BUSINESS PROCESSES, DOCUMENT MANAGEMENT AND DOCUMENTARY FLOWS: SOME PERSPECTIVES AND RELATIONS

OS PROCESSOS DE NEGÓCIO, A GESTÃO DE DOCUMENTOS E OS FLUXOS DOCUMENTAIS: ALGUMAS PERSPECTIVAS E RELAÇÕES

LOS PROCESSOS DE NEGOCIO, LÁ GESTIÓN DE DOCUMENTOS Y LOS FLUJOS DOCUMENTALES: ALGUNAS PERSPECTIVAS Y RELACIONES

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ABSTRACT: A business process consists of a set of activities that unfold for the purpose of achieving a certain outcome. One of the essential characteristics of a process is the generation and aggregation of documents, both in the physical and digital environment. However, documents are not always studied and presented in business process models, failing to add productivity and changes to processes. In order to demonstrate this need, a theoretical framework is established relating the themes, as well as evidence of the documents as dynamic content carriers that have a flow of approval and life cycle inherent in the business process. Next, two case reports are presented. The results point to the shocking changes in the processes in projects that present documentary studies. It is concluded that the importance of representing this participant instance of the process in the modeling is significant so that the advantages that are expected initially at a moment of transformation are obtained.

KEYWORDS: Documentation. Management. Production engineering.

RESUMO: Um processo de negócio consiste em um conjunto de atividades que se desdobram com o propósito de alcançar determinado resultado. Uma das características essenciais de um processo consiste na geração e agregação de documentos, tanto no ambiente físico quanto no digital. Porém, nem sempre os documentos são estudados e apresentados nos modelos de processo de negócio, deixando de agregar produtividade e mudanças aos processos. Para evidenciar essa necessidade, estabelece-se um arcabouço teórico relacionando as temáticas, além de evidenciar os documentos como entidades portadoras de conteúdo dinâmico que possuem fluxo de aprovação e ciclo de vida inerentes ao processo de negócio. Em seguida, apresentam-se dois relatos de casos práticos. Os resultados apontam para as mudanças impactantes nos processos em projetos que apresentam estudos documentais. Conclui-se que é significativa a importância da representação dessa instância participante do processo na modelagem para que se obtenham as vantagens que se esperam inicialmente em um momento de transformação.

PALAVRAS-CHAVE: Gestão de documentos. Gerência de recursos informacionais. Gestão de processos de negócios.

RESUMEN: Un proceso de negocio consiste en un conjunto de actividades que se desdoblan con el propósito de alcanzar determinado resultado. Una de las características esenciales de un proceso consiste en la generación y agregación de documentos, tanto en el ambiente físico y en el digital. Sin embargo, no siempre los documentos son estudiados y presentados en los modelos de proceso de negocio, dejando de agregar productividad y cambios a los procesos. Para evidenciar esta necesidad, se establece un marco teórico relacionando las temáticas, además de evidenciar los documentos como entidades portadoras de contenido dinámico que poseen flujo de aprobación y ciclo de vida inherentes al proceso de negocio. A continuación, se presentan dos relatos de casos prácticos. Los resultados apuntan a los cambios impactantes en los procesos en proyectos que presentan estudios documentales. Se concluye que es significativa la importancia de la representación de esa instancia participante del proceso en el modelado para que se obtengan las ventajas que se esperan inicialmente en un momento de transformación.

PALABRAS CLAVE: Gestión de documentos. Procesamiento de la información. Empresa.

1 INTRODUCTION

The origin of business process is linked to both predecessor: statistic control that started the quality movement and the reengineering of business process, being the latter a definition of improvement and process design (HAMMER, 2013). Process, according to Cruz (2011), refers to a set of elements that guide groups or individuals between the beginning and the end of a specific job, or yet, a process is a cluster of activities, which play out a role within an organization with the aim of achieving goals, previously defined. In an organizational context, the process might be referred to management activities (for instance, the accountability), the infrastructure activities (such as cleaning) and the activities-end (such as in a hospital is medical appointment or in a water plant is the power generation). All of these need to be managed in a way that its quality criteria is maintained, indicators and meet the clients' requirements, being these internal or external to the organization (ABNT, 2015).

