THE SERVICE DESK AS A STRATEGIC ASSET FOR ORGANIZATIONS

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ABSTRACT

The study aims to identify the current challenges and benefits of the use of service desk systems for the automated management of IT service demands and, consequently, to contribute to the theoretical framework on the subject. For this, an integrative review was carried out, based on previous studies on service desk systems in publications of the last five years in the indexed databases Scopus and Web of Science. It was possible to list several benefits and opportunities, as well as some challenges and actions to overcome them, so that the use of service desk tools becomes a process that has strategic value in organizations. In addition, the metrics that help in the continuous improvement of the tool have been raised so that it can be modeled according to the demand of the organization.

Key words: Service Desk; Demand Management; IT Governance; IT Services.

1. INTRODUCTION

Technology has become the basis for various activities within organizations, due, among other factors, to its popularization and the advancement of the digital economy, which has put this tool at the center of the business environment (Silva *et al.*, 2016; Boyce, 2017; Handoko et Girsang, 2018). However, in order to maintain this cybernetic infrastructure at the service of the organization in a perennial way, it is necessary that the systems are functional and work continuously, without interruptions, so as not to cause damages and, in addition, still be able to impel the organization in the attainment of its objectives (Baños *et al.*, 2016).

This scenario requires a department that is responsible for carrying out IT maintenance and support activities in organizations (Chunpir *et al.*, 2015; Baños *et al.*, 2016; Boyce, 2017). However, in order for this department to become an asset in the strategic plan of the organization, in addition to resolving the technical problems, it must be able to carry out the technology governance, aligning the objectives of the sector with those of the organization (Chunpir *et al.*, 2015; Surendro et Raflesia, 2016; Astuti *et al*., 2017).

Currently, many organizations have been improving their IT governance processes and, for this, essential services must be provided, especially user support, which can be automated through the use of specific tools such as the service desk (Jäntti et Cater-Steel, 2017).

With the growth of IT services, demand for these services and proposed methodologies for their management have increased proportionally, making the role of service desk systems increasingly important for the task of supporting the user and to subsidize the technical team in the management of demands, from automated resources (Jäntti et Cater-Steel, 2017).

The service desk system can generate different challenges and benefits, depending on its alignment with the organization's objectives, structure and culture, so describing the current challenges and benefits of its use/deployment is a gap that must be investigated, as results can vary according to the context in which the tool will be inserted (Handoko et Girsang, 2018).

The IT area of an organization performs daily processes that require resources, methods, planning and evaluation to understand the progress of the services and that support the decision-making process to use its resources (Ellwanger, 2011). Knowing that tools for managing IT services, when used correctly, can generate positive financial results and contribute to the organization's development (Silva *et al.*, 2016), the process of evaluating the pros and cons of the deployment/use of service desk tools becomes important in order to support managerial decision making. Therefore, prior knowledge of its benefits and challenges can help the organization in the development of this process, enhancing the benefits of its employment and using the challenges for continuous process improvement.

Considering the above, this study was developed with the purpose of answering the following question: what are the current benefits and challenges of using the service desk in organizations?

This research aims to contribute with the theoretical framework on the subject, listing the points of difficulty and opportunity in the use of service desk for the management of demands of information and communication technology (ICT) services, thus supporting the process of deciding to use of this tool from relevant information on the subject. In addition, based on the knowledge of the challenges related to the use of these tools, it is expected that effective solutions will emerge for them that can be shared with the community.

To support the present study, the following chapter will address the current conceptions about the theme, and it is the theoretical basis for the work.

2. THEORETICAL REFERENCE

Governance and management of IT services

Leveraging a strategic view of the information technology service management (ITSM) process, IT governance can be defined as a set of processes defined and approved by the senior management of the organization, aiming to guarantee and stimulate the creation and compliance of IT procedures, always in line with the strategic business plans of the company (Weill et Ross, 2006). In agreement with this idea, Surendro et Raflesia (2016) point to governance as a set of good practices aimed at aligning the goals of the IT support sector with the organization's strategies. Thus, its main objective is to provide value creation by the IT area to the organization, reducing the risks of incidents and periods of interruption of the systems and improving the flows of the maintenance processes that involve the organization as a whole (Freitas, 2010; Jäntti et Cater-Steel, 2017).

