It change management process improvement: the case study of a brazilian court

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ABSTRACT - IT became an indispensable structure for organizations, whether public or private. Although it is considered a support area, IT plays a strategic role in organizations, its procedures must be systematically conducted. This article addresses best practices in IT Service Change Management and compares these practices with current implementation in a court of law. The purpose of this comparison is to verify the adherence of the implemented process and to suggest adjustments that can guarantee quality of services. For that, a review of the pertinent bibliography and a case study of the processes implemented and executed by the court was carried out. The preliminary comparative analysis demonstrated that the change management activities of the court's IT services have opportunities for improvement both in the process and for implementation of control mechanisms, which were suggested by the researchers.

KEYWORDS - ITSM, ITIL, service management, change management, process improvement, quality of service.

I. INTRODUCTION

When observing the development of companies, it is noticed that Information Technology (IT) systems have become increasingly complex, heterogeneous and dynamic, so it becomes imperative to efficiently manage this environment without neglecting customer satisfaction [1].

To meet this challenge and ensure full service to the needs of the business, companies begin to introduce the concepts of IT Service Management (ITSM). Thus, by proposing the idea of process-based operation, the ITSM has become one of the main drivers for business success [2]. The use of standards in IT infrastructure allows this alignment to occur providing less complexity and higher quality to the services [13].

In this context, the research question is defined: "is the IT change management process of the Brazilian Court of Justice proper with the best practices recommended by the literature?".

This research aims to compare the current process of IT change management of the Court with the best practices suggested by the reference authors consulted in the literature review, proposing improvements based on identified opportunities and threats.

To enable this study, this research was structured in five sections. Section II presents the theoretical framework used for service management and change management. Section III will present the research methodology applied to the research project. In section IV the data will be analyzed and the result presented. And, finally, the final considerations will be presented in section V.

II. THEORETICAL REFERENCE

A. IT SERVICE MANAGEMENT

IT Service Management (ITSM) enables the extraction of valuable business perspectives that lead to greater efficiency and quality of services delivered by Information Technology to the organization [3].

The literature review by [1] and [4] identified several frameworks that address standards for IT Service Management, including: Information Technology Infrastructure Library (ITIL), Control Objectives for Information and Related Technology (COBIT), ISO/IEC 20000, Microsoft Operations Framework (MOF) and IBM Tivoli Unified Process (ITUP). Among them, it is possible to note the prominence of the ITIL

framework as a reference for the internalization of ITSM best practices in companies [1] [4] [5] [6].

In the study conducted by [5], the authors conceptualize the Information Technology Infrastructure Library (ITIL) as a process-based methodology that provides best practices for IT Service Management (ITSM) and helps organizations align IT to the needs of the business, promoting quality of service and reducing, in the long term, the costs to provision of IT services.

The quality of service delivery is directly linked to the practices of IT Service Management. Considering the need to create and monitor key performance indicators (KPIs) were studied by [12].

Between the years of 2007 and 2008, ITIL version 3 was launched, which is composed of five books and organized in the following service life cycles: Service Strategy, Service Design, Service Transition, Service Operations and Continual Service Improvement. Each of the five major publications covers a life-cycle stage of the service [6]. Figure 1 presents the organization of knowledge regarding the new version.

Figura 1. ITIL Service Life Cycle [7]

In the book Service Transition is, among others, the process of Change Management, whose implementation will be object of this study case [7].

B. CHANGE MANAGEMENT

Changes are inherent to business and necessary for the survival of organizations in general. In a competitive business environment, changes occur rapidly, in different ways, scales and quantities [8]. Organizations change to cope with increasing competitiveness, comply with laws or regulations and introduce new technologies [9].

In fact, the triggering triggers of the transformation need are of the most varied types, which can, however, be grouped as: external causes, organizational causes or causes internal to the project [14]. As an example, the fragile definition of needs and specifications at the beginning of the project is motivated by: (i) the reduction of costs in the specification stage (internal cause to the project); (ii) by changes in the business need (organizational cause); or (iii) by the legal or regulatory imposition of new rules (external cause).