A business process consists in a group of activities in which unfold into an institution with the purpose of reaching a determined result. To be considered a process, it needs to have essential characteristics in its formulation. One of these essential characteristics refers to a generation and aggregation of documents that gives support to activities present in their process, in the physical environment as well as in the digital one. This way, you can infer that document managing and information is recognized as a basic prerequisite needed in document management projects and of mapping and molding process. The archival policies take shape as a first carried out procedure in documental management and result in a documental typology inventory about a process or activity. The mentioned archivist practice may unfold as an instrument as a classification plan and temporality table.

At present, shaping business process has been in demand to align organization routines as an effective practice and efficient in management, once the economic reality has brought the need of a new planning for its market maintenance. As a way to adapt to the challenges that reality imposes, Business Management Process (BPM), has been understood as a way to optimize the organization and its resources in a strategic way. The representation in business process management conducts to a representative model generation by methodology means and diagrams, as a Business Process Model and Notation (BPMN). This methodology is considered for offering an ordinary language among all involved in the actual shaping activity: stakeholders, analysts, managers, etc.

What is noticed in the generated models and which constitutes a problem, when proposing improvements for the process as a whole, is the documentation item identification as an "artifact". This characteristic culminates in a model, which does not contemplate the correct archival identification of the document, does not map out its process flow and its respective life cycle. Consequently, the need to continue the flow modeling and the documentation procedure linked to the business management process. This way, it is possible to obtain an optimized document process and aligned to business process, resulting

in a documental management model and information with an adequate maturity level. In light of the foregoing, the aim of the present case report consists in relate the mapping methodology and business process modeling to document management from the theoretical and practical points of view, well-founded by analysis means and practical development derived from business management process in real institutions.

Krogstie et al. (2008) present five large groups of business process modeling, to know: i) meaning production and human communication; (ii) computer-aided analysis; iii) management quality; implementation and model activation to integrate it in an information system; v) model utilization as a context for a developing system project. Likewise, a management by process allows the decision maker to have a holistic view of the organization and, based on knowledge about it, it is possible to focus on improvement of productive activities, detect any record of mentioned knowledge and still work for its automation.

A solution for BPM, according to Recker et al. (2006), consists in the knowledge and registry, high-end, from all resources that are involved in the process, clarifying view of business organization. One of the essential characteristics process is the presence of documents (conventional as well as digital) which give support to activities and decisions. These however, rarely are contemplated in the shaping process, which would consist in the flow mapping stage of present documents in business management process. It is important to point out that mapping business management process realized by standard language means BPMN (OMG, 2011) identifies the document type as "data object, without any effect over the process" (AAGESEN e KROGSTIE, 2015, p.227) – the artifact. Thus, the model disregards the document flow, its life cycle and its archival precepts.

Archival is the area of knowledge in which the researched object is the document with the key characteristic, contemplating its life cycle since its genesis to final destination (DURANTI, 1994). According to Aganette, Teixeira e Almeida (2015), the archival precepts apply their potential in institutions by aspect means of, to know: i) theoretical, as the three-age theory; methodological, production plan as instruments of documentation classification and temporality table and document destination; iii) legal, criteria and an effective check in support of genuine proof of the law; and iv) archival practice in itself, management operation. Only with the implantation of management methodology of documents in the organizations, it is possible to identify the documentation typology from the production moment, map out its flow and procedure in business management process and generate storage validity for a specific context until its archiving or elimination. Knowing the types of content allows participating in support evolution of approval (physical signatures for electronic or approval in workflow systems), rationalization in policy coordination besides bringing other types of improvements to organizations.

