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ServiceNow: Implications and Practice within the Business Environment

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Abstract

The growing economic pressures and increased competitiveness has forced companies to invest in increasing their efficiency and productivity in the provision of their services. In this sense, literature has shown that investing in ITSM platforms to perform this task helps in monitoring these services, in allocating the company's resources and, therefore, in increasing its competitiveness. Furthermore, identical to any change, the implementation of something new, may be met with some resistance, jeopardizing the whole process of its adoption. In this study, through interviews with employees of a Portuguese company, done between November and December of 2022, it was possible to analyze impact an implementation of a service management platform can have on monitoring services, as well as in the workers' day-to-day activities, when applied to a practical case. It was concluded that the use of an ITIL framework allowed the company to meet the proposed objective, and that the selection of the ServiceNow platform proved to be an advantage for increasing the quality of IT service management. Additionally, there was an increase in employee satisfaction and in the support that the platform can provide, facilitating the execution of their tasks, once the first barrier of resistance has been overcome.

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1. Introduction and theoretical framework

Considering the most recent economic and political crises, and the increasing relevance of organizations' Information Technology (IT) infrastructures, the pressure to reduce costs and prioritize service efficiency has become one of the main focuses for many organizations [1,2,3,4]. In this sense, several organizations have chosen to implement best practice frameworks for Information Technology Service Management (ITSM) that encompasses a group of processes to govern IT systems and align them with the business needs [5]. Moreover, ITSM emphasizes IT services, customers, agreed-upon Service Level Agreements (SLAs), and the treatment of their day-to-day operations [6].

ITSM subject cannot be approached without mentioning the five phases of the IT service life cycle, in which ITSM is based on. Firstly, the initial phase is set as the Service Strategy, which seeks to define the need that the service should address, to support the customers. Followed by Service Design, in which the design of the services in the short and long term, according to the previously phase, is executed. By doing so, it ensures that when the service is active, it will not require too many changes [7]. In the following phase, named Service Transition, indications for the development and implementation of services are stipulated, the service provider guarantees that users can use the new service in a way that minimizes costs. The fourth phase is defined as Service Operation, in which the processes related to daily service efficiency are incorporated in a way that guarantees their operability according to the SLAs. Lastly, the Continuous Service Improvement phase, in which, through the continual improvement of service design, transition, and operation, guidelines are given so that the value created is preserved.

In this regard, one of the most prevalent ITSM based methodologies is the Information Technology Infrastructure Library (ITIL). ITIL aims at supplying IT "best practices", while ensuring an efficient management and service delivery [8]. This allows organizations to achieve high levels of control, in alignment with their own business objectives [9]. Developed in the 1980s by a British Government organization, ITIL framework bases its practices on five supporting processes: Incident and Service Request Management, Problem Management, Change Management, Configuration Management, and Delivery Management [10, 11].

The choice to implement ITIL framework can have different roots. On the one hand, it can bring several advantages. According to [3] & [12], by adopting an ITIL implementation, companies can be aiming at: improving efficiency in operations, which allows a reduction in costs in the long run; creating a better alignment with the business, both internally and externally; enlarging the quality of services provided and therefore customer satisfaction; and finally, enhancing service orientation. Additionally, there has been an increased concern for effective and transparent IT governance, as well as to comply with regulatory and legal requirements. [13,14]. Furthermore, the use of the ITIL framework can contribute to a better team coordination, and an increase in the efficiency in process documentation [15, 16].

On the other hand, ITIL implementation can be faced with some hardships and resistance, especially before and during the set-up process [17]. This can come because of changing the way people work and can be exacerbated if the company's organizational culture is averse to change. During this phase, additional challenges such as lack of support from management and absence of planning and searching for more information can stand as barriers to a successful implementation of the framework.

Despite of the challenges, this framework has proved to be very useful in monitoring and controlling metrics and helping organizations which seek continuous improvement. Hence, it is essential for companies to define the key areas of the business in which, if poorly executed, can make it difficult to achieve their strategic objectives, their Critical Success Factors (CSF) [15]. According to [18] it is of most importance that CSF are free of political decisions, measurable, and have a correlation with the company's current plans. Additionally, they should aid with customer satisfaction, competitive advantage, and worker retention [6, 19].

After the CSF have been identified, the Key Performance Indicators (KPI) must be established [20]. [20] explains they are a set of metrics used to access and determine the performance of the company's activities and operations. To fulfill all the requirements, KPIs must be quantitatively measurable; realistic in resource accountability; relevant to the objective to be measured; sensitive to adapt to possible changes; and able to give out information in a timely manner, to allow for proper decision-making [18]. To achieve a more accurate use of CSFs and KPIs, companies use ITSM tools such as ServiceNow.

