; in fact, some case studies have proved its perfect applicability to SMEs as well, that will need less technical, financial and human resources to implement it.

Moreover, as it was shown by the cases analysed, WCM and its “Six Sigma” operational methodology may contribute economic and quality advantages, even in service industries.
The latter, however, will be likely to have some difficulties related to the Italian political, cultural and social context which, combined with the small-medium sized businesses often based on a hierarchical model, implies objective difficulties for the management, that are mainly related to engaging and motivating the staff at all levels, instilling deep confidence in the method, overcoming the false fear that the “world class” approach cannot be applied to their own context, creating and effectively managing cultural change, going beyond the boundaries of the functional model by working in team aiming at improving the aggregate value flow across all the business functions.

In particular, among the problems to be solved, there is primarily the high variability in quality that does not allow easy control of the same performance to be replicated over time.

Secondly, the value intended as a benefit for the customer, which is considered to be highly subjective and intangible, can lead to some difficulty in understanding what are the features that are likely to increase value for the customer himself.

In this area, another important element is the time factor, since the availability or not of the service for the customer, at a particular time, determines whether or not value is created for him.

As to some kind of malfunctioning considered as waste in this area, they are different from that concerning the production sector, and are represented by non-completed paperwork within the process on hold, either on computers or in the drawers, by missing information and documents, as well as by the amount of paper that is actually moved from one location to another.

Finally, in my opinion, the present research suggests that easier and successful implementation of the above methodology in the context of Italian companies, in the near future, requires a number of critical success factors to be fulfilled, among which the most important are represented by the following: involving both the top management and entrepreneurs in the improvement project, associating cultural change with “Six Sigma” implementation through the company’s training, as well as linking the programme implemented with the above-mentioned methodology and the business strategy used.

References


