

A Meta-Study on the Effects of Adopting and Using the ITIL Reference Framework on IS/IT Service Organizations: Implications for Service Design and Management beyond the IT Domain

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ABSTRACT

Based on the aggregated findings of 25 studies from the literature, this paper presents a comprehensive overview of the impacts, motivation, and success factors of the adoption of the IS/IT service management reference framework ITIL in IS/IT service organizations in practice. Positive effects across studies include increased customer satisfaction, service quality, and the increase of time and cost efficiency for service provision. For the introduction of ITIL, top management support, dedicated change management, and the introduction of “quick win” processes were key success factors. Based on these findings, the author discusses several implications for further research on service design and management beyond the domain of IT service management.

Keywords

service design, service management, reference frameworks, meta-study, ITIL

INTRODUCTION

Besides the rather recent attention to service science, service design, and service systems in IS research (Chesbrough and Spohrer, 2006), IS/IT service management as part of the IS/IT management sub-discipline has, at least in practice, a longer tradition. Here, over more than the last decade, IS/IT management organizations have embarked on the transformation from operators of corporate data centers toward providers of IT services for their business organizations or even a network of business organizations (Galup et al., 2009). While it has been a process often driven from practice, it nonetheless has been covered by numerous research studies as well. Here, the question arises what can be learned from specific developments in the IS/IT service management domain for the more generic discussions in service science.

One specific phenomenon that stands out in this regard is the development and proliferation of a IS/IT service management reference framework called ITIL (IT Infrastructure Library) (TSO, 2011a). It has its roots in a set of best practices put together by the British government in the 1980s and has been developed over the years to become the de-facto standard for the transition of IS/IT organizations toward service organizations mentioned above. While lacking rigor (Hochstein et al., 2004), its ongoing adoption by IS/IT organizations in practice can be interpreted in a way that it provides adequate solutions to classes of problems for IS/IT service organizations and that it therefore can be generally regarded as “successful”. Now the question arises in which specific ways it is regarded successful and whether the identified effects and impacts of such a reference framework can be generalized beyond the specific domain of IS/IT service management.

To shed light on this question, a meta-study of 25 studies about the effects of the adoption and use of ITIL framework in IS/IT service organizations was conducted. Here, three key and four minor impacts on IS/IT service organizations as well as five common success factors for the introduction of the framework were identified. In the second section, the meta-study research process employed is outlined in greater detail, before a brief overview of the range of the covered studies is given. In the third section, the identified effects are described in greater detail. Afterwards, they are discussed in regards of their implications for the more generic field of service design, management, and innovation in the subsequent section. The paper concludes with a brief summary as well as an outlook toward further research questions.

THE META-STUDY RESEARCH PROCESS AND SELECTION OF STUDIES

Glass (1976) differentiates between three basic levels of analysis: primary, secondary, and meta-analysis. Primary analysis is concerned with the analysis of original data, while secondary analysis is concerned with re-analyzing original data with alternative or superior methods or in pursuit of alternative research question. This is the focus of most studies that are published. Over time, this leads to an accumulation of empirical studies in the literature which concern the same or similar topics, but which vary in terms of contexts, methods, or findings. In turn, this may lead to conflicting findings or contradictions across studies, which stay unaddressed and unexplained. Alternatively, it is conceivable that differing approaches in different studies lead to similar findings, but again, these similarities are not uncovered and their implications are not discussed. In this light, the goal of meta-analysis is now to synthesize the findings of existing research studies in a systematic way. The key difference compared to the other types of analysis is that there is no access to original empirical data. The major strength of such a research synthesis is that it allows the identification of common or conflicting issues across different contexts or scopes of the individual studies (Cooper, 2010). At the same time, its quality is highly dependent on the quality of the analyzed studies. Limitations, biases, misconceptualizations and misattributions immanent to the source studies are carried over. In addition, each evaluation and analysis of a source study is influenced by the researcher's interpretation. Here, Cooper suggests that several researchers should conduct such evaluations independently from each other. This was also done in this particular analysis (see acknowledgement at the end of this paper).

