Setting the Stage for a Successful ITIL Adoption: A Delphi Study of IT Experts in the Norwegian Armed Forces

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There is a growing interest in businesses around the world when it comes to professionalize IT operation by implementing process-based frameworks built on best practices. There are, however, indications that firms in general find the concept of ITIL challenging, and that many firms are confused about how to implement ITIL successfully. This research has studied what are the most important factors for the successful adoption of ITIL, and bases its results and conclusions on a study in which a ranking-type approach to the Delphi method has been conducted in the Norwegian Armed Forces. A panel of experts on the adoption of ITIL has participated through the method three phases: brainstorming, reduction and ranking. The result is a ranked list of the most important factors, which clearly demonstrates that issues related to management, and leadership, competence and training, information and communication, stakeholders’ involvement, and culture, are considered by the experts as most important. Factors related to technology and methodology was ranked lower. This paper validates the results of earlier studies, and provides additional knowledge about the factors that influence successful ITIL adoption.

Keywords IT service management; IT infrastructure library; the Delphi method; success factors

INTRODUCTION

IT service management (ITSM) is becoming more and more popular in the IT community (Pollard & Cater-Steel, 2009). As a management concept, ITSM places emphasis on IT services, customers, service level agreements, and handling the daily activities of an IT department through processes (OGC, 2007). This stands in contrast to more technology-centered approaches to IT operations. The following formulation is characteristic for its perspective: “Providers of IT services can no longer afford to focus on technology and their internal organization, they now have to consider the quality of the services they provide and focus on the relationship with customers” (van Bon, 2002). According to the literature, the IT operations department should be a service organization that provides IT services to the business, and the goal is to build and deliver IT services that meet business needs and requirements (OGC, 2007). The literature sets out for great expectations. Adapting ITSM may, according to the literature, lead to improved customer satisfaction, increased quality of service, lowered production costs, clearer organizational structure, increased management control, a service oriented culture, as well as a uniform frame of reference for internal and external communication (van Bon, 2002).

Various frameworks for ITSM exist, among which Information Technology infrastructure library (ITIL) is most accepted and used. ITIL, which outlines an extensive set of best practices, consists in version 3, of five books in which almost thirty processes are described.

Introducing ITIL in an IT organization is a complex endeavor, dependent on the characteristics and the ambitions of the target organization. ITIL will affect almost every member of staff; it may lead to the rearranging of organizational structures, work practices and worker roles. New competence is needed, specifically in ITIL and ITSM, and more generally in process thinking. ITIL requires a devoted focus on IT services and customers’ needs, which more technically oriented organizations may find challenging. In addition, an integrated IT service management system must be implemented in order to support and control the various processes and tasks. A full adoption of ITIL may take years, and requires the dedication of managers as well as personnel. In particular, IT operation managers need to be conscious about the factors that influence successful ITIL adoption; otherwise, its introduction can lead to frustration because the objectives are never met.

Studies have showed that most companies are starting by establishing a Service Desk followed by the implementation of the Incident, Change, and Service Level Management processes (Cater-Steel & Tan, 2005a; Iden, Steindal, & Stokke,
2007). No company that has fully adopted all the ITIL processes has yet been identified. There are indications that firms in general find the concept of ITIL challenging (Conger, Win- niford, & Erickson-Harris, 2008). Empirical research in this area is emerging, and a few studies have identified factors which are important for the successful adoption in IT organizations (Cater-Steel & Tan, 2005a; Hochstein, Tamm, & Brenner, 2005; Iden, 2009; Pollard & Cater-Steel, 2009). Three factors stand out as evident: management engagement, training and competence, and information and communication. However, more research in this area is asked for (Conger et al., 2008).

Based on the argument that ITIL is becoming essential in IT operation, that many organizations experience problems during implementation, and the expressed need for empirical research, the purpose of this paper is to identify factors that experts in the field perceive as important for a successful ITIL adoption. While the factors identified by earlier studies have been derived through the use of case studies and inductive reasoning, and a survey with predefined factors, this paper approach this question differently, as we ask a group of experts to freely identify and prioritize factors that they themselves consider important.