Developed in 2004, ServiceNow is a Cloud based Platform-as-a-service (Paas), whose main goal is to provide IT service management solutions, by offering its customers a simple, customizable tool which enables its clients to perform their IT services [21, 22, 23].

Hence, the current research aims to analyze and describe, in an organizational context, the ServiceNow adequacy regarding the services provided. Consequently, this research seeks to answer the following questions:

1. How did the introduction of ServiceNow in the organization influence the most relevant ITIL processes?
2. What is the adequacy of ServiceNow to manage IT services?
3. How did the implementation influence the satisfaction of the workers?

2. Methods

To answer the research questions, a qualitative analysis of a single case study methodology was applied, since the investigation required an in-depth analysis of the organization's procedures and data collection in the considered context. Therefore, the preferred methodology was chosen because it allowed the researcher to deal directly with the company's workers. The goal was to determine the decisive factors associated with the implementation of the ServiceNow platform, its growth prospects within the organization, and employee satisfaction. Thus, the case study of the present research included a road infrastructure concessionaire company, with a significant number of concessions, located in Porto, Portugal.

A qualitative analysis was conducted using semi-structured interviews regarding the employees' experience using the ITSM platform (ServiceNow) as a tool to aid them in their daily IT services tasks, through which it was possible to compare pre- and post-implementation practices [24].

Regarding the research method, one opted for the inductive method, through which, using individual data, taken from the selected sample, it was possible to draw general conclusions as argued by [25]. This method was considered appropriate given the exploratory and practical nature of the research, in a business context, and, in a relatively understudied research area [26].

2.1. Sampling

The sample for the present study consisted of 24 volunteer participants. Purposive sampling was applied, in which only employees who fit the research criteria were chosen. As a result, the selected sample only included workers from the Organization's "Information Systems Department" (ISD), who worked in different fields, and have different hierarchical levels, seniority, and education level. This selection was done since ServiceNow is an IT Service Management platform, which was only implemented in ISD as a working tool, and purposive sampling helps researchers justify the selection based on analytical, logical, or theoretical grounds [27].

There were 78 employees at ISD at the time the research was conducted, meaning the sample represents around 31% of the population. Regarding the participants' analysis, 46% are technicians, 33% hold Coordination positions and 21% hold Top Management positions. Additionally, 83% of the respondents have been employed in the company for 3 or more years, therefore, having accompanied the platform's pre- and post-implementation phases. When analyzing the level of education, a quarter of the participants (25%) hold a master's degree, 58% have a bachelor's degree and 17% have completed the 12th grade.

It is of most importance to highlight that the data collection took place from November 3, 2022, to December 28, 2022.

2.2. Data Processing

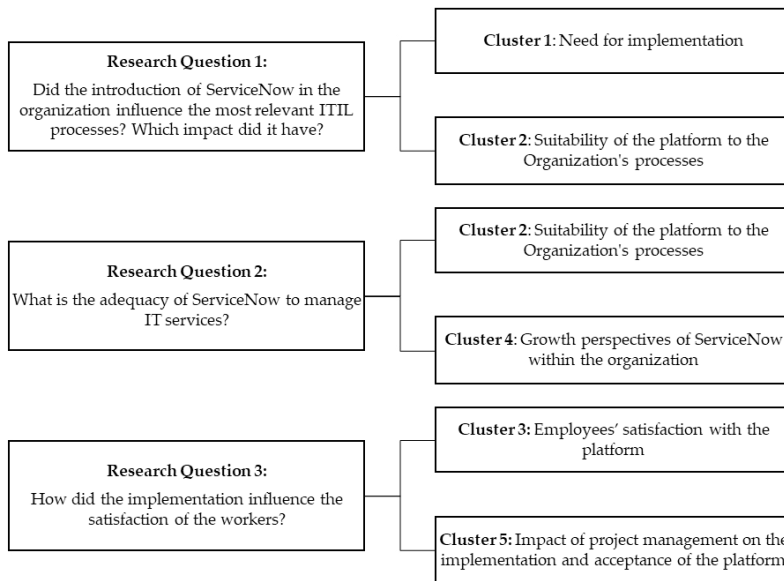
Regarding the instruments for data collection and processing, NVivo platform was used, in the version Release 1.7.1 (1534). This is considered by [28] to be the most widely used tool for qualitative research. The choice was based on the agility that NVivo allows its users. The role of this tool will always be to assist the researcher, allowing for

greater accuracy and speed in the analysis process, even though the researcher should always have control over it [29]. To perform the data treatment, we used the Excel tables tool.

