

Does an Innovation Process Improve Organizational Performance? A Practical Approach for Identifying Opportunities

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Abstract

The article aims in analyzing the maturity level of the organizational process in a centennial company of the welding sector in the State of Minas Gerais, Brazil. The Theoretical Framework emphasizes the concepts of Organizational Processes and Maturity Process. The model developed by Michel Hammer - Process Enterprise Maturity Model (PEMM) - was the basis for analyzing the processes' performance. Data analysis was based on semi-structured interviews. Interviewees expressed their views, values and personal views to all the questions that were asked. Despite being a global and centennial company, there is still a long way to achieve the desired levels of excellence, even that the processes are reliable and stable.

Index terms— maturity model; innovation process; organizational performance; entrepreneurship.

1 Introduction

The globalized and competitive environment requires organizations that are agile, lean and that can develop the necessary skills to make the best decision-making.

According to Hammer (2007), the organizational processes' alignment with its business has been critical for the enterprises. That what had already been questioned a decade ago, that is, the approach based on business process transformation, is now used routinely. The idea that the improvement of business' processes, which extends from the beginning to the end of an organization, can lead to performance gains, which allows the gain of greater value to customers as also generates more profit for the shareholders.

To Malhotra (1998), organizational processes are coordinated activities that involve people, procedures and technology. In fact, the processes in general and business in particular, represent a new approach to coordinating activities across the organization, for it allows the analysis of any type of process, even the nonindustrial.

The relevance of this work, for the organizational improvement, is in the assumption that enterprises are searching for competitiveness in a sustainable manner, by elevating management levels and, consequently, the increase of their results. This has led them towards improving their organizational processes.

However, it is not uncommon that the results of the management' actions and the improvement process are below the initial expectations. According to Hamper (2004), the improvement of the manner of running a company is a requirement nowadays, when resources are increasingly scarce, the time response is vital to the organizational issues and service quality is a survival prerequisite. Process management should extend to the entire chain of stakeholders, company, customers, suppliers and partners.

Notwithstanding that the techniques, methodologies and tools for developing management actions and process improvement are already known by the management community in general, its use still needs a better practice.

Organizations should ensure that their business processes are able to provide higher performance through time, in other words, gain maturity. For that to happen, they must develop a number of characteristics of process enablers, which are related to the processes, but also to a set of organizational capabilities to give support to the management processes.

The variables' gradation that comprise these sets allows the organization to identify the level of maturity they are in the business processes, thus allows a better focus on the management and in the establishment of guidelines for future improvement projects and or process management. The question then becomes the extent to which an organization must apply resources / efforts to elevate their performance through their business processes. How to identify where and when those resources / efforts should be applied? Accordingly, this study aims to analyze the organizational processes' maturity level in a centennial multinational welding industry.

2 II.

3 Literature Review

Not all of the business processes are formed by clearly delineated activities, in terms of content, duration and defined resource consumption, nor do they need to be consistent or performed in a particular sequence (Morris and Brandon, 1993). It is necessary to have a horizontal view to enable the identification and improvement of functional interfaces, which are the points in which the work that is being performed is transferred from one organizational unit to the next (Rummler and Brache, 1995).

According to Keen (1997), the processes are the source of the specific competencies of the company that make the difference in terms of competition, and the influence they can have on the strategy, products, and the industry' structure. The process does not only create efficiencies today, but also ensures the future by means of skills that are applied in new products.

The rapid processes' innovation can result in improved organizational skills (Kanter, 1997) enabling, for example, that new products can be more rapidly developed.

In traditional business organizations environment, vertical and overly bureaucratized, will not have space unless they turn and rethink their structures and the way that their human, financial, technical and other resources are managed and leveraged. It is essential that organizations have an increasingly systemic view, in other words, to be part of a whole, the globalized market, the macrosystem and rethink their operations (Hammer 1998).

Insofar as it proposes a way to execute a particular process, being it industrial, commercial or administrative, it triggers a changing process. Organizational changes are particularly dangerous, because with the same easiness that it can lead to success, it can also lead to failure (Hammer, 2007).