To answer the research question, and to identify, select and rank the success factors, the Delphi method is used. Fifteen experts from the Norwegian Armed Forces have participated in the study. Based on suggestions from the experts 65 important factors were identified, organized in nine different groups according to theme. Through a selection and prioritization procedure, a final ranked list of the twelve most important factors was prepared. This study is relevant to many, including IT managers, ITIL consultants and project managers. The findings can also be used to provide IT students insight into what is required when an IT department will be developed based on best practice processes (Conger, Venkataraman, Hernandez, & Probst, 2009).

The article is organized as follows: first ITIL and prior studies on its successful adoption are presented and discussed based on a literature review. Then the research methodology is accounted for, followed by a presentation of the results. The article concludes by discussing results, possible explanations and limitations, and suggests paths for further research.

THE INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY

ITIL version 1 was developed during the 1980s by a British public body called the Central Computer and Telecommunications Agency (CCTA), and it grew from a collection of best practices observed in the industry. The aim was to develop an approach for organizing the work in the IT operation independent of any supplier (van Bon, 2002). ITIL was not used on a large scale until the mid-1990s, but as a result of the popularity of ITIL version 2, which was released between 2000 and 2002; it is now counted as a de facto standard for IT Service Management worldwide. The notion of IT service is central. According to the ITSM dictionary, “an IT service is based on the use of information technology and supports the customer’s business processes. An IT service is made up from a combination of people, processes and technology, and should be defined in a service level agreement.” (Evans & Macfarlane, 2001).

The latest version of the framework, ITIL version 3, includes a life cycle approach for planning, development, realization, operation and improvement of IT services according to customer’s changing needs. The International Standard Institute (ISO) has approved its own standard, ISO 20000, based on ITIL.

ITIL is process-based, which means that it focuses on the flow of activities that cross-organizational functions, both inside and beyond the IT operation department. ITIL defines process as “a structured set of activities designed to accomplish a specific objective. A process may include roles, responsibilities, tools and management control required to reliably deliver the outputs.” (OGC, 2007).

ITIL version 3 describes almost thirty processes that explain how the various tasks a supplier of IT services must perform. These processes describe how an IT service moves through the life cycle: how an IT service should be planned for and built, how an IT service and related changes should be validated, tested and deployed, how events and requests regarding the IT services should be handled, how the basic configuration supporting the various IT services should be controlled, and how operational problems should be solved. In addition, this latest version of ITIL has one book dedicated to the continuous improvement of IT services and related processes.

ITIL is characterized as best practice, which means that ITIL is based on concrete solutions that have proven to be effective in a variety of IT organizations (Cater-Steel & Tan, 2005a). As a process reference model ITIL thus seeks to capture characteristics common to a wide range of IT departments (Iden, 2009). A reference model may be defined as “an abstracted depiction of reality that serves as a standardized or suggestive conceptual basis for the design of enterprise specific models, usually within a like domain (Taylor & Sèdera, 2003). The properties of a reference model determine how applicable it is. Broke and Thomas (2006) argue that a user organization will acknowledge a reference model when it considerably reduces the efforts needed for developing its own processes. In addition, they argue, “the more specific a reference model is, the fewer the enterprises are for which it can be applied.” (p.681).

Despite the fact that ITIL is increasingly adopted in public and private companies there are few scholarly works that examine issues related to its introduction. Some exceptions exist. In a quantitative questionnaire-based study conducted on 110 respondents from Australian companies at the conference of the ITSM Forum in Australia 2005, the researchers investigated, among other issues, critical success factors for the introduction
of ITIL (Cater-Steel & Tan, 2005b). The five most important factors in the order of priority were commitment from senior management, a champion to advocate and promote ITIL, ability of IT staff to adopt to change, quality of IT staff allocated to ITIL and ITIL training for IT staff. In a qualitative case study in six German companies (Hochstein et al., 2005) the researchers found the following factors to be important: demonstrating the benefits of ITIL through “quick wins,” continuous improvement, internal communication and marketing, support from management, broad-based staff training, and continuity in the project organization. In a longitudinal case study, Iden identified seven important factors; need for improvement strongly recognized, openness, training and expertise, broad participation, a standard and flexible methodology for process change, deliverables produced at group meetings only, and a short timeline (Iden, 2009). In a recent four-case study, Pollard and Cater-Steel (2009) identified eight critical success factors; top management support, training and staff awareness, interdepartmental communication and collaboration, ITIL-friendly culture, process as a priority, customer-focused metrics, use of consultants and timing and careful selection of an ITSM toolset. By analyzing the above results, three factors stand out as evident: management engagement, training and competence, and information and communication. See Table 1 for an overview of important factors identified by earlier research. The previously presented results are based on different methods, and in general, questions regarding success factors were only one among several research themes in these studies. It may therefore be difficult to compare these findings. No study has so far been devoted to this question in its entirety.

