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The importance of the ITIL framework in managing Information and Communication Technology services

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***Abstract*—** *Nowadays, whether within the corporate or academic environment, it is practically impossible to conceive professional activities without the support of Information and Communication Technologies (ICT), and it is rare to find a place where ICT is not present. In this context, over the years a variety of management frameworks have emerged or improved, which incorporate digital technologies in their methodologies. However, these frameworks aim to demonstrate a series of conducts and procedures, previously tested, based on the best corporate practices of reference companies in their areas of activity in the business environment, with the objective of applying the best management practices of ICT services and processes. The objective of this article is to demonstrate how the ITIL framework can potentially increase, qualitatively, the implementation of ICT services in professional environments.*

I. INTRODUCTION

ITIL is one of the most widely used frameworks for ICT service management [1], and guides any type of service provider, regardless of industry, demonstrating how to provide better quality ICT services efficiently and effectively. This framework acts and directly influences the processes, services, and functions of a company, supporting the management of ICT services provided to external and internal customers of companies, by demonstrating the necessary skills, to best achieve the desired goals in the digital management of the company's business.

The alignment of ICT with the company's business is a difficult and demanding role in terms of the capabilities of the technology area, whose main objective is to help the company achieve its objectives and goals [2].

The ITIL framework initially emerged as an acronym for "Information Technology Infrastructure Library", but currently it is only referenced as a brand, having more than thirty years of existence [3]. ITIL is not a rigid standard that should be followed without adaptations to the specificities of the professional context of companies, but rather a guide that contains good practices that can be adopted and adapted to the reality of each organization, following its needs. Within the context presented so far, a question arises: Why manage ICT services?

Information management has a strategic value for companies' business rules [4]. Therefore, managing ICT services, help business processes to have greater efficiency and effectiveness in handling information, and also enable various types of business. For example, let's imagine some businesses, such as banks, airlines, e-commerce, and supermarkets, without making use of ICT. In these examples we observe that such businesses would be unfeasible to manage without the use of digital technologies, that is, these businesses are completely dependent on the use of ICT, and this has been a continuous concern in organizations [5].

Currently, much of the business processes are carried out through ICT resources, demonstrating how important

ICT is for the business operation and at the same time indicating that the interruption of services can be extremely negative because in most companies there is a constant growth in demand for ICT services [6], often in counterpoint to the preparation of the technology areas, to provide adequate services, on time, and with desirable quality. Therefore, a detailed study of the types of ICT services in an organization is fundamental, as well as their constant monitoring. We will demonstrate in this article, through the use of the ITIL framework, how it can be an important ally in the task of improving ICT processes and services in an organization, and in supporting management.

II. MANAGEMENT OF ICT SERVICES AND PROCESSES

Before discussing the ITIL methodology for ICT service and process management, it is necessary to define what a service is, i.e. a means of delivering value to internal and external customers, facilitating the results they want to achieve while striving to reduce risks and costs [7]. In this paper, we will specifically deal with ICT services and processes, which are provided by so-called service providers.

The ICT service is composed of a junction of three primary factors that are: technologies, people, and processes [8], but when we refer to customers, they view the service as a single entity, that is, they do not view all the processes involved in the provision and maintenance of the service used, in this case specifically is that ITIL acts improving these processes, making them more efficient through the improvement of existing processes, or through the creation of new processes. But it is important to note that ITIL also acts on the people, their roles, and functions in the organizations, who are involved with these processes at various levels, enforcing the "tripod" that defines the ICT service mentioned above.

Once defined what the ICT service is about, service management is related to a set of organizational skills [1] [9], aimed at providing value to customers in the form of services, such organizational skills consist of management practices, processes, functions, roles, knowledge, and skills that a provider uses, to deliver services with quality, efficiency, and effectiveness. Proper service management makes it possible for a provider to observe clearly, how services are being delivered, visualizing whether they expectedly meet the customers' needs.

ITIL describes three essential types of ICT service providers [3], as, 1. Internal service providers: located within the company itself, the scope of a business unit, and there may be several providers within a company, 2. External service providers: technology companies that provide ICT services to companies contracting these services and, 3. Shared providers: autonomous service units, which provide ICT services to two or more business units, within a corporate matrix.

Regardless of the type of provider and the type of customer (internal or external) the ITIL framework can be implemented in all services and processes, improving service quality within the organization itself, as in services provided to third parties, deploying it even with other frameworks such as [10].