There are several reference models and standardization documents aimed at the development of IT governance, among which, according to a bibliographic search, ISO/IEC 20000, Information Technology Infrastructure Library (ITIL) and Control Objectives for Information and Related Technologies (COBIT).

ISO/IEC 20000 is a document that defines the best IT service management practices that have been outlined by the International Standardization Organization (ISO) in conjunction with the International Electrotechnical Commission (IEC). This standard encompasses planning, implementation, service delivery/solution/release and control process models, and ITSM system requirements (Klumb *et al.*, 2014; Baños *et al.*, 2016; Surendro et Raflesia, 2016; Astuti *et al*., 2017; Jäntti et Cater-Steel, 2017).

ITIL is a set of documents that present good practices regarding the delivery of IT services, service support and service strategies. COBIT, in turn, is a process reference model for IT governance that focuses its processes on: planning/organization, purchase/implementation, delivery/support, and monitoring/evaluation. In addition, it provides IT risk management support(Klumb *et al.*, 2014; Chunpir *et al.*, 2015; Surendro et Raflesia, 2016; Baños *et al.*, 2016; Astuti *et al*., 2017; Jäntti et Cater-Steel, 2017; Handoko et Girsang, 2018).

When discussing IT service governance, it is important to present the ITSM, which can be defined as a set of actions and organizational tools that enable the generation of value to clients and users through services (Freitas, 2010). It is also considered an approach to manage and control IT activities, helping in the governance of this area (Iden et Eikebrokk, 2013). This approach aims to ensure the efficiency and quality of IT services offered by the company, and the service desk is one of the tools used in this process.

The ITSM process cannot be ignored in a scenario where more and more IT clients expect a systematic approach to service management; its non-implementation, therefore, can lead to the loss of business opportunities and its disfavor among customers (Jäntti et Cater-Steel, 2017). Their deployment, on the other hand, can result in cost savings, reduced incidents, and increased customer satisfaction (Marrone et Kolbe, 2011; Iden et Eikebrokk, 2013).

It is observed that, regardless of the governance model used, the service desk plays an essential role in the management of services. Despite this, there is still a gap in knowledge regarding the current benefits and challenges of its use/implementation in an organization.

Service Desk

The service office or service desk, a name by which it is popularly known, refers to a system that aims to make agile and qualified IT support services to the internal public of the organization or to other organizations, depending on the focus of the company (Freitas, 2010). It is also one of the components of the ITSM process and should be the only point of contact between the IT support sector and its users (Freitas, 2010, Surendro et Raflesia, 2016, Astuti *et al.*, 2017) and, therefore, has become increasingly important in supporting the management of services(Jäntti et Cater-Steel, 2017).

The modularity of its use is evidenced in the diverse range of functionalities and purposes that the tool presents, considering the structure and necessity of the organization, such as: to perform the first levels of support; manage incident/life cycle control of the so-called technical services; manage the prioritization of requests; assign calls to responsible team members; allow the user to follow your request; serve as a bank/distributor of technical knowledge and as a means of communication(Boyce, 2017;Handoko et Girsang, 2018; Freitas, 2010; Astuti *et al*., 2017; Jäntti et Cater-Steel, 2017;Klumb*et al.*, 2014).

Boyce (2017) mentioned that the service desk was already used as a support for evaluating the quality of services since the 1970s, when studies on the subject began. The author also points out that the tool is the primary point of service to the user. In addition, authors argue that the service desk should be the only point of contact between the user and the support industry, so that good ITIL IT management practices are met (Handoko et Girsang, 2018; Silva *et al.*, 2016).