**METHOD AND RESULTS**

The objective of this study is to develop an authoritative list of factors that need special attention when an organization is adopting ITIL. This implies both the identification of such factors and a mutual ranking of the most important factors. In order to reduce and rank the relevant factors the Delphi method was selected. The Delphi method is a formalized method of communication between researchers and a panel of experts, where data collection is anonymous and is conducted in several rounds. The method is designed to provide a common unified conception among experts through repeated controlled feedback (Schmidt, 1997), and is accepted and widely used method in the field of information and communication technology (Brancheau & Wetherbe, 1987; Hayne & Pollard, 2000; Holsapple & Joshi, 2002; Schmidt, Lyytinen, Keil, & Cule, 2001). In the method’s recurring nature, with the revision of the responses as a result of feedback, is also the validation of research data. Data collection and analysis in this study is based on Schmidt (1997) and Schmidt et al. (Schmidt et al., 2001), where the Delphi survey is divided into three phases: brainstorming, reduction and ranking.

**TABLE 1**

Overview of important factors identified by earlier research

<table>
<thead>
<tr>
<th>Cater-Steel et al. 2005 Survey-questionnaire</th>
<th>Hochstein et al. 2005 Six Case Studies</th>
<th>Iden, 2009 Longitudinal Case Study</th>
<th>Pollard and Cater Steel 2009. Four Case Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment from senior management</td>
<td>Demonstrating the benefits of ITIL through “quick wins”</td>
<td>Need for improvement strongly recognized</td>
<td>Top management support</td>
</tr>
<tr>
<td>Champion to advocate and promote ITIL</td>
<td>Strive for continuous improvement</td>
<td>Openness</td>
<td>Training and staff awareness</td>
</tr>
<tr>
<td>Ability of IT staff to adopt to change</td>
<td>Market campaigns in order to create acceptance and understanding</td>
<td>Training and expertise</td>
<td>Interdepartmental communication and collaboration</td>
</tr>
<tr>
<td>Quality of IT staff allocated to ITIL</td>
<td>Obtaining support of management</td>
<td>Broad participation</td>
<td>ITIL-friendly culture</td>
</tr>
<tr>
<td>ITIL training for IT staff</td>
<td>Implement broad-based training</td>
<td>Standard and flexible methodology for process change</td>
<td>Process as a priority</td>
</tr>
<tr>
<td></td>
<td>Formation of virtual project teams so that the “new” processes would be developed simultaneously with operational activities</td>
<td>Deliverables produced at group meetings only</td>
<td>Customer-focused metrics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short timeline</td>
<td>Use of Consultants</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Timing and careful selection of an ITSM “Toolset”</td>
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</table>
Composition of the Panel

A Delphi study sets requirements for high competence of the respondents with thorough understanding and knowledge of the topic in question. A Delphi study is, however, not dependent on a statistical sample which seeks to be representative of a population. Where do we find the experts on the adoption of ITIL? The most experienced and knowledgeable persons in this field could be found among employees with extensive experience from ITIL in their own organizations, and among consultants supporting ITIL projects in various organizations. For this study, we decided to make use of experts within the first category, and we decided to include persons from within one company only. We chose the Norwegian Armed Forces, as this organization has worked with ITIL since 1998, because all of the processes in ITIL version 2 have been implemented, and since the principles and processes of version 3 have been introduced. In addition, this case organization has been applying a standardized ITSM tool from the very beginning, the BMC Remedy IT Service Management Suite. This system is being used by 4,000 case handlers, and more than 16,000 users are supported.