Specifically, Cooper (2010) proposes a seven-step research approach for conducting research synthesis (see below). Its final step results in a meta-study. For this meta-study here, Cooper's seven steps were carried out as follows:

1. Problem formulation: The problem to be studied was formulated as "impacts of the ITIL framework on IS/IT management organizations". The definition was deliberately kept broad, in order to be as inclusive as possible in terms of the scope for the first search of the literature as initially there was no clear idea how many studies the search would yield.
2. Searching the literature: The search process regarding primary studies was conducted by searching common IS literature databases and Google Scholar for papers covering "IT Service Management", "ITSM", "ITIL", etc. – as indicated in the title, keywords, or abstract of the papers. In addition, potential candidate papers for inclusion were taken from the references from papers found previously. Language-wise, studies published in English and German were included in the search. Afterwards, papers were eliminated that did not fit the aforementioned problem formulation of impacts of ITIL or did not provide primary or secondary analyses of empirical data (such as review papers, for example).
3. Gathering information from studies: Based on the initial search results, general data about each study was collected (type of study, authors, type and number of persons asked, time and place of the study, goals and key findings of the study, frameworks covered, availability of complete study, sources used) and tabulated.
4. Evaluating the quality of studies: Based on the criteria above, the quality of each study was evaluated and unsuitable studies were eliminated from the scope. During this process, several studies conducted by analysts and consulting companies had to be eliminated, for example, because only briefly summarized versions were available freely.
5. Analyzing and integrating the outcomes: In this step, the key findings of each study were summarized and used to inductively develop a suitable category system, which in turn was used to classify each finding. In order to do so, different terminologies and levels of abstraction across studies had to be accounted for (for example, "improved response and resolution time" and "reduced cost" were both classified as "increased efficiency"). Due to the varied methodologies used and varied ways of presenting the findings across the studies, an application of statistical instruments was deemed unsuitable and inappropriate. Therefore, in a strict application of Cooper's (2010) terminology, the analysis does not constitute a meta-analysis, "just" a research synthesis.
6. Interpreting the evidence: Based on the outcomes of the previous step, conclusions were drawn about the impacts of the ITIL framework on IS/IT management organizations that could be derived from the developed categories. These conclusions are presented in the next sections in greater detail. Afterwards, they are going to be interpreted further regarding their relevance beyond the domain of IS/IT service management.
7. Presenting the results: This paper serves as first means to present the key findings and apply them to the larger scope of service science.

Specifically, the following studies were selected (in alphabetical order): (Brum and Kreim, 2004; Cater-Steel and McBride, 2007; Cater-Steel and Tan, 2005; Cater-Steel, Tan, and Toleman, 2006, 2007, 2008, 2009, 2010, 2011; Cater-Steel, Toleman, and Tan, 2006a, 2006b; Galup et al., 2009; Hochstein et al., 2005; Holzmüller et al., 2003; Kemper et al., 2004; Kraus, 2010; Marrone et al., 2010; Marrone and Kolbe, 2011; Pollard and Cater-Steel, 2009; Potgieter et al., 2005; Spremic et al., 2008; Tan et al., 2009; Tan et al., 2007; Watson et al., 1998; Zeng, 2008). The measures taken to ensure a suitable quality of studies had the consequence that the majority of studies (20 out of 25) were conducted by researchers. The geographical areas of the

selected studies covered Australia (12), Germany (6), the US (4), Great Britain (3), Croatia (1), and Switzerland (1). These numbers include studies covering more than one country. In addition, two studies did not explicate their geographical scope. Regarding the number of respondents, for 13 studies the response rate of individuals varies between 5.13% and 25% (avg: 17.87%). In absolute numbers, between 20 and 491 respondents replied (avg: 138 persons). Ten studies did not classify the responses according to individuals but to organizations. Here, representatives of between one and 27 organizations were asked (avg: 5.3). Furthermore, two studies consisted of case studies of singular organizations.

In addition, it is of note that the authors Cater-Steel, Tan, and Toleman contributed to several studies: 13, 11, and 10 out of 25 studies, respectively. For that reason, the integrated findings were not weighted in terms of how often one issue was raised across all studies. While similar findings over the years are an indication of the quality of their studies (confirmation of the results through replication), a weighing would bias the findings in favor of the findings by Cater-Steel et al. At the same time, if other studies in other contexts came to the same findings as they do, this served as an indication for a strong confirmation. In addition, other studies served to highlight issues not covered by Cater-Steel et al. through other methodologies or questions, which, in turn, points back toward a strength of the research synthesis approach.

As mentioned before, the limitations from the individual studies are carried over to the findings of the meta-study. Specifically, the scope of issues covered in the meta-study is biased toward and limited to issues/organizations/persons the original researchers had an interest in, access to, and/or managed to get the findings published in sources that are indexed in IS literature databases or accessible via Google Scholar. Furthermore, since all analyzed studies view the topic through a managerial lens, the findings regarding the effects and impacts of ITIL are limited to this perspective as well. In a cultural perspective, the analyzed studies cover only countries with a Western culture. There are indications that there are indeed cultural differences between, for example, Chinese and European companies regarding the adoption of management frameworks or standards (van Wessel et al., 2011).

