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JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL  
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# How to implement ITIL successfully?

**Master Thesis in Informatics**

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Jönköping June, 2010

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## Master Thesis within Informatics

**Title:** How to implement ITIL successfully

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### Abstract

The purpose of this thesis is to reveal how Information Technology Infrastructure Library (ITIL) should be implemented in an organization in an efficient and effective way to achieve the goal of reducing wastage, cutting costs and increasing customers' satisfaction. There are many books dealing with the ITIL. But these publications do not prescribe how to adopt, adapt or implement the guidelines as part of a service management strategy; it would seem useful to explore implementation strategies which are employed by organizations when they are using ITIL "best practices".

This paper seeks to take a study of "How to implement ITIL successfully in organizations", which could be subdivided into questions of "What steps are necessary to implement ITIL" and "what factors are critical within implementation process". Although previous researches have made some recommendations generally, this paper investigates the question on that base through comparing consultants', organizations' opinion and previous researches.

This study begins with an overview of ITSM, ITIL, and critical success factors and steps of ITIL implementation. Information about the critical success factors and steps of ITIL implementation were acquired through interviews, emails and questionnaires from responsible staff in some major representative consultancy and organizations.

The outcomes of our research are fourteen significant steps to implement ITIL and some success factors during implementation, which are vital to have a prosperous ITIL implementation. This research makes a guideline for organizations to understand and carry out the ITIL implementation efficiently.

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# 1 Introduction

This chapter will introduce the background of ITIL implementation, encouragement reasons of organizations to adopt ITIL, and also raise the main research questions of this thesis. Readers will be given a brief overview of the existing research achievements related to the implementation of ITIL in organizations. The main purpose of the thesis will also be clarified by stating why it worthies the study and how it will be conducted.

## 1.1 Background

Nowadays, organizations have been trying to find solutions to decrease costs and increase values through a stable way, aiming to be the best in this competitive market. Widely recognized, information needs to be managed as the most significant resource of each organization. To make it clearer, one of the organizations' major concerns is how to manage this information with an efficient framework. Together, the key of information collection, analysis, procurement, and distribution into the organization is the quality of IT services provided for the business. Thus, the organizations should invest proper levels of resources in support, delivery, and management of these IT services (Rudd et al., 2004).

In the early years, IT was concentrated on the application development, then applications became as a part of a broader service that supported the business themselves. In 1980s service management practice grew and was associated with the business. In those same years, IT services quality which was provided by the British government was not into an appropriate condition that from CCTA (Central Computer and Telecommunications Agency) Later OGC (Office of Government Commerce) was asked to develop an approach to the effective, efficient, and cost-effective use of IT resources for the British public section organizations. It grows into ITIL (Information Technology Infrastructure Library) that had been created through a set of Best Practices which had been observed in IT service industry (Bon et al., 2005).

ITIL best practices enhance service level, and decrease operational costs without lowering proficient and agile employees or increasing investment. Of course, ITIL does not provide a step by step practice list to create an IT organization, but provides a framework and list from IT operational processes which has been acquired through myriads of human experiences during years. By using ITIL, organizations can establish a set of practices and processes to increase IT services delivery and support (Hirai et al., 2004).

Indeed, ITIL is a detailed description about a number of significant IT practices with procedures, tasks, checklists, and important responsibilities that can be suitable for each IT organization. In fact, these practices are processes which cover main activities of IT service of organizations, and IT organizations can grow and mature with them (Bon et al., 2005).

ITIL recommends a common framework, which consists of modules comprising advice and guide on best practice that is related to provision of IT services, for all IT departments' activities. These activities are divided into processes which cover one or many works in IT

departments, such as service development, infrastructure management, and supplying and supporting services (Bon et al., 2005).

Broad benefits of ITIL drive different organizations to use effective framework to integrate resources being used. Of course, organizations to implement ITIL need changes in their organizations.

## **1.2 Problem Discussion**

Although implementing ITIL can be difficult because of the changes brought to the business process, a successful implementation could bring positive effects, such as positive return on investment, effective IT service management, alignment of the services and the organizational present and future needs.

There are many books dealing with the ITIL. But these publications do not prescribe how to adopt, adapt or implement the guidelines as part of a service management strategy; it would seem useful to explore implementation strategies which are employed by organizations when they are using ITIL “best practices”.

In terms of the steps to implement ITIL, some researchers have given various suggestions with attention to their experiences. They have claimed the number of varied steps along with versatile activities in each phase. This thesis will discuss three sets of steps of the ITIL implementation suggested by different researchers.

According to Litten’s statements, INS organization, as a consulting company in IT field, has suggested to take five steps to implement ITIL. These five steps consist of Process workshops, Gap analysis, Creation of a roadmap and plan, Action and Measurement, and Establishment of process governance (Litten, 2005). In addition, according to Dr. Ball’s (2006) study, as ITIL Certified Service Manager, with many years of experience, has recommended another five steps to implement ITIL, that of course is somehow similar to INS’s steps, containing Designate an ITIL adoption project owner and develop an implementation team, Train employees, Establish a Service-level Agreement (SLA) process, Evaluate IT needs, and Perform a gap analysis (Ball, 2006).

According to Kempters’ (2008) claims, as IT managers and business consultants, the ITIL implementation should carry out in ten steps, including ITIL Project Preparation, Definition of the IT Service Structure, Selection of ITIL Roles and Role Owners, Analysis of As-Is Processes: ITIL Assessment/ ITIL self Assessment, Definition of the To-Be Process Structure, Definition of ITIL Process Interfaces, Establishing ITIL Process Controlling, Designing the ITIL Processes in Detail, Selection and Implementation of Application Systems, and ITIL Process Implementation and Training (Kempter & Kempter, 2008).

What could enhance the implementation and increase the likelihood of success? There are some preliminary researches on the critical success factors of adopting and implementing ITIL. These researches were mostly based on the laboratory research and sur-

vey among the organizations. Five main factors were raised in the study among the organizations in Australia. (Aileen Cater-Steel, 2009). Another article suggests nine factors after reviewing other studies and adding new ones. (Carol Pollard, 2009) Another article which is based on the study of four cases, two of them in the US and others in Australia, comes up with three new factors. These researches were mostly conducted based on the cases in US and Australia.

Due to the large number of already established frameworks the implementing, organizations might get confused. Organizations might not to be able to determine which frameworks recommended before by various researchers would work out better in their organization. Thus, integrated structured practical recommendations for organizations are needed, in order to help with the efficient implementation of ITIL. In other words, in this way, organizations will get familiar with necessary steps and significant factors to implement ITIL within their organizations

### **1.3 Research Questions**

ITIL implementation can reap enormous benefits for successful companies, or it can be disastrous for organizations that fail to manage the implementation process (Steinberg, 2008). Based on the above discussion, the following questions are identified:

#### **How to implement ITIL successfully in organization?**

This question could be elaborate by the following sub questions.

- **What steps are essential in the implementation process?**
- **What are the critical success factors of implementing ITIL?**

The objective of writing this thesis is exploring if ITIL implementation will always work out for every organization. In addition, how organizations and firms should plan and implement ITIL into their own organizations, and what steps should be considered by them to adjust their processes with ITIL processes to leverage better. Moreover, critical factors will also be introduced and elaborated, helping to achieve more prosperity within implementing ITIL in organizations.

### **1.4 Purpose**

The objective of writing this thesis is to explore if ITIL implementation will always work out for every organization. In addition, how organizations and firms should plan and implement ITIL into their own organizations, and what steps should be considered by them to adjust their processes with ITIL processes to leverage better outcomes. Moreover, critical factors will also be introduced and elaborated, helping to achieve more prosperity within implementing ITIL in organizations.

## **1.5 Interested Parties**

Various organizations to acquire a precious IT framework on their organization processes need to investigate how to conduct an ITIL implementation project to achieve the most efficiency and the least cost over a long period. As external consultants are usually involved, ITIL consultants and IT department in organizations may also want to understand each other's perspective to cooperate better.