The selection of experts in this study is based on Okoli and Pawlowski (2004) and Delbecq, Van de Ven, & Gustavson (1975), and was managed through the five phases suggested by Okoli and Pawlowski (2004): 1) Prepare a knowledge resource nomination worksheet (KRNW), 2) Populate KRNW with names, 3) Nominate additional experts, 4) Rank experts, and 5) Invite experts. The following criteria for the nominating and the selection of experts were defined: a) extensive experience with ITIL adoption on an overall level, as IT manager and project manager, b) extensive experience with ITIL adoption as project member, and c) extensive experience with ITIL adoption as member of the IT staff. The nominating procedure resulted in a list of 38 candidates, which through the ranking procedure was reduced to a final list of 15 experts (Okoli & Pawlowski (2004) recommend the use of between 10 and 18 experts). As part of the nomination and selection procedure the candidates were asked to state number of years in the IT industry, number of ITIL processes experience with, and number of years experience with ITIL. Great emphasis was put on getting participants with long and extensive ITIL experience, and everyone were, prior to participation, interviewed to ensure compliance with the requirements. See Table 2 for a quantitative overview of the experts’ experience. It should be noted that all experts have experience with ITIL version 2 and 3, but primarily with the processes of version 2. Most have the Foundation certification, and several have secured the Practitioner and Managers’ certifications. Three experts (R3, R11, and R13 in Table 2) left during the study. Non-response from panel members is a major problem in questionnaires involving several rounds. In this study, the overall response rate was good: 80% of the original panel still responded in the final round. Throughout the study, participation was held anonymous.

Data Collection and Analysis

Data collection and analysis in this study is based on Schmidt (1997) and Schmidt et al. (2001). See Figure 1 for an outline of how the study was administered.

The Delphi Process

Phase 1: Brainstorming

First, a questionnaire was sent by e-mail, in which participants were asked to list the factors they believed were important for the successful adoption of ITIL. They were also asked to explain and elaborate on each of the factors. A plain document template was attached for the experts to fill in. Data collection resulted in 172 factors, but many of the proposals had similar and overlapping meanings. Duplicates were removed, reducing the total number of items proposed to a compiled list of 62 factors. The experts were then asked by e-mail to verify the list. A small number of corrections and additions were made, but most of the answers were affirmative. In addition to e-mail, phone was used when clarifications were needed. The list was then further refined and edited in accordance with feedbacks. This procedure increased the number of factors to 65. See Appendix for the complete list of factors.

Phase 2: Reduction

The purpose of the reduction phase is to narrow the list so that the most important factors can be meaningfully ranked in the next phase. Each panelist received a randomized list of factors, and was requested to select at least 10 factors that he or she considered most important. Based on this procedure, the list was reduced to 12 factors. These were factors that were selected by 50% or more of the fifteen experts.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>The experts’ experience</th>
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<tbody>
<tr>
<td></td>
<td>R1</td>
</tr>
<tr>
<td>Number of years in IT industry</td>
<td>19</td>
</tr>
<tr>
<td>Number of ITIL processes experience with</td>
<td>9</td>
</tr>
<tr>
<td>Number of years experience with ITIL</td>
<td>4</td>
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</table>

R1 = respondent 1, R2 = respondent 2, etc.
Phase 3: Ranking

Ranking of the factors was done in phase three. The experts were asked to prioritize the twelve factors according to importance. They were also asked to state the grounds for their ranks. One of the respondents left the panel before this phase. In total, three ranking rounds were conducted. In round two and three, two types of feedback was provided to the experts; a) an interpretation of Kendall’s coefficient of concordance (W) from the previous round, and b) a summary of the relevant arguments by the panelists. To measure the degree of consensus among the panel members Schmidt’s guidelines (1997) and Kendall coefficient of concordance (W) (Kendall, Kendall, Smithson, & Angel, 1992) were used. Using Kendall’s W, one can measure the relative strength of the consensus, make a realistic determination of whether any consensus has been reached, and whether consensus is increasing as the panelists receive information about the mean rank of each factor from round to round. In many studies a concordance level of 0.7 is regarded as strong consensus. The results from the first ranking round resulted in a Kendall coefficient of concordance at W = 0.224, indicating a low degree of consensus. Rich and sensible reasons were given by respondents for their ranking choices. Because of the low degree of consensus, a second ranking round was conducted. Two experts pulled out in this round, and thus twelve respondents completed round two. Through reflecting on their own choices against the information provided by the controlled feedback, all but one expert revised their rankings which led to moderate degree of consensus, W = 0.615. The moderate degree of consensus in round two resulted in a third ranking round for either to achieve greater consensus, or a result that indicated no significant change of coefficient of concordance. By a comparison with the previous round it emerged that eight of the experts maintained their choices, while the remaining did some minor adjustments. Coefficient of concordance for round three gave a strong consensus with W = 0.702. Through a ranking procedure of three rounds the panel moved from a low degree to a high degree of consensus. Table 3 gives the total overview of the mean ranking for each factor and Kendall coefficient of concordance round for round. The factors are ranked by the results in ranking round three, and document unified agreement on factors mutually ranking among the experts. By this each individual factor’s level of importance regarding the adoption of ITIL is made evident.