Management by maturity levels emerged in the late 1980s, through the definition of the model and maturity questionnaire (Humphrey, 1987). The maturity model and questionnaire evolved over several years of use, and originated the Capability Maturity Model for Software (CMM-SW) published by SEI in 1993. In the early 2000s Michael Hammer, together with a group of companies called Phoenix Consortium, developed an itinerary for a performance analysis of the organizational processes, Process Enterprise Maturity Model (PEMM) (Hammer, 2007).

For Hammer (2007) the processes' enablers determines how well a process is capable of operating through time. According to the proposed model, there are five enabler factors: 1) Design / Conception, 2) Performers / Competencies; 3) Owner / Coordination, 4) Infrastructure, and 5) Metrics / Indicators.

For the author, these enablers are present in companies at different levels of intensity, such that they vary in the degree to which they support a process. Strong enablers determine how mature a process is and how it is capable of providing a higher performance over time. The model classifies them into four levels, namely: P1 -the process is reliable and predictable: it is stable; P2 -the process provides superior results because the company designed and implemented in a more systemic form (cross functional); P3 -provides a process with optimized performance and can be integrated as necessary with other internal processes, maximizing the company's performance; P4 -contains the very best, transcends borders and involves the company's suppliers and customers.

But still, according to Hammer (2007), not all organizations can put into practice these enablers, since they do not have the refinement of the following capabilities: Leadership / Sponsorship, Culture, Specialization, and Governance.

According to the model, if all of these capabilities are not in place, it is impossible for the organization to institutionalize the enablers and the maintenance of their processes' performance. The example of the process' enablers for entrepreneurship' capacities are four: E1, E2, E3 and E4. According to the author, strong organizational capabilities strengthen the enabler, which allows a better execution of the processes. Thus, a company E1, with leadership capacities, culture, and governance expertise in this level of maturity will be ready to take their processes on level P1. Companies that are in level E2 will be ready to have their processes at the level P2 and so forth.

4 III.

5 Materials and Methods

The choice for a qualitative methodology was due to the dynamics that were required for the research, since the researcher would face situations in which qualitative observations would be used as indicators of the structures' operational complexity and organizations (Lasarsfeld Lima, 1999).

The research' option, for this paper, was a case study, not only because it was easier to have access to the targeted company, but also because it is the most appropriate way to obtain the answers of the survey's questions.

This is exactly the case of this paper. Through the survey’s information it was possible to analyze the degree of applicability of the topic ”processes’ studies” and of the aspects related to the management itself and the productivity in different moments over time. The survey had as its objective to gather information in order to qualify the level of maturity of the business’s processes in the target organization, being able yet to subsidize with information the development of possible action plans to raise the performance level of these processes.

The object of the study was a multinational industry from the welding sector. The target of the research was the individuals that were responsible and executants of the organizational processes. Focusing on the individual, what was pursued was to extract from each of the respondents, their perception of value as to the actual business processes’ performance. Although the company is a multinational company that is present in all the continents, the objective of the research was its unit, located in the State of Minas Gerais, Brazil. The choice of the individuals and of their respective processes was due to the company’s core business. Because it is an eminently industrial company, that has as its distinguishing factor the research and development of materials and techniques for applying products, associated with a strong logistics, it was decided that the managers interviewed would be precisely those responsible for these areas in the organization.

In this research, a semi-structured interview model was used, precisely because it is situated at the threshold between the two forms of interview. Even having a pre-defined script, the people that were involved had the opportunity to discuss the survey’s questions in order to clarify feelings and personal views. The interview’s itinerary was based on the organizational variables that are enablers and capacitors for the organizational processes, as established by Process Model Enterprise Maturity Model (PEMM) proposed by Hammer (2007).

IV.

6 Results

The following are the results for each enabler variable, according to respondents view:

As the design variable was analyzed, which is related to the techniques that are used by the enterprise for specifying how the process is executed, it is possible to observe that the processes’ performance is at the maturity level P1. The evidence presented as techniques for process design are actually drawing flowcharts, whose goal is to detail the flow of activities rather than viewing the processes with the details of the inputs, outputs, interfaces, end to end vision, resources, indicators, roles, responsibilities and so on.

