

THE VIEW OF THE PROCESS MANAGEMENT IN ITS DIFERENT LEVELS: A STUDY CASE OF PROCESS MATURITY

E.O.B. NARA[†], L.M. KIPPER[†], J.C. M.SILUK[‡], J. C. FURTADO[†] and R. FROZZA[†]

[†] Univ. in Santa Cruz do Sul (UNISC), Av. Independência 2293, Santa Cruz do Sul (96815-900), Brasil

[‡] Federal University of Santa Maria, Avenue Roraima 1000, Santa Maria, Rio Grande do Sul(97105900), Brasil.

E-mail: elpidio@unisc.br, liane@unisc.br, jsiluk@ufsm.br, jcarlosf@unisc.br, frozza@unisc.br

Abstract— The aim of this paper is to discuss the company's maturity level in the view of process management. As part of the discussion, there were made three study cases with the following characteristics: in large sized (company A) works in the field of toys with 350 employees; in medium sized (company B) that operates in the Amusement and leisure-industry technology with 80 employees and in midsize sized (company C) acts in the garment sector with 148 employees. In these study cases using as assessment tool the Maturity Model or the Rohloff Method, aiming at researching the management of the organization, methods, documentation, training, performance and portfolio of processes as well as the relationship between social networking and the multifunctional teams involved in the process, as the process owner, sponsors and facilitators. With the purpose of deepening the understanding of the processes for a period of three years, the researchers conducted systemic visits to the chosen companies, making on-site survey, observing the process, its characteristics and peculiarities. From the result it was possible to establish the correlation between the level of documentation of the companies and their levels of maturity on process management.

Keywords— Process Management, Process Maturity, Methods.

I. INTRODUCTION

Many companies want and need to organize themselves by processes, but they do not have a clear sense of the steps to be followed and actions to be taken. Others are not sure about the decisions to make regarding to its structuring by processes and they can benefit themselves from a reasoning that helps deciding through a study of maturity. There are also companies that do not really know what means to be organized by processes and the ones that are not sure whether its current organizational form is suitable for the management by processes. The need for more information about the subject, that it is possible to analyze the benefits of process management, is also a factor to be observed in the companies nowadays.

In this context, the work of maturity assessment was conducted in three private medium and large sized organizations, together with a production process defined by companies. The objective of this proposal is to evaluate the relationship of the internal networks of the

companies, as well as the managerial capacity of management processes and their relationship with the goals, strategic objectives by analyzing the degree of process maturity. According to Lahti and Shamsuzzoha (2009), the word maturity represents the development of an early stage to a final one, where there is an evolution of the processes, of intermediate stages to full maturity.

The paper is divided into the following sections: the section 1 brings the introduction, the Section 2 presents the theoretical background involved in the research; the methodology is in the Section 3, Section 4 shows the results; and Section 5 final thoughts. Next section presents a brief theoretical basis of management processes and its stages of implementation and the importance of the process maturity assessment as a tool for a more comprehensive and systemic diagnosis.

II. PROCESS MANAGEMENT

The organizations should try to have a broadly and integrated concept of their processes, looking for their continuous optimization, in order to have costs and time reductions, quality improvement, in this way following a vision called Process Management. This new management defines a set of practices and methodologies for a new paradigm and a new management model, in which the process improvement can mean a competitive advantage.

According to Laurindo and Rotondaro (2006), process management can be understood as an approach of organizational development that typically objective to have qualitative improvements in process performance, taking an objective and systemic view of the activities, structures and necessary resources to meet the business critical goals. In summary, it is possible to conceptualize this management model as a systemic approach to design and continuously improve organizational processes, by potentiated people and team working, combining technological and emerging capabilities, aimed at delivering value to the user. BPM – *Business Process Modeling* is, according to the BPM CBOK Guide (ABPMP, 2009), a disciplined approach to identify, design (or project), execute, measure, monitor and control business processes, automated or not, to achieve consistency and aligned results with the organization strategic goals, involving, with the help of technology, ways of adding value, improvements, innovations and managing complete processes, leading to an improved organizational performance and business results. It is further

that Business Process Management (BPM) is a holistic practice of business management that requires: the understanding and involvement of the top management, the clear definition of roles, the existence of decision-making processes as part of BMP governance, appropriate methodologies, information processes system, qualified and well trained employees and receptive culture to the process management (Rosemann *et al.*, 2006).