At the present, the organization information routine has transited in physical and digital context, which makes things difficult for the organizations. To manage and conciliate

a legacy of documents in a physical environment, stored in archives with evidential legal characteristics, with information systems and documents in digital environment has challenged researchers, information professionals who work in the job market of information technology. Document management and information configures, admittedly, a prerequisite for mapping projects and process modeling. That way, there is not another way unless to align the business management process, archival procedures, corporate strategies, compliance, organizational culture, corporate technological architecture, management sponsoring, change management, standardization and other areas of knowledge involved, as Information Science. However, there is not a simple and fast solution to implement in a moment of constant transformation, but it is the safest one to create a real and workable structure, and that should be considered in automation projects of this nature.

Before this theoretical dialogue and by the point of view in the areas of knowledge involved, in analysis of a real case, as following, shows a problem pointed out and suggests that the proposal indicated regarding the input of an analysis stage and mapping of documental flows solves the identified gaps. In addition, by means of generated knowledge, an analysis is stablished based on the case regarding the projects of business management process in institutions in a real and practical way.

The results of the present case report reflect on practical and theoretical contributions pertinent and valuable for the field of Information Science, directly linked to document management, process modeling, and still, to the specification of requirements for the development and modeling of systems.

2 METHOD

From the scientific point of view, special in the Information Science, it is observed a little academic production following the exponential market development of technological solutions for document management and information. A few researchers have dedicated some of their research in a way to generate a structured and systemized knowledge capable of subsidize technically the subject, as evidenced by Bax et al. (2016) and experienced a low expressivity in the results in bibliographic research in database in specific areas. Or better, bringing to the scientific context a confluence of the topics configures a contribution for building knowledge by means of an elaboration of a theoretical basis that sustains a practice required by the market.

Consequently, the research methodology used to achieve the goals of the present case report consisted in, in the theoretical field, consolidate the themes "process" and "management" and their relation in a substantiated way. In the same perspective, bringing knowledge of archival practices in document management and documentary flows. Therefore, stablishing, consolidating and relating under the Information Science perspective the thematic involved, it is constituted of a theoretical framework, justifying the use of the

subjects mentioned previously as an impact knowledge area for the mentioned study and for the Information Science.

From the practical point of view, the methodology consists in comparing two models. One of them was extracted from a process modeling project in which was inserted a documental analysis as a stage and the other, characterized for the absence of a documentary analysis as a project stage. In this way, there is a production expectation benefit to justify that for the finality of obtaining models of superior level quality, it is needed to project a documentary flow together with a business management process, besides showing the importance of having an information professional in action in this work market. For this study, it was considered in terms of gathering analysis, the final product of the mentioned projects and their respective practical results.

3 ANALYSIS OF MODELS OF PROCESSES

Two management models were extracted from real cases, being one in which contemplated a documental analysis as a modeling project stage, and, in another, it was not considered the referred stage. Both will be presented as follows.

3.1 Process models in which considered a documental analysis as a Project stage

The process to be analyzed is referred to an accountant transaction, modeled in a Research Project & Development (P&D). The project of multidisciplinary characteristic was realized through a partnership between Universidade Federal de Minas Gerais (UFMG) and Companhia Energética de Minas Gerais (CEMIG), with a funding from Agência Nacional de Energia Elétrica (ANEEL). The authors of the case report headed and conducted the documentary studies, archival and the configuration of both in the technology.