Furthermore, diverse staff, especially IT service provider, of versatile practitioners can find the process of ITIL adoption to be understandable and accessible, and find out ITIL is just for more guidance. So it will make employees decrease their resistance degree to decline ITIL in their organizations.

To sum up, this thesis will study how to implement ITIL in an organization. It can be beneficial and be studied by customers, IT organizations members, and even researchers and students who are interested in how to implement ITIL successfully in organizations.

## **1.6 Delimitations**

The ITIL implementation comprises a broad boundary in an organization that not only will involve almost all of employees of IT department, and maybe some external consultants, to implement and synchronize new or changed processes and how to choose and implement processes, but its influence will engage other departments to be coordinated. But the thesis will be restricted to identify requirement steps to implement ITIL and determine success factors to have an impressive implementation.

By the implementation steps, it points out significant steps which an organization needs to contemplate from when to decide to implement ITIL until to cover the entire IT processes of its organization under the ITIL framework. By clarifying these steps, organizations will find out required sequence paces to implement ITIL effectively.

By the success factor, it means the factors that can influence the success of transformation projects for implementing ITIL. Through clarifying these factors, organizations could increase the efficiency of solving challenges and problems. The Critical Success Factor Approach could be used here. The CSF approach has been established and popularized over the last 30 years by a number of researchers, beginning with Rocket (1979). Today the approach is increasingly used by consultants and IS departments as a means of support to IS strategic planning (Esteves, 2004).

## **1.7 Disposition**

This thesis will present the procedure, methodology and results of our study .After introducing and clarifying the research problem in this chapter, the methodology we used in collecting preliminary information and processing the data will be explained in the second chapter. In the third chapter, a detailed reviewing of the research background and existing

research outcomes will be conducted and summarized. The empirical findings and analysis will be elaborated in the fourth and fifth chapter. Thus the final conclusion and recommendations will be summed up in the final chapter.

## **1.8 Definitions**

*Best Practice:* Proven Activities or Processes that have been successfully used by multiple Organizations. ITIL is an example of Best Practice (Rance et al., 2007).

*Critical Success Factor (CSF):* Something that must happen if a Process, Project, Plan, or IT Service is to succeed. KPIs are used to measure the achievement of each CSF. For example a CSF of "protect IT Services when making Changes" could be measured by KPIs such as "percentage reduction of unsuccessful Changes", "percentage reduction in Changes causing Incidents" etc (Rance et al., 2007).

*IT Service Management (ITSM):* The implementation and management of Quality IT Services that meet the needs of the Business. IT Service Management is performed by IT Service Providers through an appropriate mix of people, Process and Information Technology (Rance et al., 2007).

*Information Technology Infrastructure Library (ITIL):* A set of Best Practice guidance for IT Service Management. ITIL is owned by the OGC and consists of a series of publications giving guidance on the provision of Quality IT Services, and on the Processes and facilities needed to support them (Rance et al., 2007).

## 2 Methodology

The research methodology is the significant fundamental element for guiding the whole research process. The choice of the most appropriate one is based on the practical consideration of whether it could answer the raised research questions. A good method could support and facilitate the carrying out of the research project. This chapter will demonstrate the choice of methodology in this study, how the specified problems are going to be solved by it, why it is chosen rather than other alternatives and how the empirical work is carried out.

### 2.1 Methodology Philosophy

Methodology is a way of thinking about and studying social realities, and concrete visible methods are a set of procedures and techniques for gathering and analyzing data. These methods could lead to the answer of our questions, but before jumping into it, a clearly overview of the theory of research methodology is necessary. As it is shown in Figure 2-1, the research will be discussed on philosophies, approaches, strategies, choices, time horizons, techniques and procedures.

A systematic consideration of the whole methodology should include philosophies, approaches, strategies, choices, time horizon and techniques and procedures of collecting and analyzing data.

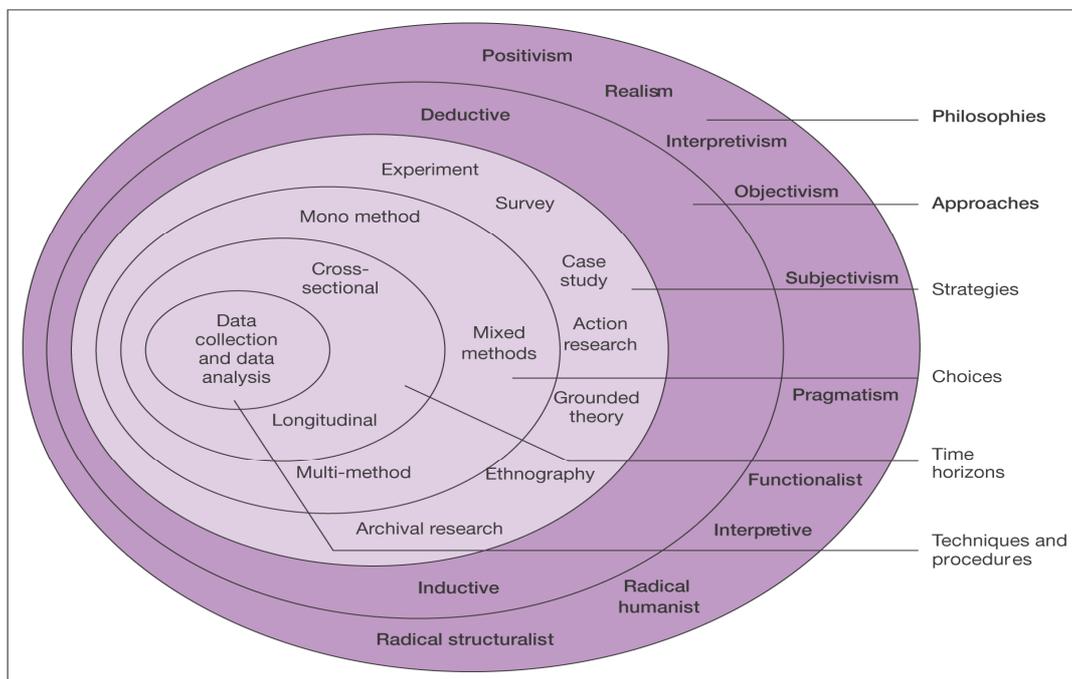


Figure 2-1 The Research 'Onion' (Mark Saunders, Philip Lewis and Adrian Thornhill 2008)

Among the several philosophies, two of them, positivism and pragmatism, are emphasized in this study. Positivism is concerned with the things in the social reality. Positivism holds that the authentic knowledge is based on sense experience and positive verification. Prag-

matism is a philosophical movement that includes those who claim that an ideology or proposition is true if it works satisfactorily, that the meaning of a proposition is to be found in the practical consequences of accepting it, and that unpractical ideas are to be rejected (M Saunders, 2009).

In this study, knowledge and theory are expected to be verified and improved through studying the cases. The conclusion is going to be developed through accepting the practical propositions and rejecting the unpractical ones. Thus, positivism and pragmatism are the main research philosophies leading to practical recommendations to organizations.

## 2.2 Research Approach

### 2.2.1 Approaches of Deductive, Inductive and Abductive

The choice of research approach is one of the most significant aspects influencing across the research procedure. Selecting an appropriate approach has to be based on the problem definition and the theory of science. There are three scientific research approaches which are called the deductive, inductive, and abductive.

The deductive approach (or Top-Down) derives logical results from prior theories and states them in hypothesis form and then tests them in an empirical data and after that presents final result based on corroboration or falsification from generated hypothesis. In other words, this approach is from rule to case to result (Blaikie, 2009).

The inductive approach (or Bottom-Up) follows the opposite approach. In this approach, observations about the world leads to emerging propositions and their generalization in a theoretical frame, or in other words, theoretical notations and study framework form set of empirical observations called from case to result to rule (Blaikie, 2009).