Going deeper, Surendro et Raflesia (2016) argue that, in addition to the infrastructure that must exist, it is also necessary for the support team to be engaged in support activities for good practice systems and methodologies to work; therefore, support staff must be motivated. In the motivational and engagement context of the people, Klumb et al. (2014) report the resistance to change of users in utilizing a new system and complement by citing the importance of engagement, not only in the IT support sector but also in the organization as a whole, so that the maximum potential of this tool is harnessed. Therefore, it is necessary to have a service desk modeling that considers the demands of the users in their conception, thus assuming them as constructors of the tool, thus facilitating the implementation phase.

Magalhães et Pinheiro (2013) emphasize the importance of a service desk for organizations, nowadays, since it allows agility in the delivery of IT services, and the support provided by this area is a factor that influences the achievement of the objectives of an organization. Thus, it is important that IT management is aligned with the organization's strategic plan so that the services provided by this sector become facilitators and not barriers to the achievement of organizational strategic objectives (Klumb*et al.*, 2014).

3. METHODOLOGY

In this work an integrative review of the literature is carried out, so that, from previous studies, it is possible to reach the proposed objectives.

As a reference to trace the path of this review, the proposal for integrative review presented by Botelho et al. (2011) was used to be applied in organizational studies, which is composed of six stages: 1 - identification of the theme and selection of the research question; 2 - establishment of inclusion and exclusion criteria; 3 - identification of pre-selected and selected studies; 4 - categorization of the selected studies; 5 - analysis and interpretation of results; and 6 - presentation of knowledge review/synthesis.

Based on the identified problem regarding the need to investigate the management of ICT service demands through service desk, the research theme "service desk for ICT service in organizations" and the research question were defined, namely: "What are the benefits and challenges of automated management of ICT service demands in organizations from the use of service desk systems?"

With the problem and research question outlined, the descriptor "service desk" was selected for bibliographic research. The quotation marks were used to return only those scientific productions that have the complete term, excluding those that may present the words "service" and "desk" separately, and which could change the meaning of the search and, consequently, would contribute to the loss of alignment with the research theme. Closing the first step, the Scopus and Web of Science databases were chosen because they are multidisciplinary and indexed.

In the second stage, the criteria for inclusion and exclusion of contents were defined. In this paper, only articles dealing with the deployment/use of service desk systems in organizations, available for free viewing, published in Portuguese, Spanish or English, as of 2014, were included. This time cut was defined in order to present the current benefits and challenges of using the service desk in organizations. With the defined inclusion and exclusion criteria, previously researched articles were analyzed and selected as to their adequacy to the proposed research.

The searches at the bases resulted in 350 articles, 258 articles coming from Scopus and 92 articles from the Web of Science. Following the application of the criteria established for the year, language and possibility of access to the publication, there were 12 articles from Scopus and nine from the Web of Science. Subsequently, when the duplicate articles were removed, 14 publications remained. Of these, one was unavailable for complete reading and another three were misaligned with the research theme, leaving, therefore, 10 articles, which composed the final sample. The process of applying the inclusion and exclusion criteria, as well as the evolution of the balance of publications selected after each applied criterion, is explained in Table 1.

The articles were then categorized taking into account the most frequently addressed themes. As summarization groups, the categories were defined according to the research focus: user focus, focus on management and focus on the support team (Figure 1).

After the articles categorization of the, it was possible to analyze and interpret the data obtained, in order to identify the benefits and challenges of the service desk reported by the studies, which enabled the synthesis of knowledge on the subject. It should be noted that, in addition to the integrative review, an exploratory search was needed to conduct to better clarify the state of the art on IT governance, service desk tools and user support.

Table 1. Selection of articles

Criterion	SCOPUS		WEB OF SCIENCE	
	Discarded	**Balance after application of the criterion**	**Discarded**	**Balance after application of the criterion**
Initial search "service desk"	-	258	-	92
Only those of free access were included	241	17	77	15
Included as of 2014	5	12	6	9
Deleted Duplicates	-	12	7	2
Excluded divergent themes	3	9	0	2
Deleted for lack of full text	1	8	0	2
Total selected	10 publications			