In consonance with Laurindo and Rotondaro (2006), the objectives of the process management can be: (1) increase the value of the product/service on the user perception, (2) increase the competitiveness, (3) act according the competitive(s) strategy(ies) considered the most relevant ones, which adds value to the user, (4) significantly increase the productivity with efficiency and effectiveness, (5) simplify processes, condensing and/or eliminating activities that do not add value to the client.

To Thieves Jr. (2001), the structure of the institution around its business processes means a change in the traditional administrative approach, whose focus was on how the management activities are performed individually for a comprehensive and dynamic view of the whole institution. Thus, it is possible an understanding of how processes are executed, allowing so, a holistic institution view, aiming to a better understanding of the whole organization.

The work itself flows between managers units, and only when you see the work in its entirety, can you identify points of improvement from the realization of a new measure of process maturity at the completion of a cycle of BPM (Business Process Model). This is due to the fact that almost no managing unit has full responsibility for any work process of the institution, as well as almost no process takes place entirely in a single area. Thus, the structure is process-oriented, differing from the more hierarchical and vertical structures (Davenport, 1994).

Thus, process management introduces a systemic and integrated view of work and it shows the interdependence between suppliers and clients, as participants in a chain of activities designed to generate business results, a situation not present in a functional structure. Accordingly, employees now have a broader view of their functional roles in the organization. So, instead of working with a list of activities, they are working with standardized and documented processes allowing them to explicit knowledge of all its elements (objectives, goals, performance measurement, inputs, customers to be served, and others).

For Hammer (1998), the shift from a traditional organization to a processes one is very difficult, because the individuals, sometimes the customers or the suppliers, have to learn how to think in a new and refreshed way, better understanding the business, taking on more responsibilities and working as a team. In short, there must be participation, involvement and commitment of all towards the organization's objectives in the pursuit of customer satisfaction and in the consequent increase

of sustainable competitiveness in an increasingly globalized and dynamic market. As in the traditional organizations, according to Hammer (1997), the customer needs are considered only at the end of the process. Studies of process maturity carried out with process agents, at the initial time of process management deployment, can make the shift to a process-oriented organization to be more successfully. In this context, it is necessary to consider that people are fundamental in the administration of competitive strategies, because among the various resources employed in a productive system, people are the only ones who can effectively promote changes to enhance competitiveness and promote the process maturity.

Regarding the stages of implementation of management processes, various authors such as Chan and Qi (2003), Davenport (1994), Lahti and Shamsuzzoha (2009) describe different ways using many different concepts and terminologies. From the analysis of these authors, the main steps that are: the diagnosis (identification, mapping), the analysis, the process redesign and the implement of the new process. In the stage of diagnosis it is crucial to collect the largest number of data and information of the current situation in the process, making the understanding of the current process and its degree of maturity the most comprehensive, systemic to all involved with the process. At this point, it is also important to define the functional roles with the process. The responsible individual or group for the performance of the process whether it is the process owner or the executive leadership team must carefully select those who will lead and manage the team in various roles to ensure the successful completion of the project and the analysis is understandable exactly the situation of the process. The best practice management implementation processes shows that this work is best done by a multifunctional team – *a team*. This multifunctional team will provide a variety of experiences and views on the current status of the process and these results in a better understanding of the process and the organization. The team may include experts in the subject, stakeholders, functional business leaders and others who are interested in improving and optimizing the process and who also have the authority to make decisions on it.