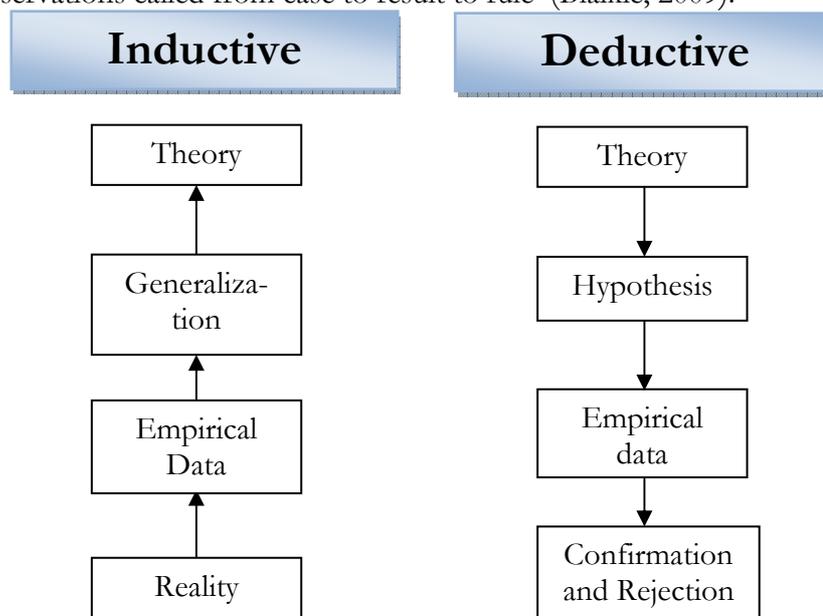


Figure 2-2 Inductive and Deductive

In general, as specified in the below figure, two approaches are conducted in two inverse directions. In the deductive approach investigation is from general to specific, but in the inductive approach investigation is from a specific observation to a broader generalization of theories.

The abductive approach is combined from two approaches above that can be described as a reciprocal action between theory and empiricism. In other words, researcher bounces back and forth between theory and empirical evidences including several perspectives and acquiring a whole picture of what is researched. This approach is from rule to result to case (Svennevig, 1997).

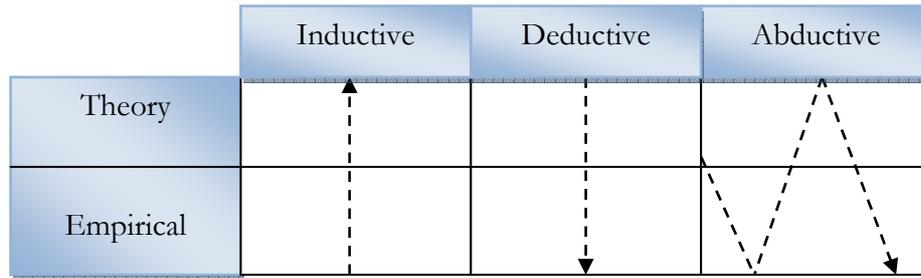


Figure 2-3 Inductive, Deductive and Abductive (Svennevig, 1997)

Peirce has stated that abduction is a method of forming a general anticipation that is comprised of an observed fact. In other words, an abductive conclusion is justified by an observed fact. Indeed abductive process begins with preliminary findings. While observing findings, this is possible to raise “hypotheses on probation”, meaning introductory hypotheses and questions should be regularly checked, until more observations and findings be achieved, to be supported or refuted (Levin-Rozalis, 2004).

According to Shank and Cunningham’s (1996) statements, abduction principles are based on notion that there are no priori hypotheses, no presuppositions, and no advance theorizing. Each event will be zeroed in on and examined and hypotheses will be formed by the event and then a cyclical process checks and rechecks the hypotheses against our observations (Levin-Rozalis, 2004).

### 2.2.2 Choice of Approach in This Research

Aiming at answering the questions, an initial pattern of recommendations is summarized after investigating several cases. These recommendations helped to prepare questions for further research. Afterwards, the conclusion will be drawn after involving more cases. Therefore, inductive approach is selected as the research approach in this research. To be specific, this research is initiated by conducting interviews with two typical and representative units (case 1 and case 2), followed by comparison among four cases (Case 1, 2, 3,4) to come up with the reasonable conclusion. Thus a framework of the research (Figure 2.4) is formulated and developed through this inductive approach.

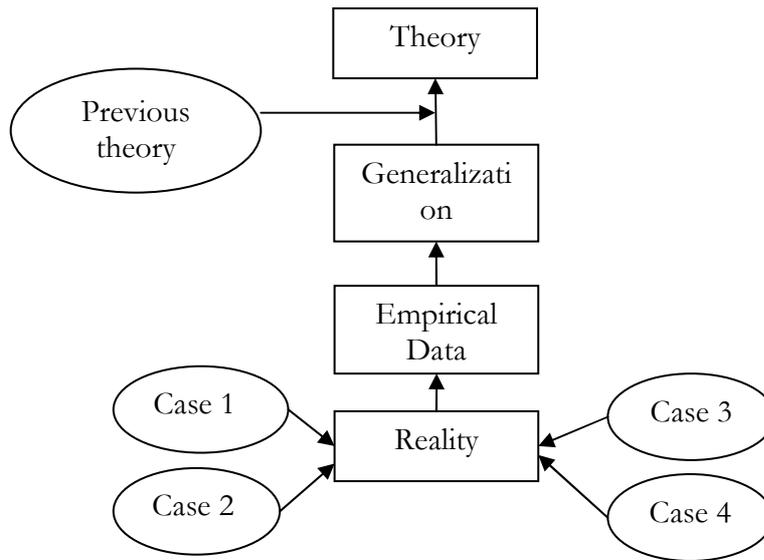


Figure 2-4 Research Framework

In fact, this research is developed through observing, finding empirical data, and generalizing. The conclusion drawn from it has limitations resulting from the restrictions of the data sample. It is only restricted to the big organizations in Europe, while also could be meaningful as a reference for other organizations. As regards the detail of the data sampling, it would be discussed further in the following sections of research strategies. And research credibility.

### 2.3 Research Strategy

To accomplish this thesis, at first, a set of comprehensive information with regard to ITIL was reviewed by accessing to secondary resources, and then by using gained information, we start to collect information from primary resources via observations, interviews, and emails and questionnaires to obtain information from practitioners in the IT departments. As a result, analysis and categorization of theoretical and empirical findings leads to results and answers of the research questions.

According to the theory of research method, there are explorative study and explanatory study. Explorative study, which aims at describing the area, and discovering the basic knowledge of the area, focused on generating hypothesis. So in this kind of study, qualitative approaches or “Flexible design” are tend to be used. In the next stage, after collecting more information and gaining deeper understanding of both the knowledge and real practices within this area, the study tends to become explanatory, testing hypothesis could be used through quantitative approaches or “Fix Design”. The knowledge enables the researches to better formulate the structure to test in the investigation

In order to answer the research question of “How to implement ITIL successfully in the organizations”, different research techniques are adopted together. This main research question could be answered by solving two sub questions, which are “what steps are essen-

tial in the implementation process? What steps are optional?” and “what are the critical success factors of implementing ITIL?” For each of these two sub questions, diverse combination of methods, which emphasize on different aspects including descriptive explanations and testing, are used. The methods employed for each question will be elaborated and summarized in the section of “research strategies for questions” after reviewing each of information-collecting-strategy.

When it comes to the information collecting, data, which is the carrier of information, is the objective of the carefully designed strategy. Useful data should meet basic criteria of reliability and validity, in order to prevent the situation of “Garbage in, garbage out”. From perspective of the data sources, it could be classified into secondary and primary data. Secondary data could be collected from books, journals and published sources. As to primary Data, interviews and surveys are needed. While from the essence of data itself, it includes qualitative and quantitative data. Patton (2001) referred qualitative research as each kind of research generating finding reached from the real world environments where interest phenomenon is manifested naturally (Golafshani, 2003).