DISCUSSION

The result from the reduction phase and the final ranking shows unambiguously that factors regarding senior management and management in general, are by far the most important in the adoption of ITIL. Three of the four factors that are ranked highest by the experts deal with management’s role. Factor F1: “Managers at all levels must have ownership to the ITIL introduction,” is by far the most important of all factors. A mean rating of 1.36 in round three shows that a large majority of respondents ranked it the highest and no expert has it ranked lower than 3. Factor F2: “Senior Management must formally decide the introduction of ITIL.” is the factor that ranked second (with a mean of 2.37), where only one of the respondents ranked it lower than 3. In addition, factor F4: “Senior Management must have knowledge about and understanding of what process orientation means,” is ranked as the fourth most

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Brainstorming</th>
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<tbody>
<tr>
<td>• Round 1: Initial collection of factors (E-mail)</td>
<td></td>
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<tr>
<td>• Follow-up interviews where clarification was needed (Phone)</td>
<td></td>
</tr>
<tr>
<td>• Completely identical factors were removed</td>
<td></td>
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<tr>
<td>• The remaining factors were consolidated and grouped</td>
<td></td>
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<tr>
<td>• Round 2: Validating of the list of factors (E-mail)</td>
<td></td>
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<tr>
<td>• Consolidation of terminology and final list of factors</td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Phase 2</th>
<th>Reduction</th>
</tr>
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<tbody>
<tr>
<td>• Round 3: Selection of the most important factors (E-mail)</td>
<td></td>
</tr>
<tr>
<td>• Experts asked to select at least ten factors considered most important</td>
<td></td>
</tr>
<tr>
<td>• Factors selected by the majority (over 50 %) of respondents chosen for ranking</td>
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</table>

<table>
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<tr>
<th>Phase 3</th>
<th>Ranking</th>
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<tbody>
<tr>
<td>• Round 4 to 6: Ranking of selected factors (E-mail)</td>
<td></td>
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<tr>
<td>• Experts were asked to prioritize factors according to importance</td>
<td></td>
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<tr>
<td>• Average ranking was calculated for each factor after each round</td>
<td></td>
</tr>
<tr>
<td>• The degree of consensus was measured using Kendall’s W</td>
<td></td>
</tr>
<tr>
<td>• Feedback to panels after each round with ranking results and new rankings calculated</td>
<td></td>
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<tr>
<td>• The ranking process continued until strong consensus was attained</td>
<td></td>
</tr>
<tr>
<td>• The final ranking list was constructed</td>
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</tbody>
</table>

important factor, also with a score well above average (mean 4.27). The figures in general and the end result in particular, show that the degree of importance attached to managers’ role is very prominent. This is further enhanced by the experts’ comments and justifications during the rounds. One expert expressed that “good leadership is a prerequisite for a successful introduction,” and another expressed that “the whole project is in danger of dying unless managers at different levels are loyal and committed”.

The significance of F2: “Senior Management must formally decide the introduction of ITIL” is supported by similar statements: “a formal and binding decision by senior management is required” and “this lays the basis for organizational commitment and that required resources are assigned to the project.” That management commitment and leadership are regarded as important for the adoption of ITIL is not surprising, and is consistent with findings in available ITIL research, in particular Hochstein et al. (2005), Cater-Steel & Tan (2005a), Iden et al. (2007), and Pollard & Cater-Steel (2009), and what is known from research on change management (Kotter, 1996) and project management (Bryson & Bromiley, 1993) in general. This highly emphasizes of the management’s role and leadership in the adoption of ITIL is so significant that it must be held to be an evident finding.