To answer the research questions, the information was consolidated into five clusters, strategically chosen, according to our previous analysis using NVivo, to answer them. These clusters of information were elaborated according to five criteria, and are represented in Figure 1:

1. the need for implementation.
2. the suitability of the platform to the Organization's processes.
3. the employees' satisfaction with the platform.
4. the growth perspectives of ServiceNow within the organization.
5. the impact of project management on the implementation and acceptance of the platform.

Figure 1. Clusters



Source: Own elaboration

Regarding the approach adopted for aggregating and synthesizing information, group our sample of information by categories (clusters) was the suitable for the present research. Cluster analysis is a technique for grouping multivariables that has the main objective of grouping objects based on their characteristics. There are numerous terminologies for the analysis of clusters, used in different areas of knowledge (psychology, biology, sociology, management, and engineering), including Q Analysis, Typology Construction, Classification Analysis and Numerical Taxonomy [30]. For the subject under consideration, it was decided to carry out an analytical classification of each group of variables, which corresponds to contributions to the research question as shown in Figure 1.

3. Results and Discussion

To answer the first research question, it was analyzed the need for implementation (cluster 1) and the platform's suitability for the Organization's processes (second cluster). Prior to the implementation, the company did not follow ITIL best practices, nor had ITIL processes implemented. Thus, when asked about the needs that motivated the implementation of an ITSM platform, based on the ITIL framework, most participants reflected on the inadequacy of the previous, internally developed, platform. This tool was not considered very user-friendly and lacked flexibility to adapt to the new needs of the company.

Moreover, interviewees claimed that ServiceNow allowed them to establish ticket management processes that were not previously developed. Additionally, it aids in establishing a better contact with customers and suppliers, as well as

in standardizing the processes. In general, as advocated by [6, 12], employees in higher positions highlighted that ServiceNow enabled an improvement and centralization of operations, not possible with the previous tool. Coordinators and more experienced technicians emphasized how it has become simpler to manage teams and allocate resources, as well as to have more reliable metrics, and a better control of Service Level Agreements (SLAs). Furthermore, other factors, such as the improvement of the services provided, the increase in communication with the ISD's internal clients, the possibility of automizing certain routine tasks and the rise of competitiveness at an international level, were mentioned.

Subsequently, when studying the second cluster, it is possible to argue that only 16% of the respondents mentioned that the platform failed to respond positively to the needs identified. Despite the positive response, most of the respondents claim that the implementation is far from being finalized.

Secondly, to answer the second research question, it was analyzed the suitability of the platform to the Organization's processes (cluster 2) and the growth prospects of ServiceNow within the Organization (cluster 4). As previously mentioned, the company did not use an ITIL framework, therefore, 46% of the interviewees highlighted that this change allowed for the creation of workflows and the use of ITIL processes facilitated the flow of service requests and incidents, which enabled a constant update of their status points. However, 30% of the employees interviewed said that currently ServiceNow is being underutilized, serving "only as a ticketing tool", with no use of certain modules (not specifying any module) that could be very useful in performing their tasks. This disadvantage was attributed to the speed with which the platform was implemented, which resulted in lack of time to help define the processes they had ownership of proved to be a limitation, according to half of the employees in management positions. Nevertheless, according to several technical employees, there was a great resistance to change and little participation by middle management. This resulted in a great delay in the processes' development by the team running the project. Additionally, respondents mentioned that the ITIL processes implemented did not reflect the reality of the Organization's business. They attributed this lack to factors such the gap between the company's needs and the solution proposed by the consulting company that aid in the implementation and to the immaturity of the project. They also defended that, with experience and a constant process improvement, with an expansion of the modules that are missing and with the implementation of more complete ITIL processes, this gap can be fulfilled.

As for the improvement perspectives, it is possible to argue that most of the changes suggested by respondents are not platform related, but to its use within the company. Therefore, the issues that were highlighted are: lack of maturity of the tool in the company; workers' lack of time to learn and get used to it; and absence of training, especially to the end user. Additionally, the non-applicability of the Service Catalog, as it was considered by the respondents to be inadequate to the reality lived in the company. Now, the project team is working on its reconstruction and correction since it will be essential for both the end user and the ISD members. The team responsible for this restoration aims to reduce errors in the assignment of Service Requests, by making it more intuitive and easier to use. In this sense, it was pointed out the lack of agility in making changes. It is important to emphasize that this was defined by the business areas, during the implementation phase, and is therefore not a direct consequence of the platform.