With respect to Performers, referring to the skills that are required for the persons that perform the process, the analysis of the respondents is that process performance is at level P2. It was also observed the need of a small effort to change this variable’s level in order to reach level P3. In this case, the academic education contributes to most the managers in engineering, which are more accustomed to the study of processes

The assessment of the respondents about the variable Owner (Responsible), the item concerning the level of responsibility that people have for the process and its results, the processes’ performance is also located at level P2. According to some of the managers, the fact they are reporting directly to the CEO, which is also the Industrial Director, creates conditions for greater delegation, due to the volume of responsibilities focused on a single person. Another comment that was made by some of the respondents is related to the fact that the company’s current management gives emphasis on having more participation in the organization’s strategic planning actions.

About Infrastructure, a variable dedicated to the analysis of the support conditions of the process, the management model and the information technology, where the respondents rated the processes’ performance as level P2. For this item the major criticism concerns the fact that the company has a world-class integrated business management and a market leader (SAP) and even so, they still take little advantage of some features that are focused on industrial processes, since focus up to now, has been on the back-office processes.

The metric / indicators variable is focused on the metrics that the company uses to monitor the performance processes. Although the areas employ several controls to be able to check the performance of their processes, especially those used to evaluate performance and quality, a fact easily proven by several evidences that were presented in several of the interviews, these controls are highly personalized according to each manager. The real fact is that this item is the result of the managers’ dedication, more than the matter of having a properly structured management model, based on corporate indicators. This is easily proved by the results of the assessment indicating a performance level of P1.

According to the model proposed by Hammer (2007), the enablers’ strength determines how mature the process is and how it is capable of providing a higher performance over time. If all the five enablers are facilitators of a process at the P1 level, the process itself is at the P1 level; if all are at the P2 level, the process is P2 and so on. If only four of the five enablers are at a certain level, it is impossible to say that the process has reached this level: it belongs to the previous level. Particularly, if any of the enablers is so weak that it does not meet P1, the process is by default P0. This is the natural state of things when the organization has focused on the development of their business processes, and P0, at this level, represents processes with irregular work.

The consolidated analysis of the respondents’ point of view leads to the following result: Design: P1; Performers (Executors): P2; Owner (Responsible): P2; Infrastructure: P2; Metrics / Indicators: P2. Thus, the company in terms of organizational processes’ maturity, is at level P1, though very close to reach the level P2, by means of little effort with respect to techniques for process design. The Final Score is equal to P1, where processes are reliable, predictable and stable.

Figures 1 and 2 present a consolidated picture of the mapping, which shows the organizational processes' maturity. The figures are designed to evaluate the maturity of business process and determine how to improve its performance. If a statement is largely true, at least 80% correct, then the mark will be green; if it is somewhat true, between 20 to 80% correct, then the mark will be yellow; and if is largely untrue, less than 20% correct, the mark will be red.

For the enablers' variables, the results in the viewpoint of the interviewed, is the following. For the item leadership, the focus is associated with the level of support that the company gives in the creation and management processes' actions. During the interviews, the managers answered that, although that all have a clear vision of the need to invest more in the processes' improvement actions, such actions end up being restricted to their areas. By analyzing the sub item style of management, that vision becomes clear. They miss a greater integration and collaboration between the areas. The assessment made by respondents indicates a level of maturity E1.

7 Purpose

The process has not been designed on end to end basis. Functional managers use the design primarily as a context for functional performance improvement.

The process has been redesigned from end to end in order to optimize its performance.

8 Context

The process's input, outputs, suppliers, and customers have been identified.

The needs of the process' s are known and agreed upon.

9 Documentation

The documentation of the process is primarily functional, but identifies the interconnection among the organizations involved in executing process.

There is end to end documentaion of the process design.

knowledge Performers can name the process and identify the key metrics of its performance.

Performers can describe the process's overall flow on how their work affects customers, other employers in the process, and the process's performance; the required and actual performance level.

10 Skills

Performers are skilled in problem solving and process improvement techniques.

Performers are skilled in teamwork and selfmanagement.

11 Behavior

Performers have some allegiance to the process but owe primary allegiance to their functions.

Performers try to follow the process design, perform correctly, and work in ways that will enable other people who execute the process to do their work effectively.