META-STUDY – KEY FINDINGS

In this section, the key findings of the meta-study are described. The inductive generation of categories, according to which the individual findings of the studies were classified, led to two large categories and several smaller ones. The two larger ones are 1) the actual impacts an introduction of ITIL processes had on the respective IS/IT service organization (“use” in common IS terms) and 2) motivational and key success factors for the introduction of the ITIL processes (“adoption”). The effects and success factors are each described in their own sub-section, while several of the smaller categories (measurement of benefits, process maturity, innovation, and training) are covered within the two sub-sections where appropriate in the scope of this paper.

Key impacts of an ITIL implementation on IS/IT Service Organizations

The major key impacts of an ITIL implementation on IS/IT service organizations that could be identified are: increased customer satisfaction and service quality, increased internal transparency and improved coordination regarding service provision processes, roles, and responsibilities, and the increase of time and cost efficiency of providing the service. Here, a single study pointed out that the intended increase of efficiency did not materialize in 65% of the surveyed 188 instances (Kemper et al., 2004). A further negative impact identified was the increased administrative overhead and the necessary efforts to change the IT service organization (Holzmüller et al., 2003).

Specifically, the issue of cost vs. benefits was touched in several studies. While some (Holzmüller et al., 2003) stated that an increase in efficiency was difficult to measure, others conclude that the perceived benefits outweighed the costs in most cases surveyed (Hochstein et al., 2005). Combined with the impact of an increased transparency this can be interpreted that the introduction of service management processes enabled the IT service organization to measure and evaluate their process performance and the effects of any changes in service delivery in the first place. Two instruments used for measurement were generic KPIs (Brum and Kreim, 2004; Spremic et al., 2008) or a standardized instrument called SERVQUAL (Watson et al., 1998; Potgieter et al., 2005). In addition, in several studies the respondents were asked to self-assess their IT service organization in terms of process maturity (Cater-Steel et al., 2007, 2008, 2009, 2010, 2011). With the exception of the results of 2011 (which, incidentally, have a significantly lower number of respondents than the others), there is an ongoing increase of the self-assessed process maturity. This indicates that ITIL projects tend to be viewed as mid-term or long-term projects where processes take time to mature.

Minor impacts were the increase of employee satisfaction and the ease of integrating new employees through unified language, decreased risk of service provision and increased risk and compliance management, as well as an increase of process standardization. In addition, one study pointed toward the increase of the innovation capability of IS/IT service organizations through the implementation of ITIL (Marrone et al., 2010): they tend to establish an innovation management process (alt-

though such a process is not covered by the ITIL framework) along or as part of a process of continual service improvement (which is explicitly covered by ITIL).

Regarding each impact, it is of note that neither study goes into further details which more detailed factors led to an increased customer satisfaction, an increase of efficiency etc. Here, the ITIL framework is treated as a “black box”. It is also of note that, with the exception of a few instances mentioned above, downsides and negative effects were not covered extensively.

Motivation for and key success factors of an ITIL implementation for IS/IT Service Organizations

The primary motivational factor for IS/IT management organizations to start their transformation toward IS/IT service organizations through the introduction of ITIL is the promise of an increased service quality. In four further studies this is viewed as means to the ends of increasing IT customer satisfaction (two studies) or efficiency (two studies). Also in four studies, the desire is expressed as IT organization to get involved with the business and to increase the understanding of business needs through ITIL processes. In one study, a motivational factor for the introduction of ITIL is to increase the measurability of the IT performance.

Key success factors for the introduction are top management support, an internal project champion, a dedicated organizational change management with a step-by-step introduction of selected processes at first, and training of the future process users. One study however (Kemper et al., 2004) could not relate increased efficiency or effectiveness to ITIL certification of IT employees. The commonly chosen processes for the first introduction are those that promise to yield quick successes (Pollard and Cater-Steel, 2009), namely Incident Management (including a service desk), Problem Management, and Change Management.

Compared to the effects from the previous section, it is of note that the motivational factors largely correspond to the actual effects: service quality, customer satisfaction, increased internal efficiency and, as part of that, manageability of the service organization. From a perspective of an IT service organization, it is striking that business alignment seems to be of lesser interest here. This can partially be attributed to a missing unambiguous operationalization of service quality – whether it is the “inherent” quality of a service or the perceived quality by the customer in the sense of customer (business) satisfaction.