Source: Authors' elaboration

Category of approach	Article
Focus on the user	Chunpir et al. (2015) - The need for a tool to support users of e-Science infrastructures in a virtual laboratory environment
	Handoko e Girsang (2018) - Service Desk Implementation with Information Technology Infrastructure Library Framework
	Silva et al.(2016) - Service Desk Software Usability Evaluation: The Case of Brazilian National Cancer Institute
	Sfenrianto et al. (2018) - User satisfaction analysis for service-now application
Management and governance	Astuti et al., (2017) - Risks Assessment of Information Technology Processes Based on COBIT 5 Framework: A Case Study of ITS Service Desk
	Baños et al. (2016) - ISO/IEC 20000 practices adopted in small software development organizations that offer services desk
	Boyce (2017) - Measuring perceptual (in) congruence between information service providers and users
Focus on the support industry	Surendro e Raflesia (2016) - Designing Game-Based Service Desk towards User Engagement Improvement
	Jäntti e Cater-Steel (2017) - Proactive management of IT operations to improve IT services
	Klumb et al. (2014) - Service Desk, posso ajudá-lo? Ou melhor, você pode me ajudar

Figure 1. Categorization of articles
Source: Authors' elaboration

4. RESULTS

From the articles selected and later analyzed, an overview was obtained of the proposals of the articles, allowing the understanding of their problems and research objectives.

Klumb et al. (2014) describe a case study conducted at a public institution in Santa Catarina that would implement ITSM processes, including a service desk tool, with the objective of improving the quality of IT service delivery, as well as measuring indicators provided by the use of the service desk. The authors report the challenges encountered in the implementation and use of these processes and the measures taken to overcome these challenges.

The research by Chunpir et al. (2015) discusses the need for a framework, tool, or platform to improve the user support process by presenting the lessons learned in exploring service desk tools. Surendro et Raflesia (2016) discuss the repetitive activities that can happen with the use of service desk systems and suggest a form of organization to carry out activities that encourage the team to use these systems, seeking to eliminate these repetitive tasks and, consequently, improve the quality of IT services.

Silva et al. (2016) assess user usability and satisfaction with a service desk tool deployed at *Instituto Nacional de Câncer* (Cancer National Institute), Brazil, and how these factors influence the efficiency of IT operations and services. The authors found that, in fact, usability affects the success of the implementation of these systems and that, in this case, special attention should be paid to the training of users. Boyce's (2016) research, in turn, revolves around the redesign of the LibQual system to assist the IT sector in providing services with more robustness and quality.

Based on a survey conducted in three companies to determine the percentage of adoption of practices based on ISO/IEC 20000-4, Baños et al. (2016) propose the adoption of good practices of IT services management in small companies of software development.

Astuti et al. (2017) use COBIT 5 to identify IT processes and risks encountered from the service desk tool, and to conduct risk management activities, resulting in a document with IT risk assessment and justification of risk control for the organization studied. Jäntti et Cater-Steel (2017) conducted a survey of three companies, from different segments, that were implementing ITSM processes to identify how ITSM processes are performed in organizations, the metrics used, the challenges faced in operations and whether improvements made in these processes may reflect benefits to the organization. At the end, all these questions were answered and several contributions were made to the research area of this topic. The authors also presented some recommendations regarding the adoption of ITSM processes, including the implementation/use of the service desk.

Handoko et Girsang (2018) propose a service desk for companies that use the ITIL framework, showing that the use of this tool can contribute to the rapid resolution of problems in an organization. The article by Sfenrianto et al. (2018) analyzes the user satisfaction with the service desk system used by the IT staff of a software company for Indonesian travel and tourism agencies. At the end of the research, it was possible to analyze data referring to the system's user-friendliness, integrity and user satisfaction.

The analysis of the articles made it possible to identify several points regarding the use/deployment of service desk tools, including their opportunities, challenges and

benefits, as well as the metrics that can be used to improve IT services.

Opportunities

The articles made it possible to identify some opportunities in relation to the deployment/use of service desk tools.

Klumb*et al.* (2014), Handoko et Girsang (2018) and Surendro et Raflesia (2016) say that the various points of contact between the IT staff and their users make organizations consider using a tool that unifies these points, such as service desk tools. It also discusses the possibility of maintaining a knowledge base of requests and problems that occur periodically, allowing further consultations and measurements (Klumb *et al.*, 2014).