12 Identity

The process owner is an individual or a group informally charged with improving the process.

Enterprise leadership has created na official process owner role and has filled the position with a senior manager who has authority and credibility.

13 Activities

The process owner identifies and documents the process, communicates it to all the performers, sponsors small-scale change projects.

The process owner articulates the process's performance goalsand a vision of its future; sponsors redesign and improvement efforts; plan their implementation; and ensures compliance with the process design.

14 Authority

The process owner lobbies foe the process but only encourage functional managers to make changes.

The process owner can convene a process, redesign team and implement the new design and has some control over the technology budget fot the process.

15 Information Systems

Fragmented legacy IT systems support the process.

IT systems constructed from functional components supports the process.

16 Human Resources

Functional managers reward the attainment of functional excellence and the resolution of functional problems in a process context.

The process's design drives role definitions, job descriptions, and competency profiles. Job training is based on process documentation.

17 Definition

The process has some basic cost and quality metrics.

The process has end to end process metrics derived from customer requirements.

18 Uses

Managers see the process's metrics to track its performance, identify root causes of faulty performance, and drive functional improvement.

Managers use the process's metrics to compare performance to benchmarks, best in class performance, and customer needs and to set performance targets.

19 Design

20 Purpose

The process has been designed to fit with other enterprise process and with the enterprise's systems in order to optimize the enterprise's performance.

The process has been designed to fit with customer and supplier processes in order to optimize enterprise performance.

21 Context

The process owner and the owners of other processes with which the process interfaces has established mutual performance expectations.

The process owner and the owners of customer and supplier processes with which the process interfaces have established mutual performance expectations.

22 Documentation

The process documentation describes the process interfaces with, and expectations of, other processes and links to process to the enterprise system and data architecture.

An electronic representation of the process design supports its performance and management and allows analysis of environmental changes and process

23 Knowledge

Performers are familiar both with fundamental business concepts and with the drivers of enterprise performance and can describe how their work affects other processes and the enterprises's performance.

Performers are familiar with the enterprise's business and its trends and can describe how their work affects interenterprise performance.

24 Skills

Performers are skilled at business decision making.

Performers are skilled at change management change implementation.

25 Behavior

Performers strive to ensure that the process delivered results needed to achieve the enterprises goal.

Performers look for signs that the process should change, and they propose improvements to the process.

26 Identity

The process comes first for the owner in terms of time allocation, mind share and personal goals.

The process owner is a member of the enterprise senior most decision making body.

27 Activities

The process owner works with other process owners to integrate processes to achieve the enterprises's goals.

The process owner develops a rolling strategic for the process, participates in enterprise level strategic planning, and collaborates with his or counterparts working for customers and suppliers sponsor interenterprise process redesign initiative.

28 Authority

The process owner controls the IT systems that support the process and any projects that change the process and some influence over personnel assignments and evaluation as well as the process's budget.

The process controls the process's budget and exerts strong influence over personnel assignment and evaluations.

Information System An integrated IT system, designed with the process in mind and adhering to enterprise standards, supports the process.

An IT system with a modular architecture that adheres to industry standards for interenterprise communication supports process.

29 Human Resources

Hiring, development, reward, and recognition systems emphasize the process's needs and results and balance them against the enterprise's needs.

Hiring, development, reward, and recognition systems reinforce the importance of intra and interenterprise collaboration, personal learning and organizational change.

30 Definition

The process's metrics as well as cross process metrics have been derived from the The process's metrics have been derived from interenterprise goals.

31 Uses

Managers present the metrics to process performers for awareness and motivation. The dashboards based on the metrics for day to day management of the process.

Managers regularly review and refresh the process metrics and targets and use them in strategic planning. About culture, the result indicates a level E1. Issues, such as teamwork, customer focus, accountability for results and proactive attitudes to seek changes, were placed as half-truths.

An example given by one of the respondents is the fact that, although the company gives full technical support to its customers, the process of attending complaints has nothing different, since there is no record about customer behavior.

In the respondents' point of view regarding the item skills, the company is at E2 level, although two of them presented a few exceptions. This position is more consistent due to the skill of the respondents than properly due to the company's structural support, considering not adopting any of the BPMS' tools or a corporate methodology specific for the processes' design. It is noteworthy that, as it is an engineering enterprise, the method that is used is for the design and management of workflow diagrams, in other words, handling routines.