In addition, there are several other interesting features of the ranking list. We find, for example, that three of the twelve factors are about competence and training. F4, which deals with management’s need for expertise, is considered to be the most important of the competence factors (mean 4.27). Then follow F7: “General competence in process thinking, ITSM and ITIL must be provided for all concerned” (mean 7.82) and, as the third, factor F12: “Be conscious about the fact that introducing ITIL means changing organizational culture” (mean 8.13). The ranking of these factors provides a form of logic; to make a decision on the introduction of ITIL, senior management must have the knowledge. Thereafter, general training in core topics for all employees involved is required in order for personnel to understand what ITIL means, and for personnel to be able to talk and work together with the various ITIL processes. The general training also provides the basis for more specific training, which must be related to employee’s specific tasks and needs. It may well be argued that factors F4 and F7 could be merged into one common factor, which deals with competence in general. From the verification procedure in phase 1, however, clear statements from experts were given on the importance of particular training for senior management and that this is outermost important. The experts argued for that this factor should be maintained. Competence and training, as important factors for successful adoption of ITIL is also identified by earlier studies (Hochstein et al. 2005; Carter Steel et al. 2005; Iden et al. 2007; Iden 2009; Pollard & Cater-Steel, 2009). The result of this study thus verifies the findings of these earlier studies.

<table>
<thead>
<tr>
<th>Success Factors</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1: Managers at all levels must have an ownership to the ITIL introduction (1.6)</td>
<td>3.50</td>
<td>1.83</td>
<td>1.36</td>
</tr>
<tr>
<td>F2: Senior Management must formally decide the introduction of ITIL (1.3)</td>
<td>4.07</td>
<td>2.83</td>
<td>2.37</td>
</tr>
<tr>
<td>F3: Identify and involve key personnel, and let them participate in the design and improvement of processes (8.6)</td>
<td>4.71</td>
<td>3.67</td>
<td>3.82</td>
</tr>
<tr>
<td>F4: Senior Management must have knowledge about and understanding of what process orientation means (1.1)</td>
<td>5.86</td>
<td>4.92</td>
<td>4.27</td>
</tr>
<tr>
<td>F5: Start with and prioritize a few ITIL processes where there are greatest opportunities for success (7.9)</td>
<td>5.86</td>
<td>5.00</td>
<td>4.55</td>
</tr>
<tr>
<td>F6: Information, characterized by openness, must be given up front to personnel and customers about what ITIL means, why ITIL is being introduced and what it will entail (4.1)</td>
<td>7.07</td>
<td>6.50</td>
<td>7.00</td>
</tr>
<tr>
<td>F7: General competence in process thinking, ITSM and ITIL must be provided for all concerned (3.1)</td>
<td>6.79</td>
<td>7.08</td>
<td>7.82</td>
</tr>
<tr>
<td>F8: A modular ITSM system is needed and must be applied for all processes (2.2)</td>
<td>7.43</td>
<td>8.42</td>
<td>8.45</td>
</tr>
<tr>
<td>F9: Plan for and communicate positive project results early and along the way (4.2)</td>
<td>8.43</td>
<td>8.92</td>
<td>8.73</td>
</tr>
<tr>
<td>F10: A specific training programme for the ITIL introduction of the various processes must be provided (3.2)</td>
<td>7.50</td>
<td>8.92</td>
<td>9.00</td>
</tr>
<tr>
<td>F11: Implement a standard system for measuring, analyzing, and reporting on service level (6.4)</td>
<td>8.36</td>
<td>9.50</td>
<td>9.73</td>
</tr>
<tr>
<td>F12: Be conscious about the fact that introducing ITIL means changing organizational culture (8.13)</td>
<td>8.43</td>
<td>10.42</td>
<td>10.55</td>
</tr>
<tr>
<td>Kendall’s W</td>
<td>0.224</td>
<td>0.615</td>
<td>0.702</td>
</tr>
</tbody>
</table>
obtain within the scope and timeframe of a process improvement project as ITIL. The importance of culture has, however, been discussed by others. Iden (2009) for example, found through a case study that despite the fact that processes are defined thoroughly and that senior management regard the ITIL project as a success, employees may chose not to follow the new designed processes. From this Iden argues that an ITIL-introduction will not be effective unless the cultural aspects are handled (Iden 2009). The need for culture change is also recognized by Pollard and Cater-Steel (2009).

