European Scientific Journal September 2014 /SPECIAL/ edition Vol.1 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431

PRODUCTION AND OPERATIONS DIRECTED TO ORGANIZATIONAL COMPETITIVENESS BY USING BEST MANAGEMENT PRACTICES

Beatriz Marcondes de Azevedo
Rolf Hermann Erdmann
Santa Catarina Federal University, Brazil
Fred Leite Siqueira Campos
Itajubá Federal University, Brazil

Abstract

The new global economy has stimulated new forms of organization and production process. It is up to managers to develop production capacities and adopt best practices in the pursuit of continuous improvement of operational performance. The aim of this study was to analyze the best practices of different organizations in main national and international journals in the area of POMs. Returned a portfolio of 93 practices considered benchmarking or just a good practice. We conclude that regardless of being considered world class practices or specific to certain contexts, should serve as examples to be followed in pursuit of organizational competitiveness.

Keywords: Competitiveness, best practices, production system

Introduction

The complexity of the knowledge economy and the possibilities of IT raised the standard of organizational competitiveness. Doing more with less, do better, involve team work to find solutions and produce innovations to ensure competitiveness are factors that make the difference between relevance and irrelevance of organizations regardless of industry. According to Hayes et al (2008), the new global economy has prompted new forms of industrial organization that contributed to redefining the role of operations management.

The various combinations of structural resources and infrastructure, plus the adoption of best practices in pursuit of organizational sustainability have shown that the winning companies had to change to survive. Correa and Correa (2011) warn that there is a better way to manage operations. Therefore, it is necessary that managers define a strategic direction to support their decisions.

Moreover, to understand and interpret the business reality in a complex and interconnected, systemic approach to complex-has been a relevant theoretical framework for this purpose. From the perspective of complexity theory, we seek to know how the operations of companies can achieve results? Since the performance of production operations is reflected in the ability to compete? What are the practices adopted expressing its sustainability? Based on these questions, this article aims to uncover the best practices adopted by different organizations. Therefore, we performed a literature search on secondary sources. It is noteworthy that the practices were grouped unveiled a compendium of "Best Practices" as a final product of post-doctoral de Azevedo (2012).

The diagnostic tool of managing the production system

The Center for Interdisciplinary Studies in Management and Production Costs (NIEPC)/ Santa Catarina Federal University has developed a tool to assess, diagnose and assist in decision making on production systems, considering a complex perspective of the relationships between the various elements that comprises such a system.

When considering that the production system consists of a series of inter-relationships of different processes and operations that enable the development of a product (or service), Schulz (2008) and Silveira (2010), through studies based Hanson , Voss (1995), determined the structural subsystems of the production system, from thirteen categories of analysis: Operational Performance, New Product Development, Technology and Equipment, Factory, Investment, Environmental Management, Organization and Culture, Quality, Health and Security, Cycle Time, Production Planning, Production Scheduling and Production Control.

Secondly, we tried to bring the instrument to the notion of competitiveness (PIANA; ERDMANN, 2012; ROMAN et al, 2011). Factors practice then became part of the structure of the instrument in order to propose a reflection on what actions and / or programs may be employed according to the perceived weaknesses or review, identification of opportunities for positive performance of the system production. Figure 1 illustrates the relationship between the categories of analysis and factors of competitiveness.

