

Literature review of the situation research faces in the application of ITIL in Small and Medium Enterprises



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ABSTRACT

This paper carries out a review of the issues that Small and Medium Enterprises (SMEs) face when trying to ensure their alignment with Information Technology Infrastructure Library (ITIL) guidelines. It is well-known that SMEs experience different challenges to those experienced by Large Enterprises, however their demands are the same as larger companies. Given that they have less labor and technological resources, they must optimize their service levels and adapt the activities of their IT departments to the needs of the company without negatively impacting service commitments. In this context our main objective is to establish a complete review concerning the important information that exists in relation to ITIL and its use in Small and Medium Enterprises, evaluating methods for the collection of evidence and analysis. For this reason we have conducted a systematic literature review with the automated search in the range 2007–2015 which has led us to identify thirty-nine articles of relevance. It is noted that, although it was initially expected that there might be enough information that would help us validate and interpret the way that ITIL functions for Small and Medium Enterprises, the reality is that there are not many publications of relevance that deal with the topic of ITIL and SMEs.

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1. Introduction

Today SMEs are experiencing problems and challenges that are different from those faced by the largest companies [1] as they generally have smaller workforces, lower budgets and less complex computing environments. However, these small companies are subject to the same demands as larger companies needing to optimize their service levels to support business objectives, controlling cost and adapting the activities of their IT departments to their own needs [1].

SMEs can reach these goals by structuring management services based on the guiding principles of the sector: Information Technology Infrastructure Library (ITIL) [2].

The aim of this paper is to describe the state-of-the-art, by reviewing all existing research related to ITIL application within Small and Medium Enterprises with the aim of being able to offer new practices and tools in order that SMEs might fulfill their objectives while at the same time taking into account the importance of their activity in terms of production and the amount of employment generated. This paper presents the results of a systematic literature review in which we analyzed the content in a detailed and systematic way, restricting the approach to publications that present investigations related to adoption and implementation and that have a high index of relevance.

In doing so we intend to identify knowledge gaps and suggest opportunities and approaches for future research.

This review includes studies published between the year 2007 and 2015 which relate to ITIL version 3 (released 2007) and an “all years” search to cover all historical research related to ITIL (see Section 2.2.2 for further explanation). We utilized research of verified quality, which means that we only address articles in peer-review journals and from reputable conferences. In the following section we will briefly describe the definitions of ITIL in relation to SMEs looking at the maps, manuals and practice guides that may exist and at what the existing relationship is between ITIL and SMEs.

1.1. ITIL and Small Medium Enterprises

Normally ITIL is a framework that is used by “large enterprises”, but which is not found in official specifications which restrict themselves to a sector or company size which leads to the question: can something better be done with ITIL? [2].

The answer is that it is possible but on the condition that the organization should have formalized IT management, as one cannot apply a practical improvement to an organization that does not actually exist. Therefore, the first requirement is that there is a function, person or clearly defined and recognized IT management department.

The guru's organization development, Kazajian (1988) [3] proposed four stages of development for SMEs: 1) conception and development, 2) marketing, 3) growth and 4) stabilization. A detailed study of SMEs in all of these stages, reveals IT capabilities in all of them, with some

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important differences required between stage 3 and 4, where an SME begins to bind strongly to its clients, to be positive in the market place with new products, efficiently manage its production, develop the back-office (internal support system) and internally collaborate [3]. These stages reflect the strategic and operational problems facing management [3]. On the other hand, Information Technology Infrastructure Library (ITIL) is a framework of best practices compiled from public and private sector organizations worldwide [4]. The objective is to deliver high quality IT services, essentially for IT Service Management (ITSM) [4].

ITIL has proved to provide many benefits such as cost saving, risk management and streamlining of IT operations, however it also faces several implementation challenges [2], [14], [29]. ITIL is not well defined in documentation and it provides only general guidance on what processes to implement [2].

ITIL version 1 was developed during the 1980s by a British public body called the Central Computer and Telecommunications Agency (CCTA) [5], [14]. ITIL version 1 grew from a collection of best practices observed in the industry [5], [48]. ITIL version 2, which was released between 2000 and 2002, became so popular that ITIL is now counted as the de facto standard for IT Service Management worldwide [5], [14]. ITIL version 3, published in 2007 and later revised in 2011 [14], explains in five volumes the various tasks IT services supplier must perform [5], [48]. These processes describe how an IT service moves through its lifecycle [5].

This paper is based on version 3 of ITIL, the following Table presents the concepts that form the ITIL lifecycle.

Fig. 1 visually represents the ITIL Lifecycle, which comprises all the phases described above. Note that ITIL v3 indicates what to do with respect to all its process, but does not indicate how [5], [31].