The original diagnoses was realized through interviews and by the model management "as is" (figure 1), and was capable of highlighting a large number of xerographic printing and copies, besides the redundancy formats (original material, copy material, digitalized material, microfilm). This format duplicity and support did not result in a document recovery process and agile information, efficient and effective, in addition to aggregating high associate cost (printing, copies, storage and checking-).
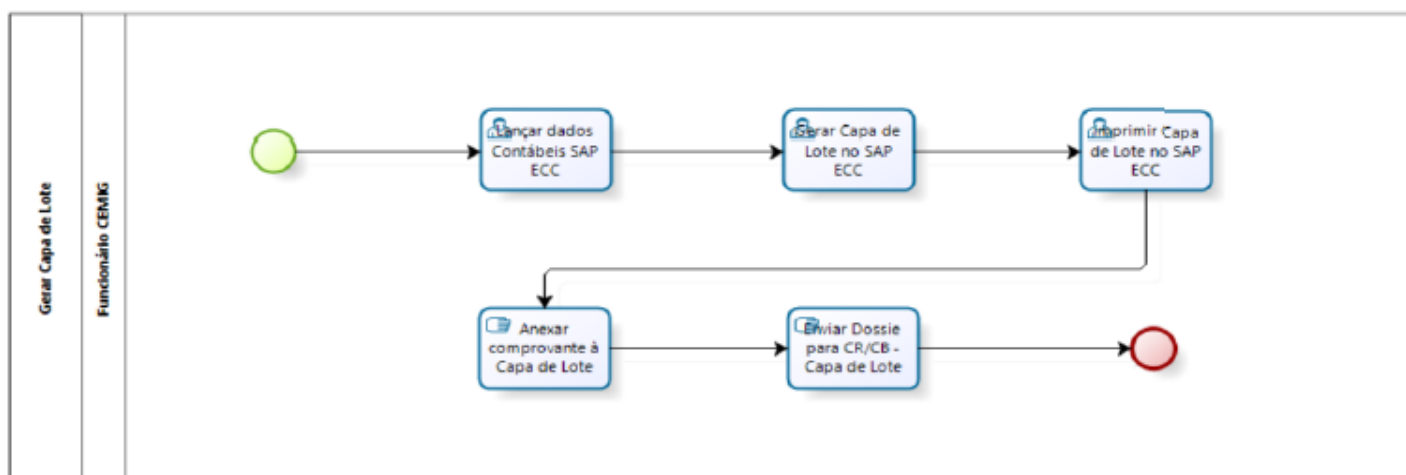
RDBCI: Revista Digital Biblioteconomia e Ciência da Informação
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RDBCI : Digital Journal of Library and Information Science

Figura 1. Modeling "*as is*" from process
Source: P&D CEMIG GT507, 2014

To be able to reach a business process improvement presented, there were organized meetings and workshops with their key-users, with the aim to generate a "*to be*" model from the same (figure 2).
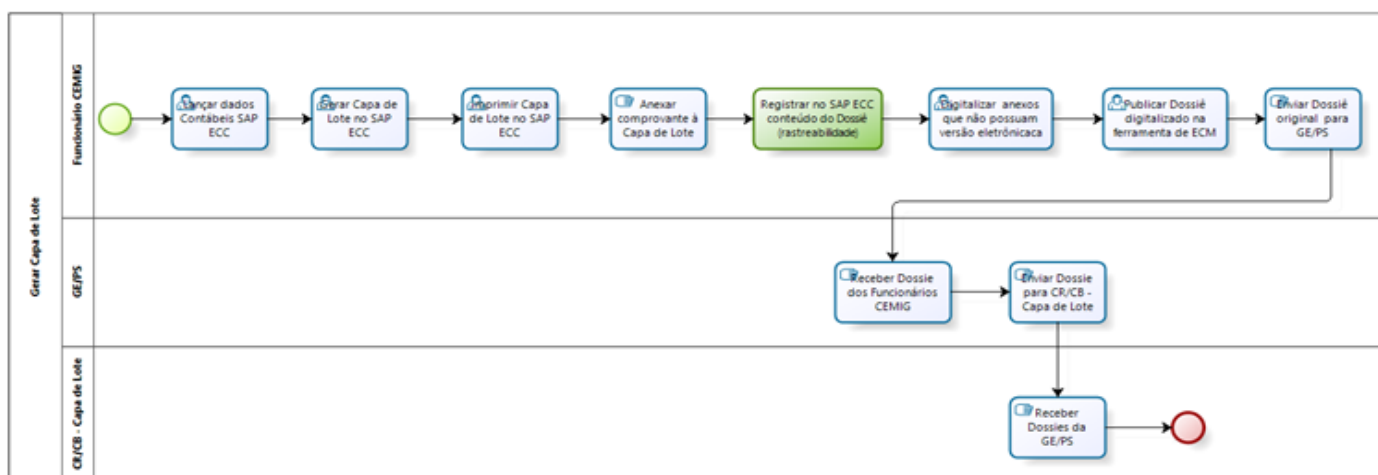