The item governance is referred in terms of the process' governance. This means developing and maintaining a map of the corporate processes, showing who is responsible to govern it, that is, to conduct the process in favor of the company's performance and provide favorable conditions for the processes' integration. In this sense, the respondents' assessment pointed to a maturity level of E1. The management model does not consider the existence of formal or informal directive groups with the objective of improving processes actions.

According to the model, the relationship between trainers and enablers is directly proportional. Strong organizational capabilities strengthen the enablers, allowing a better execution of the processes. This means that an enterprise at level E1 is capable of having its processes at level P1. Companies at level E2 are ready to have their processes at level P2, and so on. The consolidated analysis respondents' point of view showed the following result. Leadership: E1; Culture: E1; Skills: E2; Governance: E1. As the result of the company's maturity level's measurement in order to support the processes' design and management actions, the company is at level E1. Comparing with the result that was obtained for the process maturity's level, P1, there is consistency in the data. Figures 3 and 4 present a consolidated framework mapping the company's maturity level. These figures determine if the organization is ready to support a process based transformation. They show the strength levels, E1 to E4 of the capabilities that enterprise need in order to develop their business process. If a statement is largely true (at least 80% correct) then the box will be green; if it is somewhat true (between 20 to 80% correct) then the color will be yellow; and if it is largely untrue (less than 20% correct) then the color will be red.

32 Awareness

The enterprise's senior executive team recognizes the need to improve operational performance, but has only limited understanding of the power of business process.

At least one senior executive deeply understand the business process concept how the enterprise can use it to improve performance, and what is involved in implementing it.

33 Alignment

The leadership of the process program lies in the middle management ranks.

A senior executive has taken leadership and responsibility for the process program performance.

34 Behavior

A senior executive endorses and invests in operational improvement.

A senior executive has publicly set stretch performance goals in customers terms and prepared to commit resources, make deeper changes, and move barriers in order to achieve those goals.

35 Style

The senior executive team has started shift from a top down hierarchical style to an open collaborative style.

The senior executive team leading the process program is passionate about the instruments to change and process.

36 Teamwork

Teamwork is project focused, occasional, atypical.

The enterprise commonly uses cross-functional project teams for improvement.

37 Customer focus

There is a widespread belief that customer focus is important, but there is limited appreciation of what that means. There is also uncertainty and conflict about how to meet customer needs.

Employees realize that the purpose of their work is to deliver extraordinary customer value.

38 Responsibility

Accountability for results rests with managers. Frontline personnel begin to take ownership results.

39 Attitude toward change

There is growing acceptance in the enterprise about the need to make a modest change.

Employees are prepared for significant change in how work is performed.

40 People

A small group of people has a deep appreciation for the power of the process.

A cadre of experts has skills in process redesign and implementation, project management, communications, and change management.

41 Methodology

The enterprise uses one or more methodologies for solving execution programs and making incremental process improvements.

Process redesign teams have access to a basic methodology for process redesign.

42 Process model

The enterprise has identified some business process.

The enterprise has developed a complete enterprise process model and the senior executive team has accepted it.

43 Accountability

Functional managers are responsible for performance and project managers for improvement projects.

The process owners have accountability for individual processes and a steering committee is responsible for the enterprise overall progress with processes.

44 Integration

One or more groups advocate and support possibly distinct operational improvement techniques.

An informal coordinating body provides needed program management while a steering committee allocates resources for process redesign projects.

45 Leadership

46 Culture

47 Expertise

48 Governance

Source: Research's Data.

49 Awareness

The senior executive team views the enterprise in process terms and has developed a vision of the enterprise and the process.

The senior executive team sees its own work in process terms and perceives process management not as a project but as a way of managing the business.

50 Alignment

There is a strong alignment in the senior executive team regarding the process program. There is also a network of people throughout the enterprise helping to promote process efforts.

People throughout the enterprise exhibit enthusiasm for process management and leadership roles in process effort.

51 Behavior

Senior executives operate as a team managing the enterprise through its processes and are actively engaged in the process program.