Regarding the success factors for the introduction of the ITIL framework, it can also be stated that they largely correspond to literature regarding organizational change management (Kotter, 1996). The process areas of “quick win processes” that are introduced at first cover those on the operational level with an interface to the customer (Incident Management) and those concerning the internal management of services and processes (Problem and Change Management) which help reaching and sustaining a high level of service, service process, and service management process quality.

DISCUSSION

Implications for research on service design and management

First of all, it is striking that, despite varying sources and methodologies of the studies, they paint a rather coherent picture of impacts of ITIL. In addition, only a few of the impacts were specific to the domain of IT service management. Customer satisfaction, service quality, transparency, coordination, time and cost efficiency are all goals that can be assumed to be common across all types of service organizations. Of the IT-specific factors, the increased understanding of and interaction with the business stands out. But even this issue could be generalized as improved relationship to and increased involvement with the service customer.

Beyond the conclusion that ITIL indeed seems to be an effective instrument of choice for the transformation of an IS/IT management organization toward an IS/IT service organization, these results indicate that an application of this framework succeeds in reaching goals that are common for all kinds of service organizations. The underlying reasoning is as follows: In a resource-based perspective (Wade and Hulland, 2004), all service organizations utilize their resources (which include the design of their service management processes) in a certain way to provide their services. Certain configurations of the resources (and among them, process designs) are more efficient or provide more effective outcomes than others. The findings discussed previously now indicate that the ITIL framework provides service organizations with process designs for service management processes which are particularly effective and efficient. In addition, on a certain level of abstraction, also the scope of the service management processes specified by ITIL can be applied to service management on a domain-independent level: restoring services after a disturbance (Incident Management), changing the resources utilized for actual service provision (Change Management), etc. Taken together, these aspects indicate that there is indeed potential “buried” inside the framework on both the goal level and the service management process design level for the design of service systems in other domains. This can also be supported empirically: In Kraus’ (2010) study, a quarter of organizations reported

that they started to use ITIL processes successfully for the non IT-related service processes, such as procurement or facility management.

However, the identification of actual characteristics of ITIL that facilitate such an organizational transformation toward desirable outcomes, has received strikingly little interest throughout all the studies. This is even more crucial since, as stated above, ITIL is characterized as lacking rigor and is mainly a framework from and for practice (Hochstein et al., 2004). Here, future research in service science could be directed specifically toward identifying such key features or characteristics of the ITIL framework that lead to such outcomes. Due to the generic nature of motivational factors, key success factors, and impacts it is conceivable that any characteristics identified are applicable to service design and management for other domains as well. Specifically, findings from such research efforts could inform service science research on how to arrive at effective (and hence, relevant) generic service management frameworks or solutions for practice which at the same time can (and should) be of a more rigorous nature than ITIL is.

On a theoretical level, and without being able to go into further details or even provide empirical evidence at this point, there are several characteristics of ITIL that can serve as possible explanations for these effects. One is that ITIL provides a general vision for an IT service organization, combined with a comparably extensive process toolbox in the form of five books (TSO, 2011a, 2011b, 2011c, 2011d, 2011e) instead of providing a comparably strict prescription on how to design a specific service process. In earlier versions it was stressed that ITIL only says “what” should be done in general, but not “how” it should be carried out in a specific context. In other words, ITIL deliberately leaves room for an IT service organization to tailor a specific process to their context. Newer versions are characterized as “good practice” or “best management practice”, again lacking a prescriptive stance. This means that an IT service organization is required to tailor a service process to their needs (since there are no “turnkey” process designs available) and at the same time, it is provided with a vision and guidance for this tailoring process (see also next sub-section).

A second, possible explanation goes into the opposite direction: The availability of software tools designed to provide support for common ITIL processes effectively provides prescriptive “turnkey” solutions for IT service management processes. This reduces the necessary effort for IT service organizations to customize ITIL processes and hence, allows a rather quick and easy introduction – and at the same time, anchoring – of a tool supported process into the organization. At the same time, these software tools commonly allow more or less flexible customizations of the implemented processes. Interestingly, tool support was only a topic of minor interest in the studies. This is even more striking since the interaction between organizations, processes, and information systems is a key research topic in IS research (Benbasat and Zmud, 2003). The relevance and effects of tool availability versus a purely process-oriented perspective is therefore also something future research needs to explore. Depending on the eventual conclusions reached, the respective outcomes might also be applicable to service organizations beyond the IT domain.