### **2.3.1 Secondary Data**

Obviously, the biggest benefits of the secondary data are the enormous saving of time and money, less restriction of the region. In addition, it could suggest suitable methods or data to handle a particular problem. It is the precondition for gathering unambiguous primary data. Secondary data is also expected to offer a foundation for comprehensive understanding of the respondents (M Saunders, 2009). During the research, the efficient way to get secondary data is literature study and exploration of published data set on organization and government sources. It helps the understanding of the overall background, designing the strategies for primary data collection and the selection of the respondents.

In this research, due to the ITIL’s features of promptly changing and developing, official websites are one of the major resources for secondary data. For instances, there are updated information and introductions on the OGC Official ITIL website (OGC ITIL), OGC Best Management Practice website (ITIL UK) and ITIL / ITSM world website (ITIL/ ITSM world). In addition, books available in hard copies, online document and published journals are referred to for the purpose of formulating the theory framework. This original framework is functioned as the benchmark and basis for the empirical observations and developed theory.

### **2.3.2 Primary Data**

The main disadvantage of secondary data is that, most of them were prepared for another topic which might have different data requirements from this study (M Saunders, 2009). Thus the primary data that are relevant to our particular study and research problem needs to be collected.

### **2.3.2.1 Case Selection and Profile**

In this study, non-probability sampling was used to select the most relevant cases for research. Because an average case is often not the richest in information, the most appropriate sampling method is the information-oriented sampling (Flyvbjerg, 2006). In this study, one case of the expert in consultancy and three cases of big companies were selected based on the criteria of being the major representative consultancy or companies which have business in Sweden. The three selected companies, DHL, TeliaSonera and Ericsson, are in different businesses and would be representative for the topic in this research. The details of these four cases are provided below.

#### **Case 1 –Hewlett Packard (HP)**

In HP, there is a professional department, which is called Consulting and Integration, which is specialized in Service management and specifically be responsible for helping organizational customers on the improvement of the processes. As the process improvements are about the whole IT management, organizations might realize there are something needed to be improved, but they have no idea of what to do and what to begin with. The professional consultancy department in HP is the place where they should refer to. Their main customers within Europe are mostly the IT department in multinational organizations including DHL and Ericsson. Part of ITIL was written and compiled by HP.

#### **Case 2-DHL**

For DHL, IT system, which is one of the basic components together with Transport system, plays a significant role in the integrated supply chain. The IT Service Department offers services to all the DHL Companies in the area, which are approximately 25 companies and 20 000 people, depending on the IT operations. There are around 500 employees in the IT department in Northern Europe. They implemented all the processes of ITIL in the IT center in Prague, which was moved from other countries including London about 3 years ago. But ITIL has already been in use 10 years ago in London. During the moving and implementation of ITIL, HP as well as other dominating consultancy was hired as the consultant and the staff in IT department accepted the training from them. But in Norway, only four important processes were implemented. Along with ITIL, frameworks of CobiT and HP ITSM were also used for the IT Service Management.

#### **Case 3-TeliaSonera**

The TeliaSonera's IT department, with more than one thousand IT staff, tries to realize and implement TeliaSonera's business requests/demands for IT solutions into IT support systems and also creates rules and policies for IT area in TeliaSonera.

Mr. Resell asserted that TeliaSonera does not hire any external consultants for the purpose of improving the performance of IT services, but uses internal consultants in its IT department.

#### **Case 4-Ericsson AB**

Ericsson is the world's leading provider of technology and services to telecom operators. As the market leader in 2G and 3G mobile technologies, Ericsson supplies communications services and manages networks that serve more than 195 million subscribers. The company's portfolio comprises mobile and fixed network infrastructure and broadband and multimedia solutions for operators, enterprises and developers. The Sony Ericsson joint venture provides consumers with feature-rich personal mobile devices.

Ericsson has its IT operations including infrastructure services, application hosting platform, helpdesk support and output services outsourced to HP and IBM. It includes transfer of assets and about 1,000 employees globally at Ericsson Global IT Services to HP. By doing this, the overall IT cost could be reduced and greater flexibility and efficiency in using resources could be achieved.

### **2.3.2.2 Interviews**

For qualitative data, interview is the most significant source (Dennis Hart, 2005). Semi-structured interviews were conducted with the organizations which have already implemented ITIL. The questions of the interview were focused on their implementation experiences related to steps and success factors, encountered problems and to be improved aspects. The prepared 18 interview questions, which were compiled on the basis of previous research study and interviews, are divided in three major parts which are background information, general opinion and research targeted questions. These interview questions could be found in the Appendix 1. On the basis of understanding the organizations' general situation through asking the history, extent of using ITIL (i.e. Q2.4, Q2.5, and Q2.8), the respondents ideas to the research questions are expected to be discovered through these interview questions. The question of "Do you have work routines or best procedures when you implement ITIL?" is the main question to explore the answer for the implementation steps. While questions as "What do you think as the important/crucial factors contributing towards success? What are they in different phases of ITIL lifecycle? ", "What are the challenges you encountered in implementing ITIL?" and "What do you think are the pitfalls in the implementation right now?" focus on the success factors of the ITIL implementation. During the interviews, small questions are also used to guide the direction and get the required information.

These two interviews were conducted face-to-face and being recorded and transcribed in written copies which could also be found in the appendix. Each of them took around 1 hour.

The most significant advantages of this form are the flexibility and the capability of exploring the involved attitude and associated details. The qualitative data from the interviews would be compared with the implementation suggestions and recommended steps in the previous researches. The differences, such as what are missing and what are added will be discussed and analyzed to recognize the essential and important steps.

### **2.3.2.3 Email and Questionnaire**

Sending out questionnaires is the most effective and efficient way to get the opinion. But the design of the questionnaire will affect the possibility of getting the response, reliability and validity of the collected data (M Saunders, 2009). And it's hard to go back to the responses again if the objectives are not achieved. In order to get more detailed information, email contact is also used together with questionnaire if possible.

Two styles of questionnaire are prepared in order to tailor to diverse requirements of respondents. Word version questionnaire has the advantages of driving respondents to talk more about open-end questions and providing flexible information, while has the disadvantage of unable to protect respondents' privacy. But online questionnaire is able to collect information without getting their name and email addresses. The website of the online version is [http://www.kwiksurveys.com/online-survey.php?surveyID=KONDJH\\_7037f0ab](http://www.kwiksurveys.com/online-survey.php?surveyID=KONDJH_7037f0ab) . According to the respondents' needs, these two kinds of questionnaire are provided accordingly and could be found in the Appendix 4.

Two major parts of the questionnaire (Q11, Q 12 in appendix 4) are selecting and order the steps of implementing ITIL and rating the importance of prelisted factors during the implementation.

### **2.3.3 Strategies for Research Questions**

After a thorough review and study of the methodology, a strategy was formulated specifically for the research questions in this study. Generally speaking, in the initial stage of the research process, secondary data and non-standardized interviews of the ITIL educational institutions and companies are used to probe information. Then interviews are conducted with the two typical samples to discover plenty of variables and features of them. Then more other cases are incorporated and analyzed, with the purpose of providing logical and convincing result.

For the first research question of discussing the steps of implementation, interview is the primary source of information. IT consultancy and IT departments in organizations are interviewed due to their different roles in the implementation. The reason of choosing interview as the major strategy for solving the first research question is that many variables are involved in determining what to do and it's extremely difficult to accomplish it solely through sending questionnaires.

For the second research question of finding the most significant success factors for implementing ITIL, both interviews and questionnaires are exploited in the research. The interviews are used for getting initial understanding and impressions of the success factors. By analyzing the previous researches and results from the interview, questionnaires are prepared to find the success factors through rating the importance.