Jäntti and Cater-Steel (2017) comment on the difficulties and bottlenecks of IT service operation processes, as well as data collection for reporting on support, taking into account that a service desk tool can assist efficiently these processes. The authors also speak of the lack of a communication channel through which users can follow up on their requests and give feedback to the support team and vice versa, aiming at the continuous improvement of these processes.

Benefits

With the reading and analysis of the articles, it was possible to map the benefits of the process of deploying/using service desk tools for each category defined in the methodology, as shown in Figure 2.

Based on Figure 2, it is found that service desk tools bring benefits to the organization, support staff, and system users, and while the largest number of benefits listed focus on management and support staff, these benefits directly affect user satisfaction.

Several of the items cited have an impact on cost savings, time and continuous improvement of IT services, which is advantageous to both the organization and the IT staff and the user.

Metrics

With the service desk tools use, some authors, such as Klumb *et al.* (2014) and Jäntti et Cater-Steel (2017), mention the benefits of being able to perform measurements from the data recorded in the tool, including metrics that can be applied and analyzed (Figure 3).

These are just a few of the metrics that can be applied, and they differ according to each organization's measurement and analysis needs. They are used by both management, which takes care of management and governance, as well as IT staff, and can assist in managerial decision making, as well as incident prevention, among others.

Based on information on the metrics cited, which are quantitative in nature (total incident, response time and complaint rate) and qualitative (incident classification accuracy), it is possible to identify bottlenecks and ways to improve IT services.

Benefits	FU	M&G	FS	Reference
Centralization of services			X	Klumb et al. (2014)
Strategic Alignment		X		Klumb et al. (2014), Handoko et Girsang (2018), Surendro et Raflesia (2016)
Value Delivery		X		Klumb et al. (2014)
Measuring performance and indicators		X	X	Klumb et al. (2014), Jäntti et Cater-Steel (2017)
Risk and resource management		X	X	Klumbet al. (2014), Astuti et al.(2017)
Improving the quality of IT services	X			Klumb et al. (2014)
Raising the level of customer service	X			Klumb et al. (2014), Baños et al. (2016)
Record and manage incidents			X	Jäntti et Cater-Steel (2017); Handoko et Girsang (2018)
Speed of reaction to incidents	X		X	Baños et al. (2016); Jäntti et Cater-Steel (2017), Handoko et Girsang (2018)
Metric Collection		X	X	Jäntti et Cater-Steel (2017)
Improved user satisfaction	X			Handoko et Girsang (2018), Baños et al.(2016)
Reduction of costs		X		Baños et al. (2016)
Preventive actions			X	Jäntti et Cater-Steel (2017); Baños et al. (2016)

Figure 2. Identified Benefits
Source: Prepared by the authors. * FU - focus on user, M&G - management and governance, FS - focus on the support sector

Challenges

The deployment/use of any tool will present challenges, and with the service desk tools, the scenario is no different. Figure 4 shows the challenges encountered by authors in the processes of deployment/use of service desk tools, listing the area most impacted by them, based on the categories identified in the methodology.

From the analysis of Figure 4, most of the challenges are still related to top management, which should be more open to change and commit to the creation of incident management procedures, as well as making investments so that you can enjoy the benefits of service desk tools.

Resistance to change is a challenge identified in all three categories and can lead to a number of other challenges, such as dissatisfaction with the tool and process and lack of engagement. The implementation pressure is a challenge that can generate future problems, because processes that are defined in a hurried way may not be the right ones for the organization. Thus, in order to be successful in this stage, it is very important to carry out some actions aimed at overcoming the challenges.

Actions to overcome the challenges

Some authors cite actions that can be practiced during the deployment and use of the service desk so that this process is more successful and more effectively reaches organizational objectives.