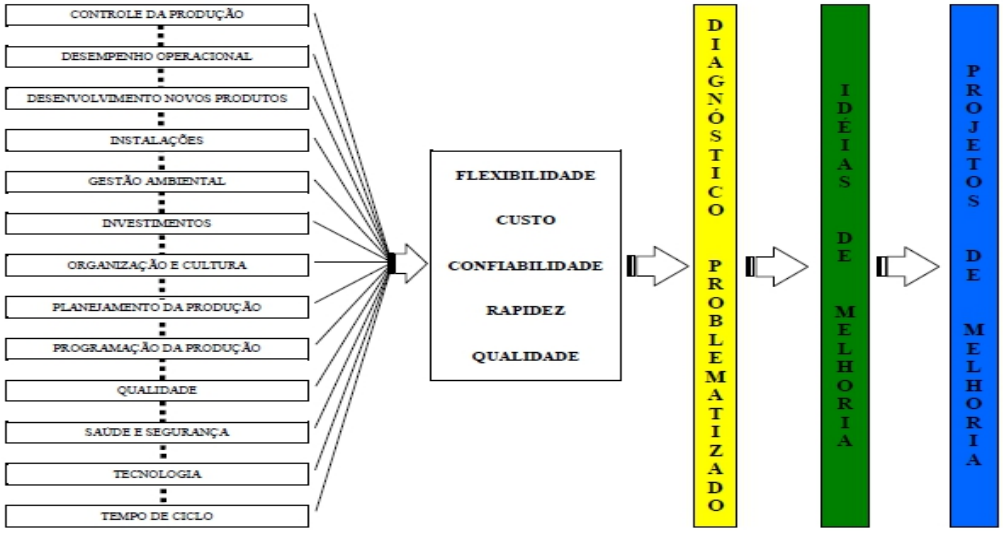

Figure 1: Assessment tool management system of production (NIEPC)
Source: Authors (2012)

With reference to Figure 1, it is said that the diagnostic tool of production systems is composed of a structure of thirteen categories related to five factors results which are achieved through practice of ten factors. These relationships produce assertions, which are located between two scenarios (optimistic and pessimistic). This allows the participants to reflect on their actions and decisions. Reflection arise improvement ideas that could become action plans or projects.

Regarding approaches to support the instrument NIEPC, it was based on the model created by the London Business School on the best practices of a process of Benchmarking Industrial (HANSON, VOSS, 1995), where lean production systems manufacturing, concurrent engineering, and total quality organization and culture form the mainstay of the main components of the model. Its construction was guided by the logic that each structural element of the system has a relationship with variables that give the organization competitive.

Thus, based on the literature review, thirteen categories were defined components of any production system. The variables which give the organization competitive represent what is necessary for a production system to survive and be competitive. The thirteen categories

act influenced by and influencing factors of competitiveness (factors of practical factors results).

The practices refer to stresses or generating abilities features result, ie, those capable of providing direct competition organization. The result of factors are key features vital to the organization and be successful in the long term (SLACK et al, 2002). Or, are able to provide competitive features directly to the organization. They are: reliability, cost, quality, speed and flexibility.

The factors of practice, according to Slack et al (2002) and Roman et al (2012), representing the patterns or profiles of good organizational practices. These are actions or programs that relate to Strategic Alliances, Human Capital, Knowledge, Cultural Factors, Innovation, Customer Relations, Social Responsibility, Control Systems, and Production Techniques; ICT.

The thirteen categories of instrument are compared with what researchers in the field of production management and operations called "subsystems of production," ie, areas on which choices are made structure and infrastructure (HAYES, WHEELWRIGHT, 1984; VOSS , 1995; HILL, 2000; RITZMAN, KRAJEWSKI, 2004; BOYER; LEWIS, 2009).

Still, in terms of theoretical support of the instrument is possible to mention the three paradigms of manufacturing strategy called respectively competition by manufacturing, strategic choices, and best practices (VOSS, 1995).

Paiva et al (2004) believe that the strategic direction of the production must take into account the so-called competitive criteria that enable a more assertive about the positioning of goods and services to the demands of the market and customers, as well as resources and / or internal training capabilities of each organization. Voss (1995, 2005) and Silveira; Souza (2010), based on studies carried out since the 70s, that in addition to complementary perspective alignment between market demands and the skills within the organization, managers have designed and implemented the operations based on the perspectives of development of productive capacities and the adoption of best practices.

In the first paradigm: competing through manufacturing, assume prominence, Skinner, Hayes, Wheelwright, Hill, Platts and Gregory. The idea was proposed by Skinner (1969) when he proposed key areas on which production decisions should be made: plant and equipment, planning and control of production, labor and human resources, design and product engineering and organization and management. The concept of key areas was related to the notion of trade offs. For, if there were trade offs between performance objectives defined from market requirements, would also trade offs in areas where such objectives should be put into practice.

The second paradigm, referring to strategic choices, also defended by the same authors (Skinner, Hayes, Wheelwright, Hill, Platts and Gregory), based on internal and external consistency, ie, between the context of business and products and options in content production strategy. In this sense, for example, the choice between buying or producing and where produce has led to outsourcing of various stages of production processes, the aggregate services provided by the integration of Supply Chain.

The strategic choices are made in areas of decision and actions categorized by Hayes and Wheelwright (1984) in structure and infrastructure. Thus, the understanding that different companies in the same sector of activity compete in different ways to achieve the result of factors makes their managers to create a single system, integrated and consistent to pursue a particular competitive advantage (PAIVA et al, 2004). The challenge is to pursue best practices with attributes of efficiency, efficacy and effectiveness.