Figura 2. Modeling "*to be*" process
Source: P&D CEMIG GT507

The documentary process analysis associated to the business process became the project's key node. Through the study of dossier types in the electronic system in financial management used in the enterprise, linked to the studies of documentary items which constitute these dossiers by archival practice, it was possible to optimize the management process. The optimization was reflected on a drop from 126 to 37 types of financial dossiers. From the current 37, it was pointed out that 11 of them dismiss other types of attached documents. The evaluation of document types belonging to the dossiers were initially from 92 to 93 after the study. In the elaboration of archival management instruments, it was identified that 75% of the document types are born digital.

With the study of business process and the study of related document process, the technology was able to: i) absorb the need of printing when maintaining the original digital format of documents (like for example, digital electronic receipt); ii) enable digitally scanned image from the original material and associate through the metadata in an automated form to the dossier in which belongs besides indicating the correct filing of the material; iii) make it available routine service or internal hearing and, mainly the external ones, through direct image consulting through web tools. Still associated in process improvement, it was possible to calculate, in five years, that the economy is significantly relevant. It is estimated that millions of Reais (Brazilian money) saved without printing the unnecessary and making copies, to eliminate material filing in redundancy or for excessive time, when reducing costs for physical material checking and to optimize the team involved in all the process.

3.2 Process Modeling in which was not considered a documental analysis as a stage in the project

The process to be analyzed refers to an External Requisition Purchase modeled in a Mapping and Modeling Process Project. The project, of consulting character, was realized by the authors of this report in a public institution of public rights, non-profit, ICISMEP - Instituição de Cooperação Intermunicipal do Médio Paraopeba. The mentioned institution manages public money targeted to health cooperatively, optimizing business process. The main office is located in the surrounding area of Betim, in the state of Minas Gerais, Brazil, with the development of health activities in many other partner towns.