Another explanation could be that ITIL was continuously refined over the years so that it nowadays provides “just” sufficiently mature blueprints of valid process designs for an IT service organization. This means that during the introduction of an ITIL process, despite all tailoring, the key elements of those process designs are carried over into “live” service processes, which due to this retain their validity for reaching their intended goals. “Validity” is meant here in the sense that the process blueprints are suitable to reach the process goals and that the process goals as specified by ITIL are in turn suitable to reach the overarching goals that are common for all IT service organizations.

Based on findings regarding these characteristics, a second step for future research in service science could be the design of a generic or several domain-specific reference frameworks that function in the same spirit as ITIL does. Unlike ITIL, these reference frameworks would have a solid foundation in theory and, at the same time, can draw from the experiences with ITIL in practice to ensure relevance. The theoretical foundations one can draw on here include original research on service design, management, and innovation – on a generic and domain-specific level – suitable theories from IS and other relevant disciplines, existing, generic research on reference frameworks and models (Fettke and Loos, 2007), as well as specific research directed at service management reference frameworks. ITIL would serve here as “precursor” of such reference frameworks – although it lacks rigor, its characteristics for its “success” in practice can be thoroughly explored and applied to future reference frameworks. Based on the outcomes of such research, in the end there could be, for example, a generic service design and management framework with specializations for several domains, or several, domain-specific service management frameworks, both with a certain (and well-justified) extent of tool support.

Implications for research concerning introduction of service reference frameworks in organizations

In addition to the design of (a) reference framework(s) for the service management processes themselves, service organizations could also benefit from finding guidance for the introduction and customization of such (a) framework(s) to a specific context, due to the importance and non-trivial matter of this task. Specifically, this would mean to develop a reference

framework for the introduction of a service management reference framework. This distinction between use and adoption is not only reflected in the categories developed during the meta-study, it is also consistent with theory (Van Aken, 2004; Carlsson, 2010). There, these two forms of frameworks are called “object design” (in this case, the reference framework to introduce) and “implementation design” (a blueprint of the process to change a service organization from its initial state to the adoption of the service processes). Furthermore, it is also consistent with the structure of the ITIL framework; there are the process books (TSO, 2011a, 2011b, 2011c, 2011d, 2011e) and a supplementary volume called “Planning to Implement ITIL” (Rudd, 2010).

As organizational change management is a rather mature discipline compared to service science, the development of such an “implementation framework” might look less promising on first glance. But here it is of note that two rather early studies (Kemper et al., 2004; Holzmüller et al., 2003) report issues with the achievement of anticipated efficiency gains, while this issue is not raised anymore in later studies. One interpretation could be that the necessary knowledge about appropriate change management actions for the successful introduction of ITIL also needed to evolve and mature over time. Capturing this knowledge into an implementation framework would save other service organizations in other domains from making the same mistakes the early-adopting IS/IT management organizations made when introducing service management reference frameworks.

In addition, it is also of interest which factors influenced the decisions of IS/IT management organizations to choose ITIL over other reference frameworks for similar purposes, such as COBIT (ISACA, 2012). This could further inform subsequent service science research designing generic or domain-specific reference frameworks regarding the characteristics and qualities service organizations tend to look for when deciding in favor of a reference framework to introduce.

CONCLUSION AND OUTLOOK

This paper presented the aggregated findings of a meta-study of 25 studies from the literature regarding the effects of the adoption and use of the ITIL reference framework for IT service management on IT service organizations. The outcomes of the meta-study yielded a rather coherent picture: the introduction of ITIL leads to increased customer satisfaction, service quality, and the increase of time and cost efficiency for service provision. Key success factors for the adoption include top management support, dedicated change management, and the introduction of “quick win” processes. While not overly controversial on their own, the results point toward a potential generalizability beyond the domain of IT service management and, in that respect, also toward further research questions. For the wider area of service science it was discussed which implications the success of ITIL in practice can have for further research, both regarding the development of service management reference frameworks for other domains and frameworks for the introduction such reference frameworks.

As one area for further research, the question remains what characteristics of the ITIL reference framework can be characterized as crucial for its practical success and what key differences the ITIL framework has to competitors, which facilitated its widespread adoption over the years. Other areas of interest include the extent and success factors for tool support for the service processes as well as negative consequences and impacts of an introduction of ITIL. If based on the outcomes on further research to explore these questions, subsequent reference frameworks in service science can replicate the success of ITIL, and at the same time, rest on a solid scientific foundation. In an even wider perspective, this paper can also serve as an instance for the potential of the instrument of a meta-study in IS research. At the same time, it is worth questioning whether there are any “blind spots” in terms of adoption and use of ITIL that were not tackled by the studies analyzed in this paper and therefore remain in the current literature.

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