The third paradigm, referring to best practices, its main authors, Hayes, Wheelwright, Schonberger, Hanson and Voss. These are assumptions based on the need to adopt "best practices", ie by practices adopted by companies of "World Class Manufacturing".

According to Voss (1995), the set of best practices highlight the principles of lean production, total quality and certifications. The programs and actions arising contribute to performance and higher capacities. These in turn add greater organizational competitiveness. This paradigm focuses on the continuous development of best practices in all areas within a company.

Despite the vision of best practices were legitimized both academia and in business practice, its implementation indiscriminately may have contributed to criticisms that arose regarding the real benefits. According to Voss (2005), the following questions in two directions (fashion and formalism). As a fad, practices would be adopted simply because other organizations were adopting, regardless of performance improvement. As a formality, the criticism comes from institutional theory, which suggests that organizations adopt certain practices due to external pressure, such as the case of ISO certification.

Thus, practices were adopted in isolation or as the solution to all problems, instead of having a greater reflection on whether such practice would be appropriate for the organization and actually attend the competitive needs (Powell, 1995; VOSS, 1995; UGAN 2004; BEAUMONT, 2005).

Methodology

This study is an exploratory / descriptive, qualitative approach, because it was intended to identify and systematize information that express the best practices used by companies characterized as competitive and successful.

This is a literature, or, more specifically, a meta-synthesis, ie, a systematic review of the literature with the purpose of obtaining a summary of evidence related to a particular phenomenon, by applying systematic and explicit methods to search, critical appraisal and synthesis of selected information (WHITTEMORE; KNAFL, 2005).

In this case the meta-synthesis was used in the step of analyzing the collected data, since it has one integrative analysis of individual descriptions of best practices extracted from each material previously analyzed. We tried to gather several examples of practices related to each of the analysis categories that compose the management technology, highlighting the relationship that such practices with the factors of competitiveness, as well as identifying the discrepancies and similarities between them.

In terms of data collection between January and May 2012 was selected a portfolio of materials from the survey at the portal of CAPES periodical database Web of Science. As search criteria we used the descriptors: best practices, production practices, world-class management, decision categories, performance objectives. With filtering purposes, each descriptor was crossed with each of the thirteen structural elements of the production system (Figure 1).

The material found, we chose to include those more aligned preliminary research area in operations management, administration and production engineering. After reading all the summaries, various articles (around 30%) were excluded because they did not fit the theme of research. The final sample was comprised of a portfolio of 296 publications (national and international), which covered the years 1997 to 2012.

With possession of the material collected, we did a brief reading of each, looking plug them from three points: reference, main idea and best practice extracted. Right now, those who were excluded precude any examples of good practice to be only a theoretical, or even contain information on surface and / or vague. Finally came up to an amount of 91 selected articles for further reading so that it could be part of a compendium of best practices following the presentation following structure: a category of analysis, best practices, goal, steps, and lessons learned; reference .

Presentation and discussion of results

To present and discuss the results we chose to present only a best practice relevant to each of the thirteen production subsystems that compose the instrument NIEPC since this balizou the collection and analysis of data.

Accordingly, among the 91 best practices in portfolio analysis, we chose 13 examples are described below:

In the category of analysis "Organization and Culture", presented a model of instrument performance evaluation of human capital, related to TD & E (training, development and education of personnel). The lesson learned was that the human capital assessment allows the organization to identify, in a timely manner, which intangibles need to align strategic planning resources necessary to achieve their goals. Accordingly, it is inferred that the adoption of this practice reflects a greater quality and reliability of the production function (VARGAS et al, 2008).

In the category "Environmental Management" was presented as best practice an instrument (EPM-KOMPAS) to assess the environmental performance. To Gunther; Kaulich (2005), it is software that follows the features of an economic system of performance evaluation. The instrument should be used in Small and Medium Enterprises to help them in the implementation of environmental management and measurement of environmental performance. From the data collected with the instrument and the use of the SWOT matrix can take action to prevent environmental impacts. The lesson learned is that the adoption of EPM-KOMPAS may be reflected in lower cost, higher quality and reliability of the production process.

It is observed that the practices illustrated in the "Organization and Culture" and "Environmental Management" are aimed at presenting a tool for performance measurement and evaluation of policies and practices aimed at fostering a culture of learning and a culture of environmental sustainability. Both one and the other has a flexible structure with the purpose of enabling comparisons and support improvement projects.