Overall, the list includes factors relating to management and leadership, competence and training, information and communication, focus on stakeholders and their roles, and culture. There is thus a clear focus on the organizational aspects of the adoption of ITIL. Technology and issues related to methodology are de-emphasized by the experts in favor of the “softer” aspects. Among the twelve most important factors, it is noteworthy that these IT and ITIL experts did only select one factor, F8, which deals with technology and tools. Introducing ITIL will normally include the implementation of a designated computerized IT Service Management system. It is, however, evident that the experts consider soft issues to be more important than technology. This corresponds with the findings of Sederer and colleagues (Sedera, Gable, Rosemann, & Smyth, 2004) about what is important for successful process development in companies.

It is also worthwhile to attach a brief comment on the results from phase 2: the reduction phase. Of the 65 factors identified in the brainstorming phase, only four factors were not considered important by one or more of the experts. By this, it is likely to conclude that the experts consider the introduction of ITIL to be a complex task that requires focus on a wide range of conditions. This is supported by various comments from the respondents during the survey. As one of the expert said, “It should be pointed out that the factors must be considered together.”

As with any Delphi-study this research bases its results on a narrow number of experts. Respondents were not selected randomly, but through a thorough selection process in which a wide range of relevant skills areas associated with ITIL was sought covered. However, it cannot be alleged that this is a representative sample. Further, the panel is only composed of respondents from the Norwegian Armed Forces, and this constitutes a constraint. The military organization is often portrayed as a typical example of a large and hierarchically structured organization (Jansen & Offerdal, 1987). It is known that large size organizations, such as the Armed Forces, are characterized by stronger horizontal and vertical specialization than is found in smaller organizations (Jacobsen & Thorsvik, 2007). Further, the military is often described as a dependency-culture. Loyalty, obedience and discipline to an accepted system or ideology are characteristics that bind these kinds of organizations together (Sjøvold, 2006). In a military organization, units and personnel stand in a specified defined ordinate-subordinate relationship. There is a clear hierarchy of authority, which manifests itself through the leader’s right to give commands and orders, and the subordinate’s duty to obey them (Jansen & Offerdal, 1987). Managers’ behavior at various levels may thus be crucial when introducing ITIL in the Armed Forces, and the results of this study may, to some extent, be explained by the characteristics of the case organization.

CONCLUSION

The main objective of this study was to answer the following research questions: what are the most important factors for the successful adoption of ITIL? To explore this question, a study based on the Delphi method was conducted, and a ranked list of the twelve most important factors is developed. The result seems to give a clear answer, factors related to management and senior managers’ role is emphasized as the most important. Such an unambiguous focus on management’s role to the adoption of ITIL has not been identified earlier. Competence, information, stakeholder involvement and cultural change, are other factors that are ranked high by the experts. The ranking results show a clear concentration towards the twelve most important factors, with a strong degree of consensus (W = 0.702) about what is most important when introducing ITIL. An interesting observation is that factors related to technology and methods are considered to have less importance.

To conclude, it can be seen as this study makes three significant contributions. First, it complements earlier research using a systematic procedure to elicit and define a list of 65 success factors organized into nine groups. Since the list is based on input from 15 experts, with extensive experience with ITIL adoption, the list is comprehensive and well grounded. The list provides the field with useful knowledge and constitutes a valuable reference for practice and for further research. Second, using a rigorous data collection method known as a ranking-type Delphi survey (Schmidt, 1997), this research has produced a ranked list of the twelve most important factors for successful ITIL adoption. This prioritized list provides useful information for IT operation managers in terms of aspects that deserve most attention when planning and organizing an ITIL implementation project. Third, it validates the list of success factors identified by prior studies, and offers a ranking, which has not been constructed earlier.

However, we will be careful to conclude to what extent the results from this study can be generalized to apply to other businesses, nationally or internationally. A natural follow-up of this study will therefore be to conduct similar studies in other organizations both in public and private sectors, also internationally, using the same research method. The results from this study could serve as a basis for further research on the adoption of ITIL.