A. Evaluation of process maturity

According to Siqueira (2011), the process maturity will guide the company in defining its plan to improve quality and productivity and also the choice of improvement techniques consistent with its stage of management maturity. By evaluating the maturity of the processes performed in the organization, it seeks to mentor and pass techniques and tools for improving the processes such as: *Kaizen*, *ISO 9000*, *Six Sigma*, *Lean Manufacturing*, *Balanced Scorecard*, and others (Siqueira, 2011).

A greater maturity of business processes is defined, in practical terms, in capacities demonstrated by companies in standardization efforts, measurements, control and continuous improvement of process of value. Several authors tell that the processes have life cycles, in

the form of levels or stages of development, which can be defined, measured and controlled in time. So they can be managed toward goals of excellence (Lockamy *et. al.*, 2008; Lockamy and McCormack, 2004; Poirier and Quinn, 2004; Hammer, 1996; Fraser *et al.*, 2002; Dorfman and Thayer, 1997).

Thus, to achieve a higher level of maturity in any case, it is necessary trying to achieve, at least, three conditions, namely:

- a) greater control over the results of these processes;
- b) the greater predictability in relation to the objectives of cost and performance of process;
- c) the greater effectiveness regarding the implications of pre-defined goals, as well as management’s ability to propose new and higher performance goals in time (Lockamy and McCormack, 2004).

Maturity models are being heavily used in the context of the flows of supply chains as well as evolution tool as part of continuous improvement projects in value networks, such models being useful for the description of typical behaviors displayed by an organization in its various stages of maturity (Lahti and Shamsuzzoha 2009).

Maturity models also represent a method which applications on the definition, measurement, control and management of business processes have been shown to be adhering to the precepts of management approach by processes (BPR – Business Process Reengineering), attracting growing interest of both companies as academic researchers directly involved with research in Operations Management (Chan and Qi, 2003).

The concept of management by maturity levels provides a disciplined approach to defining improvement actions, aligned with strategic business objectives and consistent with the stage of maturity of the processes involved (Silveira, 2009). The maturity models seek through its implementation to achieve three purposes: as a tool to enable the description of “AS IS” assessing current strengths and weaknesses (at the diagnosis); as a tool to enable prescribing the development of a roadmap for improvements and as a tool that enables the implementation of benchmarking to assess industry standards and other organizations (Rosemann *et al.*, 2006). The picture 1 presents the expected evolution in the maturity models studied and the existing characteristics in process with low or high maturity.

From the analysis of Fig. 1 and the studies of Quintela and Rocha (2006) it is possible to develop certain issues to be discussed, such as: Is the process planned, executed, measured and controlled and are the existing practices maintained even in time of crisis, being possible to repeat the experience for new processes? CMMI (Capability Maturity Model Integration) Level 2; Do the organization have a well characterized and understood process, being described as the standard forms, procedures, tools and methods, objectives based on them and used in all processes of the organization? (CMMI Level 3); Is the process of the organization, which has been

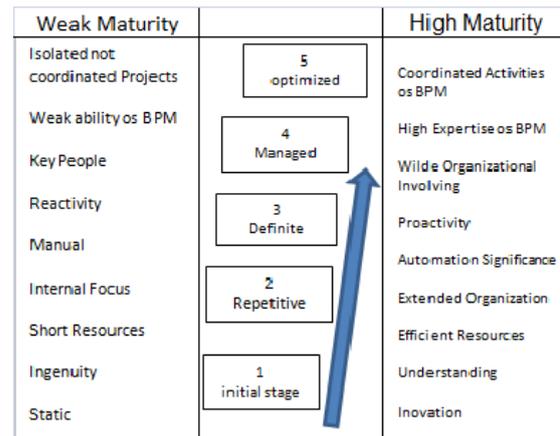


Fig. 1 – Evolution in process maturity models and main features in the levels of maturity (Rosemann *et al.*, 2006)

standardized, measured and operates within the limits set? (CMMI Level 4); Does the organization work with process innovation, identifying opportunities for improvement, strengthening the process and proactively targeting the prevention of failures? (Level 5 CMMI).