In the category "Production Scheduling", presented as best practice mapping the flow of production and application of the Global Operating Income Index (IROG) in the production process (PRATES; BANDEIRA, 2011). The lesson learned is that the collection of data from different sources (mapping of the productive process, measuring the times of operations), and its subsequent analysis, enable the production manager perform the balancing of production flow, reduce lead time and process propose other potential improvements. The principal effects of the adoption of the practices mentioned focus on faster and lower system cost.

In the category "Cycle Time" was a proposal for implementation of the principles and techniques of QRM (Quick Response Manufacturing) to reduce lead time budgeting process for a manufacturer of writing materials. We conclude that with the adoption of QRM, you can find new ways to perform actions with emphasis on reduction of lead time, focusing on the synchrony between dependent activities, the efficient flow of work and the production of conforming items. Accordingly, to reduce the lead time can be obtained improvements in quality management, reduce cost and increase the speed of the production process (LIMA et al, 2012).

In the category "Investments" were identified as best practices presentation of OEE (Overall Equipment Efectiveness) as a metric used to assess the current scenario of productivity of a given production system and its use in conjunction with computer simulations to enable improvements in systems automated manufacturing (ALOCK MATHUR et al, 2011). The lesson that OEE can be seen as a metric percentage that represents how are the "best practices" regarding the company's production process, because it takes into account three important variables productivity: the availability of equipment for

production, quality that is produced and the performance of the system. Still, it is possible to identify different types of losses, and propose improvement actions.

It appears that the categories "Production Scheduling", "Cycle Time" and "Investments" were related practices aimed to diagnose, from comparisons and indicators, resources and productive capacity, with the purpose of reducing the "lead time "and maximize operational performance. The focus here is focused on the production process mapping, identification of bottlenecks and constraints of the system. Thus, we mentioned the following tools: value stream mapping, measurement of operating times, the value chart, fishbone diagram, and FMEA software simulations.

In the category "Operational Performance" presented a set of best practices for managing cutting tools in the automotive industry (FAVARETTO et al, 2009). The lesson learned is that practice is seen as a strategy to achieve increased productivity and efficiency, as it seeks to solve problems related to the various activities that involve the use of tools, including acquisition, storage, development of database tools, selection and allocation tools, inspection, preparation, delivery lines, switching, monitoring and inventory control. The reflection of the adoption of these actions occurs from the minimization of costs, faster by eliminating waste and maximizing the flexibility of the production process.

In the category "Health and Safety" was presented a set of good practices related to the management of OSH (Occupational Safety and Health at Work) on manufacturers of automotive batteries State of SP (Oliveira et al, 2010). The lesson learned from the adoption of these practices is that the support of senior management, HR and the active participation of employees in OSH management is crucial to the success of this system. The result of an effective OHS management system focuses mainly on reducing costs by avoiding accidents and diseases and improve the quality and reliability of the production process

It thus appears that in the "Operating Performance" and "Health and Safety" was presented a set of recommendations for adoption of management systems (cutting tool and health and safety). In both, it is clear the need for compromise and blame everyone involved, create a database, conduct training and encourage the participation of people in relation to the sharing of knowledge aimed at improving the production system.

In the category "Quality" was presented as best practice internal communication as a tool for promoting quality in organizations. For Almeida et al (2010), the successful adoption of systems and programs for quality improvement in organizations, depends, among other factors, the commitment of its employees. It appears that the question of the involvement of everyone and sharing knowledge, which stands for internal communication serve as a tool to promote quality you need to create a culture conducive to such compromising those involved, in addition to choosing the most appropriate vehicles communication for each objective to be achieved.

In the category "Production Control" presented as best practice development of an SI for the control of production in an industry self-adhesive (GEORGES, 2010). Based on the modeling of processes, we obtained a unique and cohesive functioning of the company, which made explicit the part that fit each one, emphasizing that the central object is the customer service end. The SI was developed in such a way that allowed the specific needs of the production of self-adhesive, in particular the control of inventories, the need to purchase and manage emissions from production orders. On the factory floor, the appointment has to be done directly by the operator and allowed the PCP and the managements online tracking of what was being produced. As a consequence, there was a higher speed, quality and reliability of the information, and lower cost production process

In the category "Production Planning", identified a set of practical production planning and inventory on pharmaceutical companies (MOSQUE; SANTORO, 2004). Good practice was related to the use of integrated systems and investment in training production

managers, focusing on issues such as production planning, mathematical modeling and computation. The lesson learned is that the adoption of analytical models for decision support contributes to greater speed, quality and reliability of the information, and in a more longitudinal view to reducing the cost of operation of the production system of the pharmaceutical industry.