Because of the devastating potential that a negative impact of a change can impose on organizational goals or the success of a project, effective change management is a premise for companies to continue to exist [8]. It is unquestionable, therefore, the importance of this theme, which has awakened in the researchers interest in deepening in the subject and to create models that help the organizations to identify and treat the changes in a controlled way, minimizing risks and optimizing resources aiming to reach the objective of the organization or project.

The success of an organizational transformation or implementation of changes is not, however, only based on a systematized process. Critical factors for successful change management include: (i) leadership, (ii) teamwork and collaboration, (iii) sharing of vision and responsibility, (iv) communication, (v) sense of urgency [7] [11].

According [11], which was highlighted in the literature review because it has been cited in several recent studies analyzed, the following are success factors of the transformation process:

i - The implementation of change implies altering procedures, modifying culture and transforming the previous status so that it becomes necessary to be led by those who clearly see the need for such changes. Therefore, the change should be sponsored by the responsible authority. ii - To ensure the team's commitment to change, they must be clearly informed about business directions and needs and be involved in decision-making processes. iii - The existence of a vision helps to define the direction in which the organization needs to move. Without it, transformation efforts can dissolve into a range of projects that take the organization to the wrong place or nowhere. iv - Employees will not strive to promote the necessary change in the organization unless they believe it is useful and possible. This belief will only be achieved through a massive communication process. Nothing weakens the change more than the contradictory behavior to the words of important individuals in the process of transformation. v - The sense of urgency may be motivated by an impending crisis or a new opportunity and should awaken in those involved the feeling that the current status is more dangerous than throwing itself into the unknown. When the sense of urgency for transformation is not high enough, the transformation process will not be successful and the long-term future of the organization is compromised.

The concepts and success factors presented apply to the management of change in the broad sense, without focusing on a particular scenario or branch of action. In spite of having been found in the review of the literature publications that have deepened in the theme oriented to the constructive industry, with regard to IT, academic studies are scarce that approach the management of changes as a central focus [14].

C. IT SERVICES CHANGE MANAGEMENT

Setting standards brings great benefits to organizations. However, as we have seen, a effective management of changes demands that there be commitment from both the com-

pany's employees and the leaders of the affected areas. The challenge of motivating employees was studied by [10] who proposed the adoption of dynamics in an IT Service Desk capable of increasing the quality of the operator's performance.

The present work studied the adequacy of the process of change management in IT implanted in a Court of Justice comparing with the recommendations of success factors presented. For this purpose, the methodology used was described in section III.

III. METHODOLOGY

This applied research was developed through a bibliographical research related to ITIL best practices, especially with regard to Change Management. For data collection, documents and observation were used in the organization under study. The data collected were analyzed through a qualitative approach in order to compare them with the related literature review.

After a bibliographic review, a comparative analysis was performed between the best practices indicated by ITIL and related literatures and the current status of the organization, in order to identify if the implementation of change management activities are in line with the best practices proposed by the model. Figure 3 shows the structuring of the research carried out in this study.
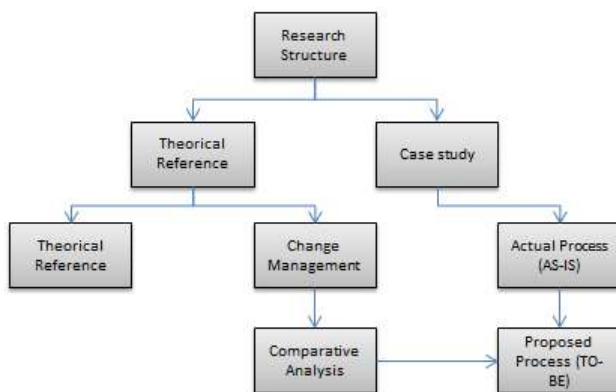

Figura 2. Research Structure

Finally, adjustments were suggested in the current process in order to increase the adherence to the best practices studied.

IV. DATA PRESENTATION

Currently, the court is in the process of internalizing the good practices of IT Service Management. And one of the processes wich needs to mature is Change Management. Currently this management process has been carried out in an incipient way, through a process that lacks documentation and maturation. Figure 4 shows the current Change Management process in use at the institution (AS-IS process).

The current service flow begins with the Request of Change (RFC) record in the call control system.