For the preparation of the mature form, used collecting data from organizations and that had allowed to evaluate qualitatively and quantitatively process maturity subject of study in each organization was based on the theoretical concepts of the Rohloff (2009) and Siqueira (2011). These authors describe the levels of maturity showed in picture 1 as it follows:

Level 1 – Informal

- The basic activities are generally performed, but there is lack of rigor in planning and execution.
- The performance of the activities can be confusing, unpredictable and inconsistent and resulted in: low quality products, uncertainties about the delivery time and overflow of cost budgets.
- The performance depends on individual skills and dedication (heroes and firemen).

Level 2 – Organized

- Products according to specified standards and requirements.
- The execution of the main processes is planned, managed and moves progressively to well-structured processes.
- The results of these processes are predictable.
- Sub processes and activities may not be well defined.
- The relationship between specific processes and macro-processes is not well defined.

Level 3 – Well structured

- The basic activities are performed according to a well-defined process, following standards adopted throughout the organization.
- Sub processes and activities are defined.
- Relationship between processes and macro-processes are defined.
- Start of using measurements to help manage processes.

Level 4 – Managed

- The organization is focused on process management.
- Detailed performance measurements are collected and analyzed.

- Knowledge of the capacity of the process.
- Good margin of accuracy in performance predictions.
- More objectivity in performance management.
- Product quality is measured.
- The main difference compared to level 3 is that, at this level, the performance of the process is quantitatively known and controlled.

Level 5 – Optimizing

- Performance goals based on business objectives are quantitatively established.
- Systematic measurements to provide feedback on process performance and guide the actions of improvement and innovation.

The main difference in relation to Level 4 is that at this level, there is a permanent action for improvement and refinement of methods, oriented to the organization's strategic goals (Rohloff, 2009 and Siqueira, 2011).

The model proposed by Rohloff (2009), called PMMA (Process maturity model application) is focused on the evolution of all activities related to the implementation of BPM. The following objectives guide the approach PMMA: Assessing the maturity of BMP and of processes; Monitor the progress of the initiative for new areas of action; reveal the potential for the practice of sharing best practices, Motivate and raise awareness for the management processes between the parts involved such as management, leaders of the process, and users.

The PMMA is composed of nine categories of evaluation of process maturity, being eight of these categories used in this work, not being used the category of Information Technology (IT), as there were not members in the companies' teams with a deeper knowledge about IT in this organization.

Rosemann and Bruin (2005), define a strategy based on six mature factors that directly affect BPM. The large part of the models are restricted to show the complete picture of the organization where it is not immediately perceived as the evolution of BPM is in fact, which in the case of this model is facilitated.

From these theoretical issues and the theoretical studies it was developed the following methodology.

III. METHODOLOGY

According to Oliveira (1997), a method is a set of processes in which it becomes possible to know a particular fact, produce a particular object or procedures and develop certain behaviors. Fachin (2001) adds that the scientific method is characterized by the choice of procedures for systematic description and explanation of a particular situation under study and their choice should be based on two basic criteria: the nature of the goal to which it applies and the goal that is meant in the study.

Thus, the research was descriptive, it aimed to observe, to record, to analyze and to correlate facts or phenomena, without interfering in the analyzed environment. There are several types of descriptive research, one of them is the study case that Yin (2001) describes how the pursuit of knowledge from the analysis of vari-

ous aspects of an individual or a group of delimited individuals.

To identify the companies participating in this survey was conducted in consultation with the Company records the Federation of Industries of Rio Grande do Sul (FIERGS, 2009) in order to find companies that are located in RVRP. The criteria used to select the company was based on the size, in large and medium companies. The companies identified were invited to participate in this project. This process was conducted by telephone contact to schedule a meeting with the head of the selected firm. At the meeting the objectives of the study were explained and the form for data collection was given to charge. The questionnaire took place during 2011.