There is light of the foregoing, that the categories "Production Control" and "Production Planning", the practices were focused on the development of a SI to serve both the planning and control and to support decisions of the management of production. The common characteristic of SI's proposed was developed customized according to the needs and peculiarities of each context, as well as the possibility of integrating different functional areas of the organization.

In the category "Factory", illustrated as an example of best practice to present a mathematical method to evaluate the performance of the layout and signaling a hospital. The mathematical method used was exposure index (VI), developed in the 80s by Braaksma and Cook. The lesson learned was to study the layout and reformulations that are necessary pathways may decrease and response times, resulting in lower cost, higher speed and quality of service provided there (RANGEL; MONT'ALVÃO, 2011).

In the category "New Product Development", presented as an example of best practice the description of the implementation of lean principles in Product Development Process (PDP), specifically at the stage of conceptual design of an electronic product (DAL OVEN et al, 2008). The lesson learned is that with the use of lean practices in PDP reduces the lead-time of product launch and add value to them. The main consequences can be identified to increase the speed, flexibility and quality of new product launches, as well as to reduce costs by efficient allocation of resources.

It is thus that the category "Factory" was presented an evaluation model of the layout of the hospital and, in the category "New Product Development" sought to show how the adoption of lean principles in the development stages of new products, especially in the conceptual design stage, could, with the aid of QDF, SBCE contribute to increase the speed and flexibility of the production system. It is worth remembering that the structural organization of the layout enabled by assessment also aimed to increase the speed of the system. In both situations, it was also necessary process mapping.

In the category "Equipment and Technology" best practices presented are part of a set of recommendations for revisions to the project due to the organizational decision to adopt AMT (Advanced Manufacturing Technology) (COSTA et al, 2010). The lesson that can be learned is that with the adoption of the list of recommendations is possible to obtain information and resources to assist in decisions to be taken from various perspectives. Such recommendations are important because it appears that most companies assign more importance to issues of financial nature when planning the implementation of an AMT, leaving aside other issues such as the impacts on the organization, setting organizational structure, personnel training, and other aspects that are of relevance in this process.

It is inferred from the examples presented is that managing an organization, whatever its size or its industry, requires maximum training, skills development and constant innovation. In the struggle for competitiveness, there is urgent need to add value to production through the creation of differentials, obtained at the expense of improvements in products and processes. This new style of produce requires support from upper administration, flexibility and initiative of employees to perform multiple simultaneous tasks, in addition to solving unexpected problems.

Moreover, we perceive the need to know the production process through different methods and procedures legitimized by theory and / or empirical. From the analysis of the situation, can be planned improvement actions and support the decisions arising.

Conclusion

The idea of systematizing examples of best practices from the secondary data analysis was motivated by the intention to obtain information that would allow operations to know how companies can achieve results, how their performance is reflected in the ability to compete, and which express practices adopted its sustainability.

In terms of scientific and social relevance, the study started from the premise that it is important to concentrate examples to be followed in a document that brings together the best practices to illustrate and guide the academic and production. It is hoped that this compendium can be seen as a set of information that will help in the formulation of (re) change projects in the productive system.

It is noteworthy, however, that as a matter of definition, we chose to present only one of the examples of best practice that is part of the portfolio of 91 practices. Such a definition was based on the composition of the instrument NIEPC. We tried to thereby illustrate how organizations can be competitive by adopting practices that help them better understand their internal resources and adjust them to the needs of the market and other stakeholders.

The adoption of certain practices may be part of the content of operations strategies, and even sometimes the process of such strategies because ultimately implies structural decisions and infrastructure aimed at meeting the demands of the market and also to performance objectives (RITZMAN, KRAJEWSKI, 2004).

Best practices help organizations conduct their operations better than before. Therefore, it is up to them to invest in developing new technologies, or through combinations of existing technologies, the use of new knowledge, new methods of production or new management techniques and work organization.

To do something better than before must first know how the system is structured and how it works, how the activities of production and operation are developed, how they interrelate, and especially what is the implication of each for the final result. This all requires methods, tools and other technology enabling measure, evaluate, compare, learn and change in pursuit of business sustainability.

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