Furthermore, when asked if any areas of the organization could benefit from the use of the ServiceNow, 79% of respondents stated that at least one area outside the ISD could. Thus, 58% share the opinion that all departments of the company should adopt ServiceNow. This is possible due to its adaptability and encouraged because organizations have processes that affect all functional areas, meaning that, "the outputs of some are the inputs of others", therefore, the integration of all tasks in a single platform would simplify the monitoring and control of the status and workflows of the tickets. The remaining 21% who responded positively to this question stated that it would only be beneficial for more operational sectors, whose activities contribute directly to business revenue, or areas related to project or contract management. A minority of 21% argues that the platform should not be extended to other areas and should remain as a working tool only in the ISD.

Finally, concerning the last research question, the third and fifth cluster were used. Regarding employee satisfaction, most of the interviewees agreed on the usefulness of the platform in their daily lives, claiming ServiceNow "allows you to have an overview of everything", facilitates the aggregation of information and communication with providers, it also adapts to the needs of each employee. By creating standardized processes, everybody involved is forced to be in sync with the tool's requirements, and to do the same activity systematically. However, due to the lack of maturity that the company has in using the tool, some employees highlighted that ServiceNow could be more helpful.

When analyzing its usability, being something new, ITIL processes were welcomed with some resistance to change and difficulty in adapting routines to the new platform. However, according to the respondents, these difficulties were quickly overcome, and the use of ITIL is now a standard practice at ISD.

According to [20,31,32], a correct choice of the Project Management Team and adequate training of the workers are essential factors for a successful implementation of an ITIL based platform. According to the interviews, it is unanimous that the project team was extremely supportive to all users in the difficulties that arose because of this tool. Nevertheless, there was a segregation of information on their part, information was not passed during decision making process, and little flexibility and communication. In addition, during the implementation phase, training sessions to educate and familiarize the ISD with the functionalities of this new platform were provided. However, the interviewees emphasized that these training sessions were not as pertinent as they could be. Additionally, the setup of the training workshops was also criticized, due to amount of people in each session, the pandemic context at the time, which forced the workshops to take place online.

4. Conclusions

Regarding the first research question, through the interviews conducted, it is possible to conclude that the use of the ITIL methodology allowed for a better control of resources, better communication with customers and suppliers, in addition to the standardization of processes. As for the second question, one attempted to empirically verify if ServiceNow was an adequate choice for the Organization's needs regarding service management. It is possible to state that this objective was met. According to the respondents, the platform not only facilitates the viewing of the work and requests taking place, but it also allows for an automatization of some of their functions, through the modules provided by the tool. Finally, the last research question related to employee satisfaction was entirely fulfilled. After overcoming initial resistance, employees highlighted the help and overview, as well as the control over metrics, which the platform allows.

Any research may present some limitations. Firstly, the choice of methodology. Although widely accepted, the use of a single case study can lead to skewed results, specially when the case study is limited to one organization. Additionally, using interviews as the sole research method may distort the information obtained. While universally distinguished, conducting interviews is time consuming and interviewees can be more easily influenced [33, 34]. Furthermore, the lack of research conducted in this area, especially in more recent times, may stand as a limiting factor. Another constraint to be mentioned is the volatility of the labour market today, especially in IT areas. This results in many human resource movements, which may make the findings less valid.

In conclusion, and despite the shortcomings identified, it was found that the implementation of ServiceNow collaborated positively to increase the productivity and efficiency of IT service management, facilitating the day-to-day life of its employees. This study attested that the choice of the ServiceNow platform proved to be an asset for the Company's IT service management. Additionally, and despite its complexity, it is possible to safely argue that this tool has excellent prospects. This study contributes to practice, and IT managers would benefit from our results. The research results might be used by all IT managers and technicians that are in the process of deciding which tool to adopt to manage IT services. The objective of ITSM tools like ServiceNow is to manage the IT infrastructure and optimize IT services to better align IT with corporate objectives and satisfy business requirements, in this sense the decision and implementation of a ITSM tool represents a critical step for the future of the organizations.

Future study should continue down a route that empirically assesses the outcomes of various implementation experiences in various types of businesses. When taking into account all the potential obstacles, applying a multi case design methodology and an approach to other ITSM products may also be a way to pursue.

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