Note that SMEs offer the opportunity to envision the design of the IT process incorporating best practice, which is very difficult with large corporations [2]. SMEs can define basic and simple (“light” ITIL) processes and create basic IT management practices [2]. In business, it is extremely important to start on the right foot and create a value-focused customer service culture [2]. Using this approach it is possible for the IT department of the SME, to become a force for growth within the company [2].

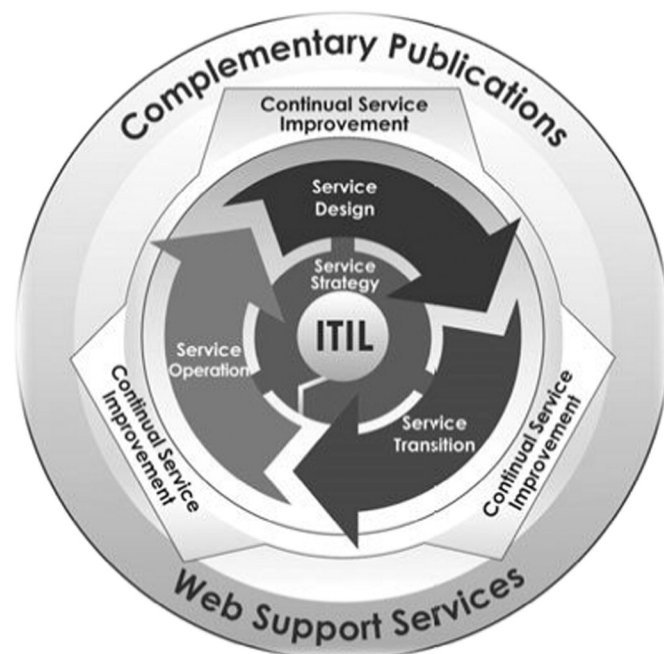


Fig. 1. Lifecycle services for ITIL v3 [5].

1.2. Maps, manuals and practical guides

This paper looks to find the search maps, manuals or practical guides that will guide us to a complete and practical understanding of ITIL, without having to exhaustively draw upon all the manuals that integrate the study of ITIL. Within these criteria we believe that SMEs may undertake the demand control that is required by ITIL which, in another case, would never occur or would be incorporated into very few projects.

One of the factors that has been found is the absence of existing reviews, since at the beginning of the search for the creation of formulas that are needed to validate basic search, we tried to make the process as simple and basic as possible, so that when interpreting the data obtained we could do so with the highest possible accuracy.

Despite all the possible searches and combinations, it was not possible to concretely identify the existence of maps, manuals or practical guides regarding ITIL and its links with SMEs. For this reason we created a series of steps to follow in order to conduct a search of this type which was mainly based on the method described by Barbara Kitchenham [11]. The next section presents the systematic method followed for the literary review. We identified and defined words and key concepts to formulate our basic search criteria. Section 3 presents the results and the collection of data regarding the searches that were conducted in the databases. Section 4 presents the discussion of the results, including the top searches and limiting factors that were presented. Finally, the conclusions of the article are shown in Section 5.

2. Research method

This paper is mainly based on a systematic literature review. An SLR,¹ is a means to identify, evaluate and interpret all relevant available research, whether for a question or topic area, or subject of interest [11]. The most common reasons for following this method according to Barbara Kitchenham [11] in her report “Procedures for performing systematic reviews”, are: summarizing existing evidence with its empirical evidence of the benefits and limitations of our research, identify the gaps in our research for future research, give a framework to position new research activities.

In summary, the objectives of this review are: identify, classify and summarize existing research for application of ITIL in Small and Medium Enterprises. An important step in the implementation of an SLR, is the realization of a protocol, which is exhibited in Fig. 2. This protocol specifies the steps to be carried out during a review.

The protocol began, in the first instance, with the identification of the key search criteria for this research that led us to the identification of the search strategy. The search strategy has been subsequently refined as part of the step defined “quasi-gold” standard for a string search [12]. Then a series of inclusion and exclusion criteria for the studies identified in the search stage was developed, specifying the evaluation carried out for the quality of the studies that have been considered in the review. In this way the data elements that were extracted from selected studies were decided. Finally, in the last step the strategy was designed to analyze data extracted from each study.

2.1. Identification of search criteria

Multiple studies attest to the fact that the first step in starting a protocol for literary review is the development of the research questions addressing a particular study but in this case we have limited ourselves to only cover the main criteria of our investigation. For this reason we have not created formal research questions. Later, as this research

¹ Systematic Literature Review.

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