## 2.4 Analysis Process

The purpose of analysis and interpretation is to collect and state data in a good structure which is easier to be comprehended. During analyzing, the information will get consolidated. Analyzing is a good idea to go back and look at initial problem objective to ensure the connection to the main goal. Analysis is the essential approach to get to the answer and conclusion of the research. But it also exists in the whole process of the research from the beginning till the end.

During this research, data collected from every interview was analyzed for guiding the research afterwards. Thus, after writing and reading interviews, drafts of useful categorized and filtered statements expressed by interviewees were prepared, and sent to relevant respondents to minimize the amount of mistakes and misunderstandings. Right after that, information from different interviewees is analyzed, and compared with each other and then compared to the original theoretical framework.

The steps of ITIL implementation and success factors are analyzed separately. In the section of the steps analysis, the procedure consists of three parts which are deep analysis of the theory in the frame of reference, comparison among the cases and comparison between the findings in the previous two parts. In the section of success factor analysis, it is divided into comparison among cases and then between cases and theories.

## 2.5 Research Credibility

There exists abundant information in our daily lives. One of the criteria that we use to filter information is its credibility. Credible resources are described as trustworthy and having expertise (Pervez N. Ghauri, 2005). Credibility could be achieved by making sure the reliability and validity

Reliability is an idea that is used to test and evaluate all research type. If we see testing-idea as a way of leveraging information, so the most important test of each qualitative study is its quality (Golafshani, 2003). Although it is difficult, valid literatures, materials and resources for gathering information are guaranteed to achieve high reliability of the chosen research approach and strategy in this research

Validity is concerned with whether findings and results are really about what they appear to be, and also identify if the relevant method accurately measure what they had to measure. Generally, there are two kinds of validity which are internal and external validity. Internal validity regards to whether the results obtained within the study are true, while external validity refers to the question of whether the findings can be generalized (Ghauri & Gronhaug, 2005).

In this study, to improve the internal validity of the data, collected information is documented and double checked. For instance, the interviews are recorded and checked after being written on paper. The questions of the questionnaire are reviewed carefully and

checked through pilot study. The external validity is ensured by carefully selection of the cases. Because of limitations of time and resources, two cases were selected for deeply investigation, while other two supplementary cases are studied to support. The major selecting criterion of the investigated cases is the major IT consultancy and large representative companies which has business in Sweden.

Other factors, which could affect the validity and reliability of the research, are the units and variables in the research. If there are a large amount of units but few numbers of variables, the possibilities of generalization would be higher, while there is a risk of having low relevant data. On the other hand, if only a few units with lots of variables are studied, there would be good possibilities of having relevant data, but deficient generalization. The latter one is called intensive investigation, and the previous one is called extensive investigation. In this research, as many variables in few cases are studied, intensive investigation is conducted.

### 3 Frame of Reference

This chapter discusses on theoretical framework, to present readers an understanding of subject. In fact, the frame of reference is a basic to analyze in a thesis, where a comparison between theories and empirical findings will be conducted. Thus, we try to determine the suitable theoretical areas to create an understanding which will be connected to the objective of the thesis. According to explanation of figure below moving from the external layer towards internal layers, this chapter will firstly give an overview of what IT Service Management is, how does ITIL developed into what it is today, what does ITIL looks like and what researches has been done about ITIL implementation. Then the latter part of this chapter points out steps which an organization requires to implement ITIL effectively, and what factors can be critical, and should be contemplated within the ITIL implementation into an organization.

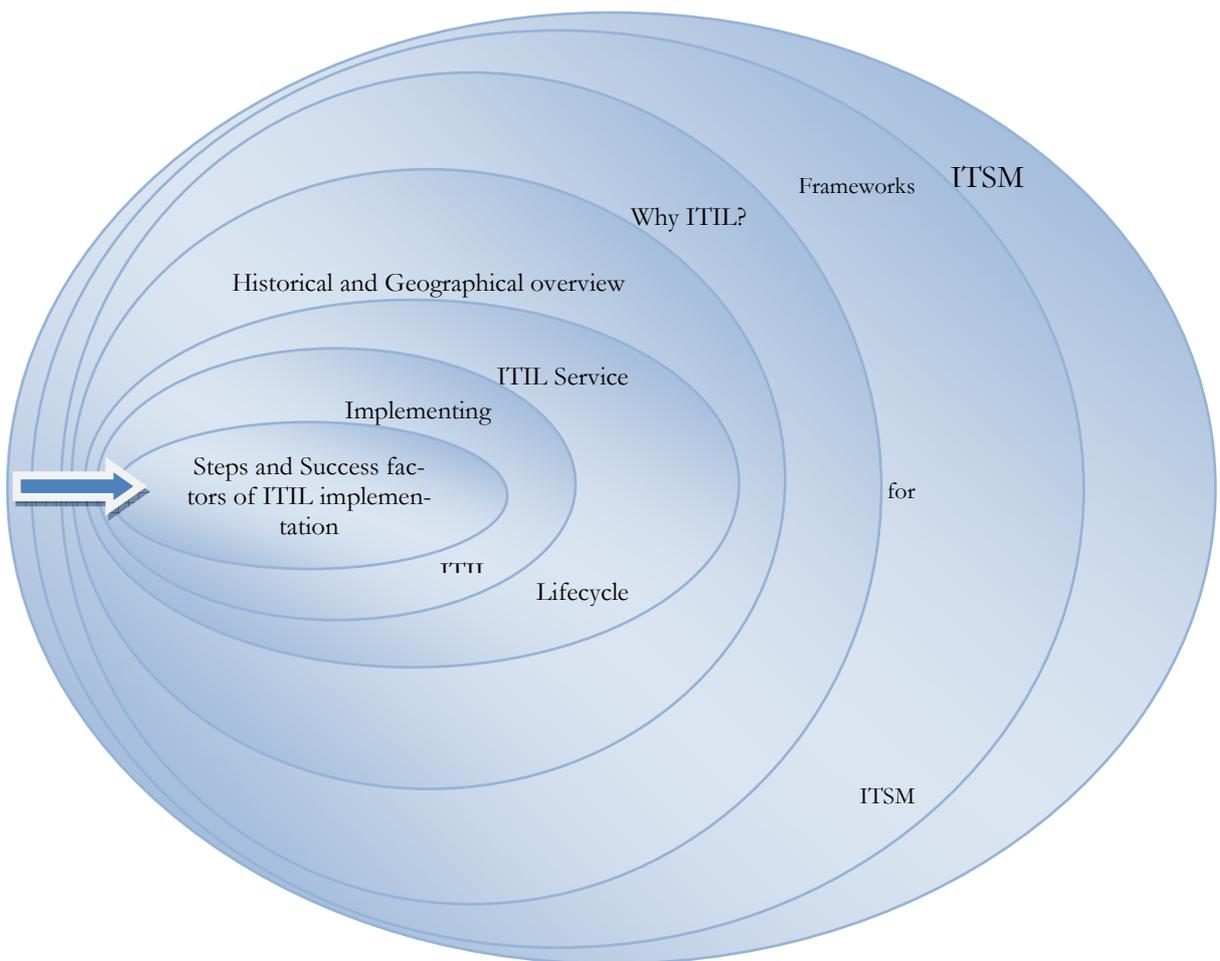


Figure 3-1 Overview of the sequence of explanation of procedures of FOR

### 3.1 IT Service Management

Along with the demands to reduce costs and comply with new regulations, the growing dependency of companies on IT, whose infrastructure has grown increasingly complex, has driven companies to search for ways to increase the efficiency of their IT operations. ITSM is the direction that more and more organizations are adopting. It is also recognized even more by organizations which transform from technology-oriented to service-oriented in terms of the approach to IT management

“A service is a means of delivering value to recipients by facilitating outcomes they want to achieve without the ownership of specific costs and risks” (Office of Governance Commerce, 2007). Originated from traditional service businesses such as banks and hotels, service management helps IT organizations to manage IT applications, infrastructure and processes. Because of the development of outsourcing and shared services, the number of organizations and internal units who provide services keep increasing. The services also include the solutions to business problems and support for business models, strategies and operations.