The initial diagnosis was realized through interviews with workers of each area and by the model management "as is". In this case, only the descriptive process was produced, it was noticed the pressing need of restructuring the business process (or better, there was no flow design). That way, for the production of the model "to be" of the business process, meetings with the key-users took place in each field range. The "to be" version of the referred process (figure 3) enabled a review and restructuring of the same, the identification and gap corrections in the routine activities, also made it possible for the process restructuring which were not in accordance with the institution strategic plan. The work also enabled the review of a corporate diagram, the optimization and enhancement of working intellectual resources, culminating in a staff reduction.
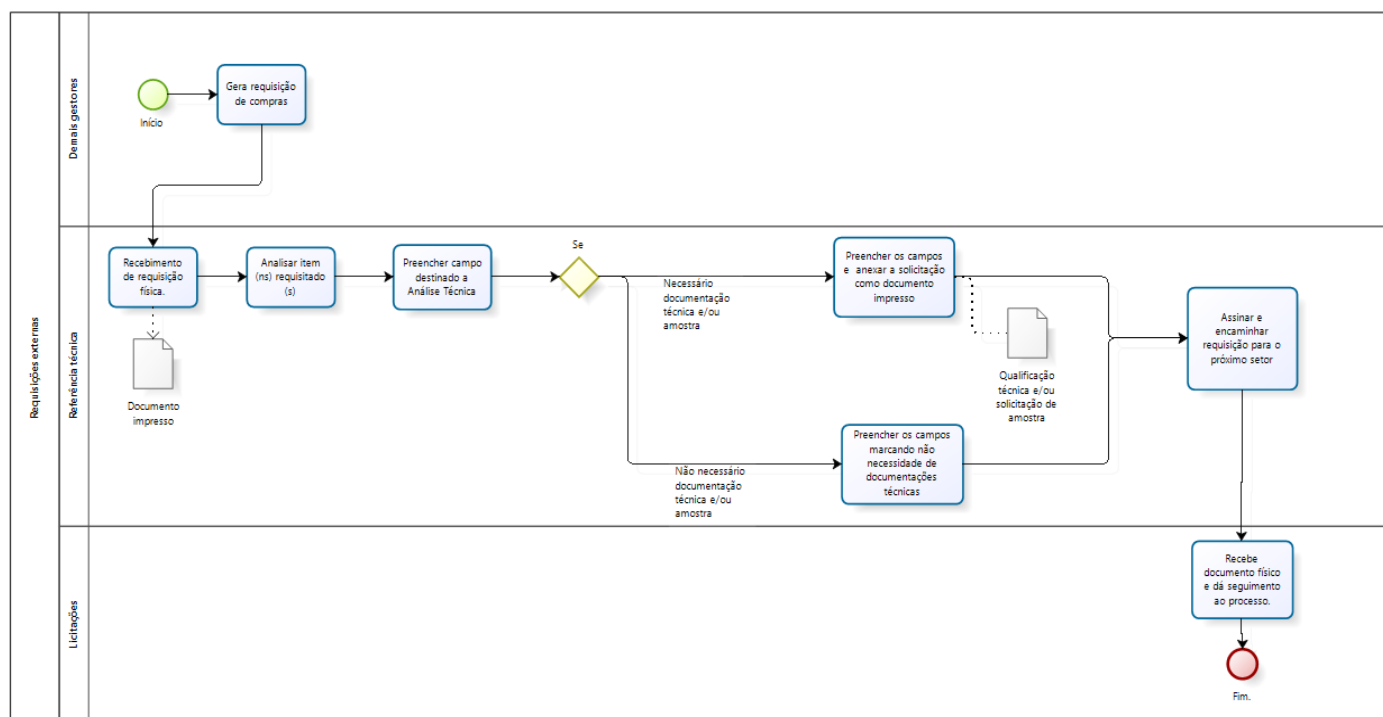
RDBCI: Revista Digital Biblioteconomia e Ciência da Informação
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Figura 3. "to be" Modeling process: External purchase requisition
Source: ICISMEP, 2014

However, as mentioned beforehand, the document analysis stage associated to the business process was not considered at the mapping moment and business process modeling, once that the mentioned stage was not part of the scope hired. This fact showed a weak spot, once there was no right study of the dossier types and their respective flows. Within the context, in which the proliferation of document production and consequently with the cluttered accumulation point as a problem too common in other institutions, the lack of document flow management as an input for decision-making, additionally to leaving exposed the institution regarding fiscal service, hearings and other probative demand.

4 RESULTS

The absence of the study of documents that participate in the business process, does little to improve the way the processes are implemented. What is observed in practice are document processes flowing the same way as before, once these documents are holders of dynamic contents and of approval registry (such as stamps and signatures). That way, it has still been generated printed and signed formularies, accumulated documents and registries and, as consequence, filed bigger volumes of papers and maintained old problems of recovering of documents and information. Besides this, decision makers, many times are driven by surges of technological innovations, opting for automation as a solution to their process problems, culminating to a moment of initial euphoria into a big frustration for not reaching the initially expected goals. Likewise, new automation of business processes

projects have risen and brought with them challenges of breaking remnants of previous unsuccessful projects, that had technology as a main focus.

All organizations need some type of information or knowledge to give continuance to the process, being those simple daily activities or more complex decision-making. That way, there is a constant demand for organized and standard information in a way of offering a simple and easy recovery. This is the information professional "business". There is no alternative way to process modeling so it can obtain knowledge and a critical view of the organization for then result into improvements. The hierarchic view, functional view, policies, culture, business rules, legacies, present technologies, documents, metadata, archives… it is necessary to identify and study the instances that impact and modify the way how people (the main resource) work for the projects not to fail. It is necessary to represent these instances in the process modeling in a real way, conferring them their functionality. The instances need to fulfil their role, or better, their function, and even if it is automated the process and the way to transform is played out, it should be guaranteed safety, traceability and conformity with the process as a whole.