ITIL classifies ICT services into three types, a classification that is linked to the relationship of customers with these services, they are: Core services: responsible for delivering solutions and value to one or more customers, adjusted to the need and cost that the customer is willing to pay, being services provided continuously and with the need for a high degree of satisfaction; Support services (secondary): responsible for supporting the main services, so that they are delivered as agreed, usually not visible to customers, but which are fundamental in supporting the main service; Enhancing services: can be considered with additional functionality, which transcends the main service contracted to make it more interesting and attractive to the customer.

The ITIL structure is based on the management experiences of several companies that have been successful in the corporate market. In other words, ITIL is a structure that works with a high degree of organizational maturity, and when we refer to maturity, we mean that a certain organization has reached a very high level of efficiency and effectiveness in its processes. About efficiency and effectiveness, according to Peter Drucker [11] who is considered the father of modern management, efficiency is doing things right and effectiveness is doing the right things, and the result depends on doing the right things right, so to be successful in providing a service, ITIL suggests in its collection of books how to work more efficiently, designing a service using best practices, but for this to be possible, we have to raise the quality level of the intended service processes, and in this respect, ITIL provides an advantage in its structure, because we can adapt it to any business rule.

In this case, ITIL describes generic roles [3] that support the delivery of services with quality, dividing them into 1- Process owner: responsible for ensuring that a process is correct to its purpose, usually this role is assigned to the same person who performs the role of process manager, however, these two roles may be separated in larger organizations. The process owner has the responsibility to ensure that the process is carried out

according to a previously agreed and properly documented standard, in order to meet the objectives of the defined process itself; 2 - Process manager: responsible for the operational management of a process, in this case there may be several process managers for the same process in the organization, for example: ICT service continuity manager in several units of the organization; 3 - Process professional: responsible for performing one or more activities of the process, being that in smaller organizations it can be accumulated by the process manager himself; depending on the size of the organization one can have several process professionals, performing different activities; 4 - Service Owner: responsible for ensuring that the service is focused on the business and if the service is being delivered properly, this role should be unique and it is about who reports to an ICT Director, regarding the service delivery. It is worth noting that the same person can assume the role of an owner of several services, which usually occurs, as in the case of an ICT Project Manager.

III. THE PRACTICAL IMPLEMENTATION OF ITIL IN ENTERPRISE ENVIRONMENTS

When considering that companies are increasingly dependent on ICT services to perform business activities, it is necessary to properly plan the implementation of ITIL, in this sense Baz [12] propose a series of tasks included in phases, such as 1-Startup of the project, 2-Evaluation of the current situation of services, 3-Denition of processes to implement, 4-Implementation of process management tools, 5-Process implementation, 6-Evaluation and evolution of implemented processes.

Regardless of the methodology chosen or developed by companies to implement ICT services, it is important to emphasize what the latest version of ITIL refers to, that is, ITIL 4 and its new conceptual model that in general terms has some key elements [13], such as the Service Value System (SVS), the Service Value Chain (SVC), the four dimensions of service management, the guiding principles and ITIL practices.

In the SVS is the service value chain which is a flexible operating model for the creation, delivery, and continuous improvement of services. The service value chain defines six main activities [3]: Plan; Improve; Engage; Design and Transition; Obtain/Build; Deliver, and Support; Products, and Services, as we can see in Fig. 1[3]:

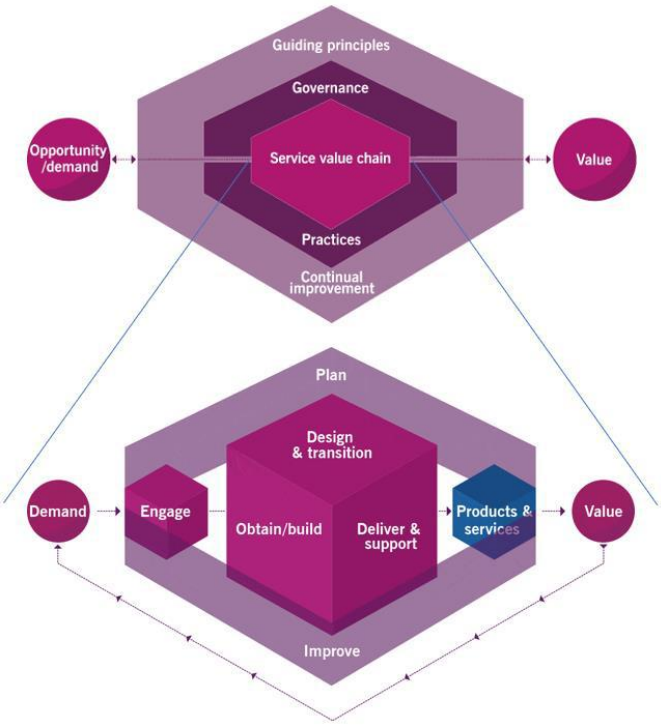

Fig. 1: The ITIL 4 Service Value System

In ITIL 4 a holistic approach is presented, divided into four dimensions that have as its central objective the value that a given ICT service provides to customers and project stakeholders, as we can see in Fig. 2[3]:

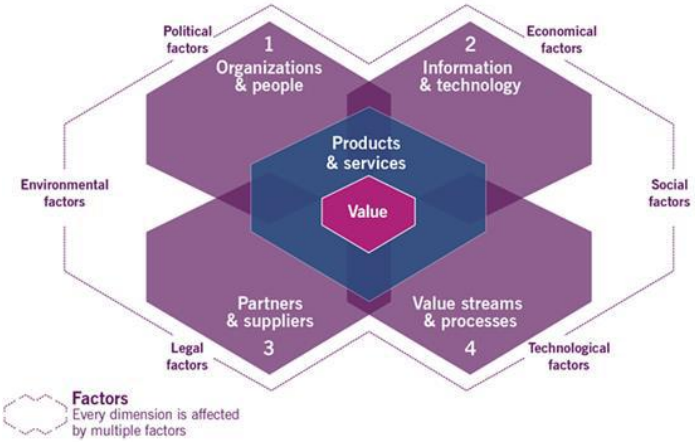

Fig. 2: ITIL 4 dimensions of IT service management

ITIL 4 indicates seven guiding principles. These principles are already known from previous versions of the framework and are intended to help companies adopt and adapt ITIL guidelines to their own specific needs and circumstances. The guiding principles are: Focus on value, Start where you are, Progress iteratively with feedback, Collaborate and promote visibility, Think and work holistically, Keep it simple and practical, Optimize and automate. However, the guiding principles must be

evaluated in all phases of implementing ICT service delivery. The ITIL 4 aspects of collaboration, automation, and simplicity reflect the values found in other frameworks such as Agile, DevOps, and Lean methodologies.

The ITIL framework seeks through its best practices to indicate an ICT management model focused on the customer and the value of the service provided. ITIL is a facilitator, which has a comprehensive structural model of processes that can be used according to business needs, i.e. it is not necessary to apply all the processes at once, but those that meet the immediate needs of a particular company process, according to its size and number of services. The management procedures and processes organized by ITIL in its structure can provide a direction for the organization to follow in pursuit of its goals because as said before, ITIL is structured on the experiences of the best companies that work with ICT and business management. It is a management model that can be applied gradually because ITIL is not software, but a "good rule of conduct" that can assertively guide the organization that intends to adopt good practices in ICT service management, especially in coherent dialogue with the organization's governance, which generally sees ICT as an area that generates large costs, which is true to some extent, but if worked on assertively, it can also generate a huge indirect profit for the company and increase the level of quality of the ICT services provided to internal and external customers.

IV. CONCLUSION

ITIL allows the organization, in this case, governance, to have a better view of the importance of ICT in the company, adjusting the relationship of the various departments, i.e. internal customers, and especially in decision making to meet the needs of external customers, regardless of technology, because ITIL is a non-proprietary model, widely tested, and used in leading organizations in the world, in any area of activity.

In conclusion of this article, if used properly, the ITIL framework is very important for the management of ICT services, individually or together with other frameworks, because it provides proven results for the business, such as reduction in the execution time of processes, or execution in an adequate time, strengthening of control and monitoring, mainly through the metrics that the framework indicates, a notorious elevation in the degree of satisfaction of internal and external clients, reduction in costs with ICT, either in the infrastructure or with qualified personnel, given the appropriate study of the real needs of the business around ICT services, reduction of unavailability of ICT resources, caused mainly by the failure of planning and study of needs, increased recognition by the governance of the company, which starts to see ICT as a strategic point and primary area in achieving the business objectives of the company.

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