If the request is for out-of-hours service, the Change Committee is advised and RFC is scheduled. If the request

Service Available Time (SAT)	
Goal:	Minimize downtime
Quality criteria:	Credibility and Competence
Service level:	SAT >99.5%
Method:	SAT = (Minutes in which service became available / Minutes total) * 100

Tabela 1. SAT Indicator

is for attendance during office hours, the Change Committee must evaluate / authorize it.

In the case of emergency changes, the decision of the Committee is simplified to the approval of the managing member of the applicant unit. Not being a emergency change, all the members of the Committee must carry out the approval. Once approved the Request of Change (RFC), the service team verifies if the request involves the activation of the contracted company - whose performance requires authorization through the system - or can be served by employees of the Court, directing the service to the executor.

The executor performs the service, updates the system with information collected during the performance and closes the Request of Change (RFC). Understanding the current process, the strengths, weaknesses, opportunities, and threats of the current process were evaluated using the SWOT matrix. Figure 5 shows the result of this analysis.

The scenario analysis pointed to weaknesses in communication during the process and publicity of the results since the current process does not provide the use of an institutional tool. In addition, it was identified the lack of "Authorize change build and test"and "Coordinate change build and teste"stages of the change since there is currently no prior consultation for approval the change planning (the RFC is made with the job ready to be applied). Finally, it has been identified that the service of Requests for Change (RFC) outside office hours is not subject to a formal authorization process and that there is no default planning for a recovery flow in the event of an error.

After evaluating the activities of the ITIL change management process and the success factors for change management, the proposed future process is presented in Figure 6.

The proposal presents improvements mainly with respect to communications, review flow, change planning and testing, approval of off-hours changes and the recovery flow (in case of failures).

However, in addition to improving the process for adopting best practices, it is observed the need for effective monitoring of the process to verify that it is being executed with quality.

In this way, it is proposed the gradual adoption of quality and performance indicators related to the Requests for Change (RFC), with monthly evaluation of the results, as presented in tables 1, 2, 3 and 4.

With the monthly evaluation of the "Service Available Time" (SAT), table 1, it will be possible to define minimum quality metrics to be sought in order to make the services available to the target audience as long as possible.
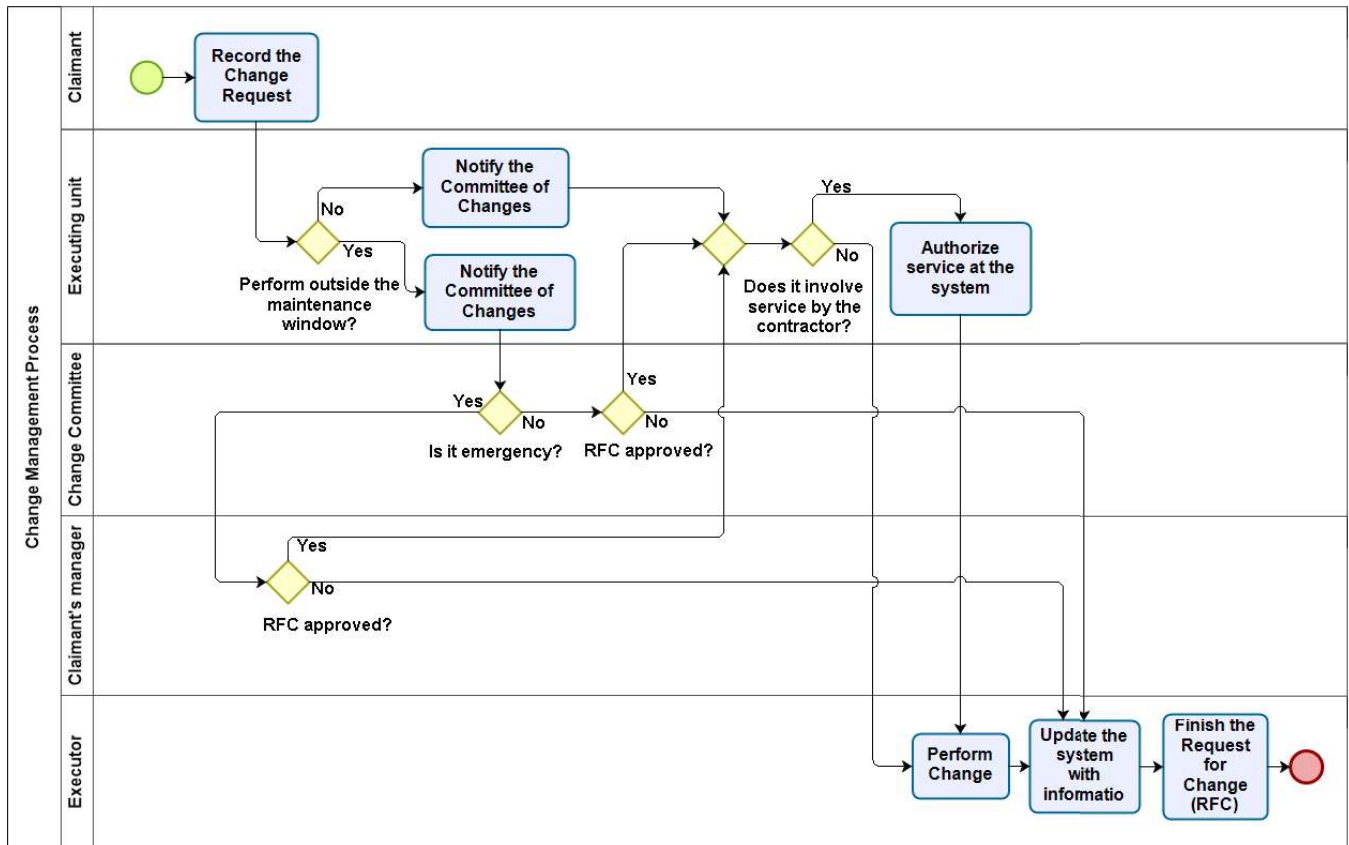
Figura 3. Current status of the process ("AS-IS")