To make a simple definition, Information technology service management (ITSM) is a discipline for managing organizations providing information technology (IT) services from a customer’s perspective. The customer perspective implies a shift from a technology-oriented to a service-oriented approach to IT management. This shift changes the way that IT and business work together to define and deliver IT services (Kloeckner, 2007).

IT service management (ITSM) becomes essential as services were locked in because of the developing technology. At the very beginning, application was the mainly focus of IT. The way to explore more benefits from it could be providing the applications as a part of the service provided to business. During the 1980<sup>th</sup>, as the practice of service management and the dependency of business grew, the focus was on IT service approaches and ‘IT help desk’ to solve the problems encountered by the companies that are using IT services in delivery.

Service Management is more about professional practices than just capabilities. It is supported by an extensive body of knowledge, experience and skills which is ensured by the global community of individuals and organizations and formal schemes for education, training and certification. Industries and academic research contribute to its developing and take advantage of it at the same time.

Generally speaking, IT Service Management focuses on 6 points which are organization, technology, process, data, service and the customers.

- Organization: Who you are and how you group people
- Technology: What the infrastructure is and what tools you have to manage the infrastructure
- Process: What you do-and how effectively, efficiently and adaptability you do it. It is an inward focus on what to do

- Data: What information you have and how it should be stores, shared and safeguarded Service
- Service: what you deliver to the customer- how well do you serve their mission
- The Customer/ the Business: The customer pays for or commissions the service. The customer cares about the cost and value of the services provided and how it helps them achieve their business mission

### 3.2 Frameworks for ITSM

IT industry has developed some frameworks to manage organizations requirements. Organizations need to comprehend which framework will better manage their IT services, by considering the market and organization requirements (Office of Governance Commerce, 2007).

Some firms constitute their own unique IT framework with attention to their organization requirements, such as Microsoft Operations Framework (MOF) which is especially for Microsoft Corporation. Other firms use the predefined popular frameworks, which some of them are as follows:

- ISO/ IEC 15504 called also SPICE, provides a framework to evaluate the processes capability (Office of Government Commerce, 2007).
- Management of Risk provides a framework that is tried, tested, and effective to help organization removes or manages risks which are engaged into getting the organization goals (Office of Government Commerce, 2007).
- Cobit is an accepted set of tools organized into a framework to govern IT based on the industry standards and best practices (IT Governance Institute, Cobit 4.1, 2007).
- ITIL is a set of comprehensive and consistent best practices for IT service management to deliver high quality IT services (IT Governance Institute, Cobit Mapping, 2008).

Which this kind of organizations, in accordance to their organizations requirements may utilize all or some of defined processes in these ready IT frameworks, for instance IBM, HP, and Casterpillar have been using the ITIL framework (Hirai et al., 2004).

There is a considerable point that not only some of these frameworks do not compete together, but also have synergy with each other, such as Cobit and ITIL (IT Governance Institute, Cobit Mapping, 2008).

### 3.3 Why ITIL and What is ITIL?

Everyone agrees that IT employees should pursue the best practices in their operations (TeamQuest, 2005). Implementation of the standards of process and best practices causes decrease of human faults and increase of operational efficiency (Arora, 2007). But, the question expressed is what constitutes a best practice?

ITIL is one of leveraged sets of the best practices for IT society (TeamQuest, 2005). ITIL particularly has more significance for organizations tending cost-effectiveness and efficient service management (Arora, 2007).

In effect, ITIL is a framework to governance of IT and concentrates on continual measurement and improvement of delivered IT service quality. This concentration is major factor in ITIL's worldwide success and achieves a set of key benefits by those organizations which expand ITIL's techniques and processes across their organizations. Some of these benefits consist of increased user and customer satisfaction for IT services, improved service availability leading to increased business profits and revenue, financial saving in time and improved resources management and usage, saving in reworking, improved time to market novel products and services, improved decision-making and optimized risk (Cartledge, Hanna, Rudd, Macfarlane, Windebank, & Rance, 2007), improved productivity of IT operational staff, clarification of IT responsibilities and roles, easier identification of core makes behind IT breakdowns, alignment with standards of complementary service management (Farre, 2007).

These benefits cause IT executives and customers get encouraged to adopt ITIL.

### **3.4 The Development of ITIL**

Since it's initiated by UK during the 1980s, ITIL has been growing quickly from version 1 till version 3, making positive impact on companies and organizations around world. Meanwhile, the acceptance among the companies in different region around the world is growing rapidly. The development and expanding will be reviewed in these two perspectives.

#### **3.4.1 Historical Overview of ITIL**

Fuelled by the need for increasing efficiencies, the UK government started to compile the best practices of service management used in successful organizations

1980th, Version 1 of ITIL was developed by the Office of Government Commerce (OGC) in the UK, to promote efficient and cost-effective IT operations within government controlled computing centers (ITIL UK).

The original library grew to over 40 volumes describing "best practices" in most areas of IT management, and the growing interest in the UK IT service community was triggered. The IT Information Management Forum (ITIMF), which is the IT Service Management Forum (itSMF) today, provided the platform for ITIL users to exchange their ideas (ITIL UK). The amount of the members keeps growing around the globe.

The next revision of ITIL, ITIL Version 2, which began in the mid 1990s till 2004, bridging the gap between technology and business concentrates on the processes of delivering effective services to the customers (ITIL UK).

The two primary components of the ITIL V2 framework are service delivery and service support. Each consists of core processes that IT organizations are advised to put in place in order to provide quality IT services.

The second major updating of ITIL was initiated in 2004, because of the emerging challenges brought by advanced technologies including new technology structure, virtualization and outsourcing. ITIL V3 that is the latest version was released in May 2007. This version has been distilled into five core volumes: strategy, design, transition, operations, and continuous process improvement.

Each book in the ITIL® v3 series represents a single stage in the lifecycle of an IT service. The first and last books in the series, Service Strategy and Continual Service Improvement, do not contain rigorously-defined processes, but instead describe a set of practices that may be used during those stages of the service lifecycle. The second, third, and fourth books in the series, Service Design, Service Transition, and Service Operation, contain rigorously-defined processes.

After twenty years, although ITIL kept changing the breadth and depth, it still maintains the core concepts and becomes the most recognized framework for ITSM.

### **3.4.2 Geographical Overview of ITIL**

There are many indicators of the growing awareness of ITIL worldwide ITIL has a strong following in Europe, especially in the government sector, and adoption is growing in Australia, North America and other countries (Barton, 2004). Recent surveys and case studies have reported an upsurge in awareness and adoption of ITIL (Casson, 2005, Deloitte, 2003).

In the U.S., Forrester Research reports a growing number of client inquiries about ITIL adoption. From July 2007 to July 2008 Forrester's IT infrastructure and operations team fielded nearly 30% more ITIL inquiries than during the same time period the previous year (Hubbert & O'Donnell 2008). In addition, in a recent global study, Axios Systems (2008) reported that 64% of IT professionals believe following ITIL is the key to improving IT reputation. The study also revealed that 87% of the organizations followed ITIL guidelines, with one in three organizations intending to adopt ITIL within a year, and another 36% considering its adoption. Axios Systems also report that although many organizations worldwide are successfully taking up ITSM, not all are experiencing positive outcomes and many of them are confused about how to implement ITIL successfully. This is consistent with findings reported by Cater-Steel and Tan (2005) that only 56% of 108 Australian companies surveyed felt that ITIL implementations had met or exceeded their expectations.

## **3.5 ITIL Service Lifecycle**

ITIL V3 contains a set of five publications, the ITIL core, which provides structure, stability, and strength for abilities of an IT organization service management. The core structure is in form of an iterative lifecycle, as is observed in the figure below (CAI, 2008).