Bax et al. (2015) present in details the deliverables and the results of the project developed at CEMIG (CEMIG is the Power Plant Company of the state of Minas Gerais – Brazil.). Even though it culminates in a technological development in a management tool of corporate content, all its grounds and specification were based on the studies from documents that participate in the process. The reflection brought by the document process design (*as is* as well as *to be*) and the archival knowledge building of the same, aggregated all the optimization enabled by technology, in agreement with the present legislation and aligned with the enterprise's internal and external hearing directives. Bax, Ferreira e Teixeira (2017) reflect upon the same project approaching, at last, the information professional while expert of conventional and digital document management, of business process and information systems, amongst other skills.

Regarding the ICISMEP Project, Aganette, Teixeira e Aganette (2018) present their development scenario, the details of the path taken and their results. Even though results were reached which aggregated value to the business regarding its organization structure, the process itself and their document flows remained vulnerable due to the management position in not treating the resource as an organization strategy. The authors reflect about this position and conclude that the archival practices in the Brazilian public institutions have a bigger emphasis in historic records without impact for decision-making.

Both projects were capable to present, each in its own specificity, the importance of maturity level regarding document management of the managers and professionals involved. It is needed to educate and sensitize these individuals for a transformation with safety, in real conformity and expectation, minimizing the discomfort of a change for a way to orchestrate the document activities in a more efficient way. Being said, it is notorious the need to define

models, methods and techniques which enable the institutions to manage the document flows in an agile and safe way associated to the business process.

5 FINAL CONSIDERATIONS

The management for process is a methodology in which organizations maintain themselves active in the face of competition that, differently from 30 years ago, it is not only local. Being by quality management system (ABNT ISO Norm), being by the Excellence Management Model – MEG (FNQ, 2011), through the Hospital Certification or other methodologies in any type of institution, the processes are always being submitted to conformity and improvement cycles. A natural evolution of these cycles, while achieving maturity, can be the automation of these processes, where you look for electronical/digital ways of negotiating and making organizations more efficient. This evolution does not always reflect in less bureaucracy or manual dependency activities (like visas, signatures and stamps), for the document life cycle, actually, it does not follow the mapping process cycle.

It is expected from this collaborative paper to contribute as much as by the theoretical point of view as well as through the practical with the field of the Information Science. Theoretically, bestows a very well-founded characterization of the study impact on documents aligned to the process modeling, inserting new knowledge to the Information Science, and at the same time, taking Information Science to other knowledge areas. In a practical way, this work has brought subsidies for an analysis and project development in management process through the management approach of document management and information, specifically by means of insertion of documentary analysis as an indispensable stage in process modeling projects.

This change and standardization become each time more necessary, once the information, for being considered worth input and of bigger importance, is necessary in any given organizational context, as an internal or external resource. Rezende e Abreu (2000) state the need of a special care in elaborating and producing documents, creating a normative standard for the document production in an organizational sphere, suitable for the information flow needs of the institution. A crucial standard norm for the standardization of flows in the document management systems, facilitating the sharing, use and reuse of information in many sectors and business process in the institution and standardization the procedures regarding document management. In front of what has been presented, it is also considered that the document studies enable a reflection about the real need of document process types, about the document automation possibility and of its approval cycle (such as digital forms associated to a workflow).

In front of what was displayed, it becomes evident that, the more trustworthy, safe, accessible and with a continuous flow which this information is in, the greater ease the management process of business process, and consequently. a greater competitiveness the

organizations will have. For that, it is needed to adopt the practical document analysis, for a correct informational flow allied with the process modeling and to technologies to minimize the deficiencies in strategical process coming from the lack of information, while these accumulate in a disorganized way.

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