Figura 4. SWOT Analysis of the actual process

Percentage of Appointments within the Term (PAT)	
Goal:	Minimize time to meet Request of Change (RFC)
Quality criteria:	Service speed
Service level:	PAT >95%, considering: • Low Complexity: <6h • Average Complexity: <12h • High Complexity: <24h
Method:	PAT = (Number of RFCs met on time / Total of RFCs performed) * 100

Tabela 2. PAT Indicator

For "Percentage of Appointments within the Term", table 2, are considered to be of low complexity those Requests for Change (RFC) that refer to documented procedures, which are commonly repeated and which require the performance of only one executor (such as requests for release in production of update in the codes of the web systems - deploy - without updating in the database).

The RFC classified with medium complexity refers to the requests that, although are well documented, require the performance of more than one executor with different knowledge, as an instance, a deploy requests that, in addition to updating the application source code, require updating the database used by it. Finally, a highly complex RFC is one in which there is a need to create a multidisciplinary team involving more than one sector, including the demanding sector and the potential affected, in order to ensure that the change has the desired effect with no consequences (such as updating the version of packages used by a Linux server that hosts one or more critical systems in the organization).

The monitoring of this indicator assists in the definition of action plans and decision making that make possible to assure the fulfillment in the term.

The accompanying "Percentage of Rejected RFCs (PRR)", table 3 facilitates the maturation of the demand proposition by allowing the analysis of the quality of RFCs received, avoiding the rework and minimizing risks that arise from
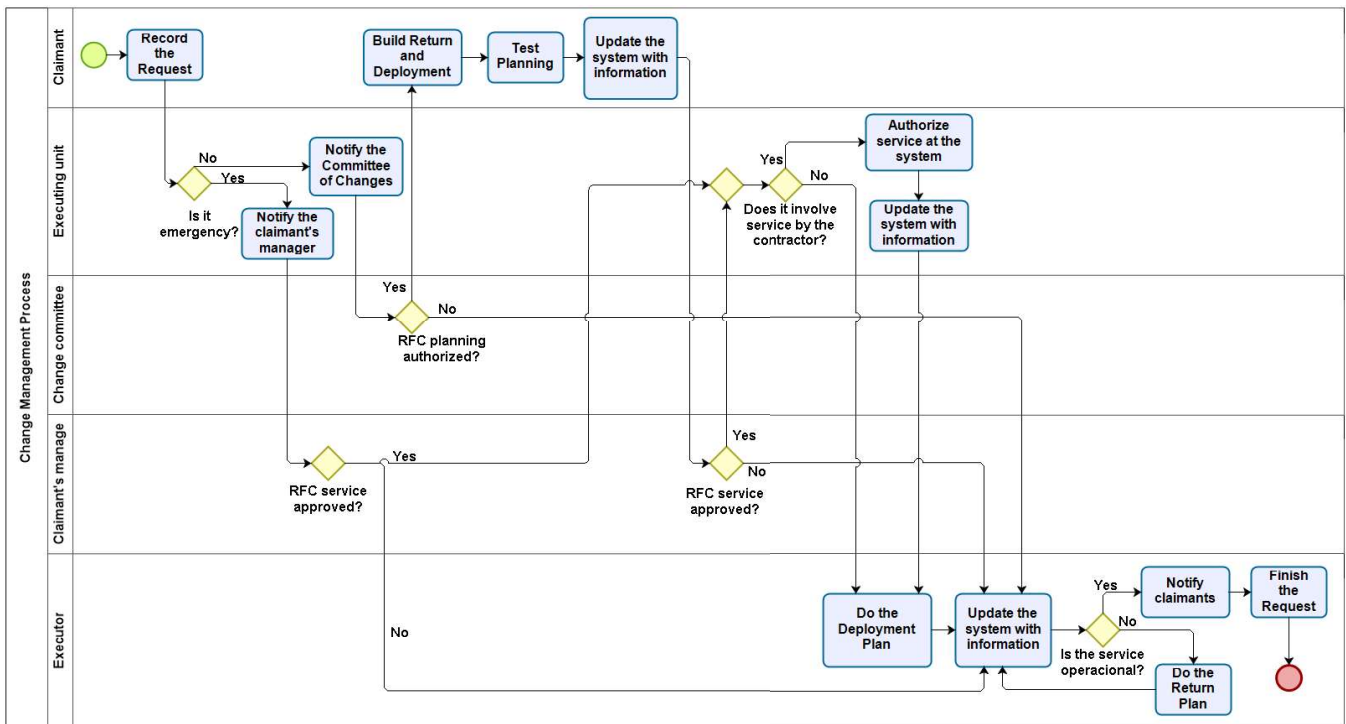
Figura 5. Future state of the process ("TO-BE")

Percentage of Rejected RFCs (PRR)	