Indeed, the service lifecycle is an operational model supplying insight into service management that is structured. The various elements of the lifecycle are linked to each other (Microsoft, 2009).

Each publication states one phase of lifecycle that all of them are noted below:

- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement (Office of Governance Commerce , 2007)



Figure 3-2 The Service Life-cycle (Source: Marval Nordic)

Each phase has one input, some processes, and output which is used by the next phase and it is remarkably important that any phase of the lifecycle must be implemented and complemented prior to the beginning of the next phase. Every phase will be explained in sequel.

### 3.5.1 Service Strategy

Service strategy is the core element of ITIL's service management lifecycle. This phase is used to institute an overall strategy for operations of ITSM and planed IT service of organization. This culminates in a strategic plan characterizing how processes, ITSM policies, and planed IT services of organization are utilized to achieve defined objectives (CAI, 2008).

This phase helps ensure that organization is ready to manage risks and costs which are dependent on initiating any new service.

In effect, in this phase, organization identifies the market atmosphere for planned IT services, setting performance expectations to serve customers, identifying, prioritizing, and selecting opportunities, and developing policies, guidelines, and processes which will be used to manage IT services.

The outcome of this phase will be the service package including a detailed description from IT service which is delivered to customers, a strategic plan to acquire objectives, financial budget and performance plan, and a package of service level defining the level of utility and warranty for IT services (CAI, 2008).

### **3.5.2 Service Design**

In this phase, new or changed services which are aligned with business purposes, defined in service strategy, are designed and developed for introduction in the production environment. The processes governing services delivery and management are developed in this phase too. This phase starts with the set of new or changed business requirements and ends with development of a service solution which is designed to meet the business requirements (CAI, 2008).

The outcome of this phase will be the service design package containing the business requirements for the planned services, a service designed document, evaluation of organizational preparation, service management plans, and service lifecycle plan (CAI, 2008).

### **3.5.3 Service Transition**

This phase is where new and changed services are transmitted into the service operation while control the risks of service fail and business disruption.

Activities which are performed into this phase consist of planning and managing needed resources and capacity to package, build, test, and represent a release in production, evaluating service capability and risk prior to release, creating repeatable building and installation mechanisms to launch release into the environment of test and production, and ensuring that services can be managed, operated, and supported according to needs produced in the service design.

The outcome of this phase will be the service transition package comprising an updated service portfolio containing all new or changed service components, an updated service package defining the services which are recommended customer, and an updated transition plan which is used to move the planned services in operations (CAI, 2008).

### **3.5.4 Service Operation**

Service operation is where the services value is realized by customer. Within service operation, the day to day operations of processes managing services are placed. There is also where these roles, designs, and optimizations are implemented and measured. From the customer viewpoint, this phase is where real value will be observed.

There are four functions which are needed to manage the operational IT environment consisting of IT operations management, technical management, service desk, and application management.

The outcome of this phase will be the service performance package which includes technical management reports, IT operational reports, service desk reports, and application management reports (CAI, 2008).

### **3.5.5 Continual Service Improvement**

This phase is responsible to continually adjust the IT services. Continual Service Improvement (CSI) identifies and implements progresses for the IT services. These improvement activities support the lifecycle through service strategy, service design, service transition, and service operation.

In fact, CSI looks for ways to progress process efficiency and cost-effectiveness throughout the whole service lifecycle.

The output of this phase can be made in each phase of the ITIL lifecycle. They make the improvement package containing an improved plan of the service and documents identifying how each process phase can be improved (CAI, 2008).

## **3.6 Implementing ITIL**

ITIL implementation is not usually easy and cheap for companies as a whole. For example, implementing ITIL may require companies to redefine how they should devote IT resources, which would be difficult and expensive to distinguish. Moreover, it may also demand new resources and new competence, because the previous ones may not be able to support ITIL processes. In fact, prosperous implementation would be achieved when tools, people, and processes work properly together (Ball, 2006).

To implement ITIL, IT managers need to use efficiently and effectively four Ps: People, Process, Products (tools and technology), and Partners (suppliers, vendors, and outsourcing) (Rudd et al., 2004).

Introducing ITIL to an IT organization is a complex endeavor, depending on the characteristics and the ambitions of the target organization. It will bring many influences to the organization. Inevitably, almost every member of the staff in IT department would be affected. It may then lead to the rearranging of organizational structures, work practices and the roles of the workers. ITIL requires the competence of process thinking and 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 complete implementation 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 implementation; otherwise, its introduction can lead to frustration because the objectives are never met.

According to previous researches, many public sector organizations and private sector firms have adopted ITIL and are making substantial progress in implementing the framework. But large organizations, especially those with a large IT workforce are leading the implementation. Although for most companies which have implemented ITIL, all the ITIL core functions and processes are being implemented, most companies are starting by establishing a Service Desk followed by the implementation of the Incident, Change, and Service Level Management processes (Iden, Steindal, & Stokke, Cater-Steel & Tan, 2005a).

## **3.7 Previous Research of Implementation**

The IT Service lifecycle is different from the steps of ITIL implementation. The previous one is about how to provide the best services to both internal stakeholders and external customers and coworkers. It starts from the service needs, ends on providing satisfying, even outstanding service, and are improved continually through measuring and adjusting, whereas the latter one is solely about how to take the most advantage of this 'tool' through inquiring where to use it and how to use it, despite of the seemingly common areas which are shared by them. Previous researches regarding implementation steps and success factors are reviewed and discussed.

### **3.7.1 Steps of Implementation**

Steps of ITIL implementation will be stated with three different viewpoints by one IT consulting company, one experienced person, and one process models Provider Company in this field. INS as the consulting company in 2005, Dr. Ball as ITIL Certified Service Manager in 2006, and Mr. Stefan and Dr. Andrea as IT managers and business consultants at IT Process Maps GBR, providing process models, in 2008 have expressed experiences themselves about required steps to implement ITIL in an organization that will be explained one after the other in sequel.

#### **3.7.1.1 International Network Services**

International Network Services Inc (INS), as one of the world's largest independent network consulting and solutions providers with a track record of thousands of successful engagements, providing IT infrastructure consulting services, software, and business solutions to help companies build, secure, and manage their business-critical networks, expresses a practical way to implement ITIL best practices. INS describes five efficacious steps developed by a real experience to implement effectively and efficiently ITIL into an organization (Litten, 2005).

##### **1) Process Workshop**

However ITIL implementation is not the same in any two organization in terms of duties and organizational structure, the processes design will have lots of deal in common. On a whole, each organization planning to implement ITIL has a choice: 1) create detailed process designs from the documentation of ITIL, or 2) use the generic templates which are

suitable for that. Of course, the templates created by skilled and experienced practitioners in ITIL.

INS experience has represented that the best way for when is used process templates by practitioners and practical managers into an organization which will get involved in ITIL is bringing relevant persons together in a workshop, that will be facilitated by an experienced practitioner of third-party ITIL to go through each ITIL process.

Its benefits will be:

- The process template provides a vision of the best practices which will prevent discussion of being into details which process act currently.
- Using third-party facilitators create a neutral environment that any comment can be stated, and experiences can be shared freely that will make to fade barriers among various technical specialists or practical groups.
- Reviewing ITIL processes details stimulate participants to think about the differences between way things are done so far and the best practices. It starts to formulate ideas about processes and other changes which can be created.

At a glance, the beginning of the project with a set of process workshops may seem like starting in the middle rather than the beginning. But in practice, it supplies an essential basic to implementation process and presents what processes of IT services management should be for accomplishing an objective in a project. It goes without saying that whatever other than best practices should be erased (Litten, 2005).

## **2) Gap analysis**

In this step, gaps between the best practices process flows discussed in the workshops and the way that ITSM is currently performed would be identified and prioritized. These gaps are used to specify detailed requirements for ITIL implementation project. To do that, information has to be conducted from practical managers and employees who have been present in process workshops. Thus, they will have a good understanding from information type and required detail levels.