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REFERENCES


APPENDIX: THE COMPLETE LIST OF FACTORS

1. Management

1.1. Senior Management must have knowledge about and understanding of what process orientation means

1.2. Senior Management must develop a overall process map

1.3. Senior Management must formally decide the introduction of ITIL

1.4. Senior Management must conduct an initial planning phase for ITIL

1.5. Senior Management must actively control the development of the ITIL processes

1.6. Managers at all levels must have an ownership to the introduction of ITIL

2. Tools

2.1. A standardized tool for process modeling is needed and must be used by all

2.2. A modular ITSM system is needed and must be applied for all processes

2.3. Postpone the implementation of the ITSM system until processes are designed

2.4. Implement appropriate technical tools, for example for monitoring, software deployment and licensing control
3. Training

3.1. General competence in process of thinking, ITSM and ITIL must be provided for all concerned
3.2. A specific training programme for the ITIL introduction of the various processes must be provided
3.3. Be aware that the design and introduction of processes involves repetition
3.4. Establish a core team with responsibility for establishing and maintaining expertise in ITIL
3.5. The organization must have the appropriate overall level of competency: technical expertise, process knowledge, knowledge of customer needs, and ITIL knowledge

4. Information and Communication

4.1. Information, characterized by openness, must be given up front to personnel and customers about what ITIL means, why ITIL is being introduced and what it will entail
4.2. Plan for and communicate positive project results early and along the way

5. Project Management

5.1. Implement the ITIL framework gradually, controlled by a standard project methodology
5.2. Bring in resources (budget and personnel) gradually to the project over time
5.3. Bring in additional personnel resources to cover up for personnel who are allocated to the project
5.4. A project management tool that underpin the ITIL projects is needed
5.5. Establish a core team, supplemented with external resources, with responsibility for the ITIL
5.6. Ensure continuity for the core team and other central resources and positions
5.7. Appoint a strong overall project manager, with experience of similar projects, who manages and supports the individual project leaders, and who is able to drive the whole implementation forward

6. Measurement

6.1. Define goals and success factors for the ITIL project, and report to stakeholders
6.2. Conduct a pre-study for the ITIL project with a practical approach
6.3. Implement principles for continuous process improvement early in the project
6.4. Implement a standard system for measuring, analyzing and reporting on service level
6.5. Results from each individual ITIL process must be measured

7. ITIL-Processes

7.1. The adoption of ITIL must apply uniformly for the whole organization
7.2. The person who is responsible for implementing an ITIL-process must also be responsible for the process’ deliveries
7.3. New ITIL processes must be integrated with existing processes, practices and procedures
7.4. The introduction of ITIL must be seen as a learning process
7.5. All processes must be documented and documentation must be continuously updated
7.6. A Configuration Management Data Base (CMDB) must be implemented in the very beginning of the ITIL project
7.7. A Definitive Software Library (DSL) must be established coincident with the introduction of the Change-, Release- and Incident Management processes
7.8. A Service Catalogue based on Service Portfolio must be introduced early
7.9. Start with and prioritize a few ITIL processes where there are greatest opportunities for success
7.10. Start with the Service Desk and the Incident Management process
7.11. Let Service Desk, Incident and Change Management mature before new processes are introduced
7.12. Service Level Management (SLM) and Service Level Agreement (SLA) must be implemented early on

8. Organization and Organizational Culture

8.1. Establish a central function for continuous monitoring and follow-up of project progress
8.2. Organization wide principles, as well as guidelines for what can be settled locally, must be determined
8.3. Ensure that process owners and involved employees acquire ownership of process performance
8.4. Initiatives must be taken to ensure that the different processes cooperate
8.5. Process owners must be given the authority and resources necessary, and their relationships with line management must be clarified
8.6. Identify and involve key personnel, and let them participate in the design and improvement of processes
8.7. Enthusiasts must be indentified and involved
8.8. Be firm in intent and principles, but pragmatic in details
8.9. Change willingness among those involved is mandatory
8.10. Necessary organizational changes must be made immediately after startup
8.11. Involve as many employees as possible
8.12. Pay attention to the personal qualities of the personnel who will assume important roles in the various processes
8.13. Be conscious about the fact that introducing ITIL means changing organizational culture
8.14. Focus on how employees from different units work and cooperate to achieve cultural change
8.15. Establish a sense of urgency as part of the reason for why ITIL is introduced
8.16. Establish an improvement culture where personnel constantly are looking for how processes may be improved
8.17. When improvements are suggested, be quick to respond and be conscious of the wording when a proposal is rejected
8.18. Focus on business goals, and ensure that process goals support business goals
8.19. Be conscious about that ITIL involves standardization of practice
8.20. It must have consequences if a process is not followed

9. Customer Relations
9.1. The project must have knowledge of the customer’s business processes
9.2. The project must focus on customer satisfaction
9.3. A standard and modular pricing model must be developed
9.4. Focus on supporting “the customer’s customer”