Klumb et al. (2014), Baños et al. (2016) and Jäntti et Cater-Steel (2017) propose that organizations define new demand management processes that integrate with current processes and meet the needs of companies. This can significantly contribute to challenges such as problema management, integration with the current process and misclassification of requests being minimized and even avoided. Surendro et Ra-

flesia (2016) commented on the importance of implementing the service desk tool based on good practices, which can come from management models such as ITIL and COBIT, and mention that tools such as gamification can be strong allies in the improvement of team performance. Handoko et Girsang (2018), on the other hand, emphasize the importance of the documentation of the processes and the commitment of the top management with the demands management processes.

Gradual implementation and evolution of demand management procedures is a factor suggested by Klumb et al. (2014) because, in this way, employees will have more time to adapt to the changes. The training and motivation of the employees and the support team for the new processes are actions cited by Silva et al. (2016), and Jäntti and Cater-Steel (2017), according to which they contribute to reduce resistance to organizational change of processes, increasing users' confidence in new procedures.

All these actions are aimed at making the deployment and use of the service desk tools as useful as possible, thus contributing to the achievement of the organizational objectives.

5. CONCLUSION

The GSTI, through automated systems such as the service desk, enables greater alignment between maintenance industry objectives and organizational goals. In addition, systems of this nature help support staff and users, in regard to the follow-up of service requests.

It was found that most service desks are based on complex systems that not only enable the management of the demand for services, but also serve as a tool for: knowledge management, with content posting and information exchange functions in the network; communication management, forums and other internal message exchange tools; manage-

Metrics	Reference
Number of open and closed cases	Jäntti et Cater-Steel (2017), Surendro et Raflesia (2016)
Number of serious incidents per month	Jäntti et Cater-Steel (2017)
Case resolution rate	Jäntti et Cater-Steel (2017), Surendro et Raflesia (2016)
Number of cases per person per team	Jäntti et Cater-Steel(2017)
Call response time	Jäntti et Cater-Steel (2017), Surendro et Raflesia (2016)
Number of problems per service area	Jäntti et Cater-Steel (2017)
Average troubleshooting time	Jäntti et Cater-Steel (2017), Surendro et Raflesia (2016)
Complaint rate	Surendro et Raflesia (2016)
Accuracy of incident classification	Surendro et Raflesia (2016), Astuti et al. (2017)

Figure 3. Raised metrics
Source: Authors' elaboration

Challenges	FU	M&G	FS	Reference
Resistance to change	X	X	X	Jäntti e Cater-Steel (2017), Klumb et al.(2014), Handoko e Girsang (2018)
Budget resource management		X		Jäntti e Cater-Steel (2017), Handoko e Girsang (2018)
Eventual delay in obtaining benefits		X		Jäntti e Cater-Steel (2017)
Difficulty in classifying requests			X	Astuti et al. (2017), Jäntti e Cater-Steel (2017)
Lack of qualified professionals			X	Klumbet al. (2014), Chunpir et al. (2015), Handoko e Girsang (2018)
Lack of problem management procedures		X		Klumb et al. (2014), Chunpir et al.(2015); Handoko e Girsang (2018);
Pressure for implementation		X	X	Klumb et al. (2014)
Discredit by users	X			Klumb et al. (2014)
Achieving user satisfaction	X			Boyce (2017), Sfenrianto et al. (2018)
Integration with the current process		X	X	Handoko e Girsang (2018)
Definition of the appropriate tool			X	Silva et al.(2016); Handoko e Girsang (2018)
Project on time		X		Handoko e Girsang (2018)

Figure 4. Survey of challenges
Source: Elaboration of the authors. * FU - focus on user, M&G - management and governance, FS - focus on the support sector

ment of resources and assets, in which some systems have a material register available for maintenance, allowing the prioritization of tasks and maintenance processes to be performed according to the available material; and user management, with the creation of a database integrated to the systems for the control of requests.

This work enabled the understanding of the service desk system from different points of view, from the user, the management and the support team, both regarding the challenges and the benefits.

For future studies it is suggested that the impact of organizational change be investigated through the implementation of a tool for managing ICT services in organizations, observing technical, organizational, administrative and relational aspects.

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