Goal:	Increase order quality by minimizing rejection of Request for Changes (RFCs)
Quality criteria:	Flexibility and Eficiency
Service level:	PRR <5%
Method:	PRR = (Number of RFCs rejected / Total RFCs requested) * 100

Tabela 3. PRR Indicator

poorly formulated requests.

Percentage of Documented RFCs (PDR)	
Goal:	Increase the knowledge base
Quality criteria:	Service speed and Eficiency
Service level:	PDR >99.5%
Method:	PDR = (Number of RFCs documented / Total RFCs performed) * 100

Tabela 4. PDR Indicator

Finally, the monitoring of the "Percentage of Documented RFCs (PDR)", table 4, will enable the organization to disseminate knowledge and give speed and quality to the future attendance of similar problems.

Being operational, those indicators may contribute to the maturity of the change management process and the availability of the services offered to the users of the court.

V. CONSIDERATIONS

As result of the research, it was possible to review the bibliography referring to best practices in Change Management in IT Services and, based on the in-depth study of ITIL best practices and success factors for change, it was possible to analyze critically the current process of change management of the court studied.

As a consequence of strengths, weaknesses, opportunities and threats analysis of the current process it was possible to propose improvements in the way of: (i) propouse a improvement in the current process; and (ii) suggestions for the application of quality and performance indicators for IT Service Change Management focused on availability of services.

The implementation of these improvements, the systematic monitoring of the changes, the data collection to feed performance indicators based on the proposed metrics are objects of a future work that will, in practice, compare the productivity gain and quality in the management of the changes of the systems, whether software or infrastructure, in the IT of the court, object of study of this work.

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