Initially, meetings were held with the group of stakeholders for understanding and awareness of them with the idea of the project, after it was discussed what process would be where the methodology would be implemented with the aid of the priority matrix process. With the chosen process it was initiated the evaluation of maturity. In person interviews were conducted, by applying a semi-structured guide in order to evaluate the degree of maturity with key people from the process, the stakeholders, and with the aid of specially developed forms for the organization, and each application with the stakeholders lasted about 20 minutes.

Moreover, the application form for data collection sought: to identify the internal training programs of the company; to observe all involved in the processes who know the company's strategic objectives; to identify whether the company emphasizes the importance of everyone having knowledge of the process; to observe the way in which employees and high management participate of the systematic; to observe the ways in which companies detect opportunities for improvement; to observe the degree of autonomy granted to employees for continuous improvement activities, as well as of they are trained and aware, to observe what the role of senior management is and its support for the project.

In general, the methodological procedures were the following: literature research, elaborating a form to evaluate the maturity of the process chosen, visits and meetings with companies to understand the processes, identify the agents of the process and apply the form of maturity analysis process with these agents. After this application, it was made the data analysis and the returned of results to the companies participating in the research.

IV. RESULTS

In order to deepen the understanding of processes, the research team conducted systematic visits to the participating companies, making on-site survey, observing the process, its characteristics and peculiarities. Through site visits and monitoring of the process, the research team found possible critical points, and identified some opportunities for improvement to the process that could add value to the customer. For a positive return during the implementation of identified improvements, it will

be necessary to establish priority targets for improvement for the successful completion of the research. Next, it is presented the results found by company called: Company A, Company B and Company C.

A. Results of the evaluation of process maturity in the company A.

During the implementation course of the previous study, there were identified some critical points. One is the division of the internal structure of the company, because it has three major areas of process and each process is divided into four to six sub processes, where the sectors and the areas of work end up relating intensely, making it difficult the separation and division of tasks and activities. Another critical point in the process is that the company has a very large range of products, which makes more difficult the implementation of the management by process inside the sectors, being the production process complex, with many activities of information flow. It is important to note that the company has numerous manual of processes and procedure, due to its large number of activities and it works very hard with performance indicators within the processes. In Fig. 2 are presented and analyzed the data generated from the analysis of the data collected in the Company A.

Through the analysis of Fig. 2, it is possible to note that in some categories, as in Optimization and Data Management, there is a greater spread of level responses of each agent, i.e., there is some inconsistency as each agent sees these categories within the process. It can occur due to the lack of sharing between the stakeholders about how the management occurs, the performance measurements and the analysis on the process.

Comparing the responses of the Process Owner (person who knows the whole process – Stakeholder 01) and the Sponsor (main responsible for the process–Stakeholder 02), and it allows to view a scattering of very similar responses, i.e., the curves of the responses of both are very similar and consistent. Only in the category of Data Management there is a more significant difference. From the analysis of picture 2 it is observed that the curve of the responses of both (process owner and team) is very close.



Figure 2 – Overview of all agents on the Process of Light Wood

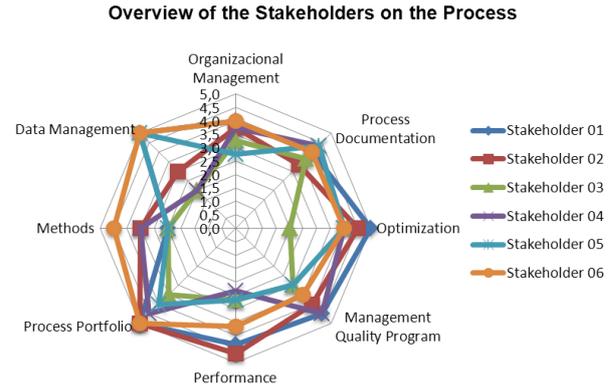


Figure 3. Overview of all agents on the Commercial Process in Company B.