The members of the senior executive team perform their own work as processes cetered strategic planning on process and developing a new business opportunities based on high performance processes.

52 Style

The senior executive team has delegated control and authority to process owners and process performers.

The senior executive team exercises leadership through vision and influence rather than command and control.

53 Teamwork

Teamwork is the norm among process performers and is usual among menagers.

Teamwork with customers and suppliers is usual.

54 Customer focus

Employees understand that customers demand uniform excellence and a seamless experience.

Employees focus on collaborating with trade partners to meet the needs of final customers.

55 Responsibility

Employees feel accountable for enterprise results. Employees feel a sense of mission in serving customers and achieving ever better performance.

56 Attitude toward change

Employees are ready for major multi-dimensional change.

Employees recognize change as inevitable and embrace it as a regular phenomenon.

57 People

A group of experts have skills in large scale as for change management and enterprise transformation.

Substantial numbers of people with skills in the process redesign and implementation, project management, program management, and change management are present across the enterprise. A formal process for developing and maintaining that skill base is also in place.

58 Methodology

The enterprise has developed and standardized a formal process for process redesign and has integrated it with a standard process for process improvement.

Process management and redesign have become core competencies and are embedded in a formal system that includes environment scanning, change planning, implementation, and process-centered innovation.

59 Process model

The enterprise process model has been communicated throughout the enterprise and used to drive project prioritization and is linked to enterprise level technologies and data.

The enterprise has extended its process model to connect with those of customers suppliers. It also uses the model in strategy dvelopment.

60 Accountability

The process owners sdhare accountability for the enterprises's performance.

A process council operates as the senior management body; performers share accountability for enterprise performance and the enterprise has established steering committees with customers and suppliers to drive interenterprise process change.

61 Integration

A formal program management office headed by a chief process officer coordinates and integrates all process projects and process council manages interprocess integration issues. The enterprise manages and deploy all process improvement techniques in an integrated manner.

The process owners work with their counterparts in customer and supplier enterprises to drive interenterprises process integration.

62 Leadership

63 Cultura

64 Expertise

65 Governance

Source : Research's Data. As a final result, the research points to a level of consolidated maturity process at P1, but very close to P2. In this case, the variable to be addressed refers to the processes design's techniques, design, particularly in the categories purpose and context. That is, the processes must be designed with a vision end to end, which will allow a perfect identification and integration between the processes with a defined purpose and expected result.

Maturity Process P1: The processes are reliable, predictable and stable. Company's Maturity E1: The structural support that the company provides for the development of actions designing and managing processes is proportional to the results obtained by the processes.

V.

66 Conclusion

Hammer's study originated from the year 2000 onwards when a group of people began to develop an itinerary for the execution of processes. The goal of this group was to understand, plan and evaluate transformation efforts based on process. This group's main motivator was the realization that, despite the intentions and business investment in transformationbased processes, the results were not satisfactory. The logic behind this finding is that the design of new business processes involves more than rearranging workflows: who does what, where and in what sequence.

When the proposed model was applied, what was possible to observe was that this division of analysis, segmented into two sets of variables, makes total sense. With the technological resources and management models that are currently available for the organizations, to invest in organizational transformations based on processes viewing a better performance, does not have, apparently, nothing that is complicated. While it is necessary to master the techniques and tools, trained personnel and resources in the necessary quantity and quality to obtain the desired results, it also depends on other structural variables.

With the results obtained in the case study, it is possible to conclude that, although the organization that was researched is a centennial and globalized company, its greater competencies refer to the technological mastery of the business. Being the market leader, their focus is exactly on the production processes, which gives them recognition and positioning.

Regarding the processes' performance it is evident the low level of maturity. The processes' performance is more related to the performance and the managers' competence than the processes themselves. The structural conditions that are offered by the company are bellow of what would be desired in all variables, both from the point of view of business capabilities or from the enablers.

The processes' maturity level P1, reliable and predictable, is very little for an industry leader and recognized for its detached technological position. It was expected to find a company that was organized and well managed with relation to their organizational processes with superior performance, proportional to its technological performance.^{1 2}

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Figure 1:

.1 Acknoeledgments

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