B. Results of the evaluation process maturity in Company B

The research area proposed by the company involves the commercial area, where the information flow is intense and provides reference for all other sectors, from incomes, like production area of IT, projects and expedition. The great critical point is the information flow. The company has flowcharts guidance to employees of the commercial sector, but during the visits it was identified that even so, there are still some difficulties during the flow of information. In picture 3 there are presented and analyzed the information generated from analysis of data collected in Company B.

Through the analysis of Fig. 3 it is possible to note that the stakeholders of Company B think very similar in several categories that they were analyzed, like Documentation of Process and Organizational Management, as the response curves of both are very close. But the category of Data Management and Performance shows a response curve very far from the agents, which demonstrates that there are differences in how each agent sees these items within the process.

In Fig. 3 it is noted that the response curves of the Process Owner and the average of responses from the rest of the team are very close, causing a greater difference curve only in the category of Data Management.

C. Results of the evaluation process maturity in company C

Company C has proposed to start the previous plan in the CPC department, to identify and suggest improvements in information flow, since there are critical points in the receiving and passing on information. The greatest difficulty of the company is not to have manuals or flow charts provided by operating activities. Following are presented and analyzed the Fig. 4 generated from the analysis of the data collected in the Company C.

The analysis of Fig. 4 shows more significant difference response curves from stakeholders of Company C in the most analyzed categories. Only in Organizational Management and Methods the curves are closer. In picture 4 shows that the Process Owner (Stakeholder 01) and the Sponsor (Stakeholder 02) in Company C understand the process very closely in most of the analyzed categories, having a greater distance in the response

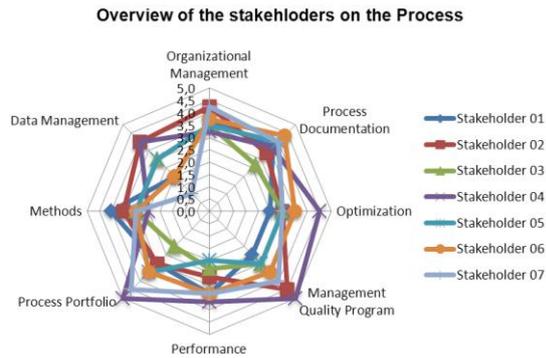


Figure 4. Overview of all agents on the Process

curves of both the categories of Data Management and Program Management and Qualification.

In Fig. 4, it is possible to realize that the vision of the Process Owner (Stakeholder 01) compared to the rest of the team about the process is quite similar, because their response curve is fairly consistent.

The results were presented to the companies that shown to agree with the results and also voiced the interest of further analysis based on these results.

V. CONCLUSIONS

The conclusion of the three companies studied in relation to their maturity have brought the following results: In the **Company A** it was obtained a result of Level 3 – **Well structured**, according to the criteria for assessing the degree of maturity, and these basic activities are performed according to a well-defined process, following standards adopted throughout the organization, sub processes and activities are defined, relationships between processes and macro-processes are defined, beginning the use of measurements to help manage processes. In the **Company B** it was obtained a result of **Level 3 and 4 – Well structured and managed**, in these basic activities the organization is focused on process management. Detailed performance measurements are collected and analyzed, knowledge of process capability, good margin of accuracy in performance predictions, more objectivity in performance management, product quality is quantified. In the **Company C** it was obtained the results of **Level 2 – Organized**, products according standards and specified requirements, the implementation of key processes in planned, managed and moves progressively to well-structured processes. The results of these processes are predictable, sub processes and activities may not be well defined. A general conclusion is that the measuring the maturity of managers at different levels is quite essential for decision making in relation to human resources, since its vision and concept of stakeholders designed for the process in question. From these results, it can be re-measured the maturity in the implementation process and subsequently in the monitoring stage for future comparisons of level changes.

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