Data collection should be done in a structured way. This is very significant to have one or many experienced ITIL practitioners to ensure gaps are aimed and categorized correctly by process area. This step even can be extended to evaluate a complete process. This approach has the benefit of creating a baseline against subsequent improvements can be measured, but it will need more resources and time, and require to be undertaken to additional assessment in future. Of course, this decision is usually related to executive management trend or whoever is responsible for the project implement budget.

Gaps may exist in a number of areas including process (design or compliance), people (employees' skills, roles, numbers, and organizations), technology (tools, systems, and facilities), and third-party services or any combination of them.

As an instance, some of gaps may depend on incident management process, for example incidents has not been classified in a compatible fashion, no effective management does report to incident management, incidents are not recorded in a single system, or etc. as a result, these gaps should be identified and prioritized (Litten, 2005).

### **3) Create a roadmap and plan**

Four actions one after the other should be carried out in this step.

- **Prioritizing gaps:** it is usually unlikely that there are sufficient resources to work on identified gaps simultaneously. Even if either there are, it is better to prioritize those and work on the most important ones, because of obtaining a number of quick wins that will help to establish project value and encourage support and participation, making sure about needed change rate does not impact on current services, and improving increasingly on the process compatibility level. Of course, priority is different from an organization to another.
- **Identifying actions required:** it is necessary to identify high levels required to close gaps and then come down as much as possible.

Whereas the purpose of ITIL implementation projects is to enhance the processes of IT service management, some of these can't be altered to integrate best practices ITIL until other prerequisite changes are created for some or all of cases. As well, successful process action is related to employees' activities and roles, third-party service, and systems and tools used to support IT service management.

- **Creating roadmap:** the goal of roadmap is to provide an overview of how implementation will be accomplished. It will be beneficial for everyone will be influenced by ITIL implementation.

To create a roadmap every identified action should be categorized to be fulfilled during a target time period, for example a period of 0-6 months or 6-12 months. That period of 0-6 months is usually to act upon gaps of high priority, but it can be sense for actions of low priority which are easy to catch or prerequisite for subsequent actions.

- **Preparing a plan:** the roadmap provides an overview from activities implemented into each 6 months time period. But a plan should be produced to characterize if order in which things can be done and perfectly managed. In the plan must be counted the availability of resources and any other constraints that can be identified (Litten, 2005).

### **4) Act and Measure**

Now that a plan has been developed, is required to identify an initial set of metrics, which are called Key Performance Indicators (KPIs), which can be used to measure the effect of the IITIL implementation project. KPIs can help specify if a process will work as foreseen, and if will produce the desired outcome.

Some KPIs can be measured before the process completion, that can help modify the process before failing or having low productivity, but other KPIs can just measure the process outcome (Litten, 2005).

### **5) Establish Process Governance**

The last step in ITIL implementation projects is to establish a governance framework for the processes of IT service management. The objective of this governance is to make sure that the way which IT services are managed meets the business requirements, and makes an effective and efficient use of resources used to delivery. Besides, the area of IT governance is not only service management, but also service development.

While ITIL processes provide a structured framework to control service delivery, governance supplies a framework to ride continuous development, adoption, and progress of these processes to gain organizational purposes.

The governance framework should define the metrics and a way that measures access against three objectives that INS believes as objectives that IT service management to acquire them should endeavor:

- To maximize the value which is delivered by IT services, using metrics agreed by business.
- To ensure that risks which are related to IT are managed effectively.
- To maximize the alignment between service delivery strategy and business strategy.

In general, once the governance framework is established, and measurements are regularly taken. Then the governance process can use these measurements to monitor the implementation of IT service management. If monitoring implies that there is a problem then the governance process will use to decide what requirements should be accomplished to solve that (Litten, 2005).

### **■ Summary of Steps**

In a nutshell, according to INS statements a practical approach providing a quick start to implement is using predefined ITIL process templates. Experienced practitioners can work closely with key staffs to create fast a gap analysis, roadmap, and implementation plan. KPIs are also used to measure the influence of implementation project upon IT services. Finally, establishing a governance framework to IT service management for ensuring these processes support perfectly organizational objectives access (Litten, 2005).

#### **3.7.1.2 Dr. Eugene Ball**

“Dr. Eugene Ball has 26 years of experience in the customer service industry and 12 years of experience teaching and conducting research in mathematics, computer science, and statistics at universities in the United States and abroad. In 1993, Dr. Ball founded Help Desk

Solutions Inc., where he helps organizations implement and improve customer service functions” (Ball, 2006).

Ball has recommended organizations following five steps to start with ITIL implementation.

### **1) Designate an ITIL Adoption Project Owner and Develop an Implementation Team**

An ITIL certified service manager ought to be process owner to get what intends to be done with help from a manager, because it is a long-term project and any endeavor should be done to have a same certified service manager throughout the implementation to protect the project continuity. Moreover, companies need to develop a well-defined implementation project management team, because ITIL implementation can take years, as well as precise thought and preparation should be considered to develop the team.

### **2) Train Employees**

Education is usually one of first steps during implementation process in organizations. Many organizations utilize most or all of their IT employees to take an ITIL foundation certification class. It can provide an ITIL framework common understanding and a common language to have a more accurate discussion within the implementation phase. Together, as improvement is made to implement ITIL processes, manager of each process may be assigned to take a particular ITIL practitioner class to cover process for which responsibilities which has.

### **3) Establish a Service-level Agreement (SLA) process**

The organization needs to have a well-introduced process to accomplish the service level agreement accompanying the service processes. It helps organization align its long-term goals with current business and IT needs.

### **4) Evaluate IT Needs**

New technology should not be involved until the processes are defined better and clearer; because technology is only an enabler, and does not progress the weak processes.

### **5) Perform a Gap Analysis**

Some organizations will accept only some of the ITIL processes. Hence a gap analysis characterizes KPIs and internal processes relationships. It also specifies what modifications need to bring processes, procedures, and politics for each goal. Furthermore, it helps companies prioritize the processes section based on current maturity level making companies close gaps between current processes and the ITIL defined processes (Ball, 2006).

### **■ Summary of Steps**

To sum up, according to Dr. Ball’s statement, in the first step companies need to make a suitable implementation team to implement ITIL project and also designate an ITIL exper-

rienced project owner to conduct project throughout the implementation. Then to educate staffs about ITIL processes and procedures in the project elementary level and during project implementation. After that, to establish a service level agreement process will help to realize the customer requirements to identify the organization long term objectives. In the following step, company assess the current processes and IT requirements to understand how much change is needed. Afterward, in the last step, company will analyze gaps between the current processes and the ITIL best practices processes and prioritize these gaps to erase (Ball, 2006).

### **3.7.1.3 IT Process Maps GBR**

IT Process Maps GBR is a provider of refer process models for IT organization based on best practices recommendations examined during time.

They have concentrated on provision of ITIL processes in form of the ITIL process map. This model is asserted that is used by many companies worldwide, helping them to get an Idea from ITIL to successfully implement ITIL in their organization. Some of IT Process Maps GBR's customers by industry sections include government (Gold coast city council in Australia, KRBF in Germany, and US navy in USA), technology (Nokia in UK, Oracle in USA, and Phoenix solar in Germany), telecoms (Teliasonera in Finland and BT in UK), IT services (Datef in Italy and EDS in USA), and etc.

The ITIL process map turns back to more than 15 years of experience of Mr. Stefan Kempter and Dr. Andrea Kempter in fields of IT management, process management, and project management as IT managers and business consultants.

The ITIL process map V3 will guide companies through levels of implementation and planning of their ITIL projects, including ten steps (Kempter & Kempter, 2008).

#### **1) ITIL Project Preparation**

Two conditions should be checked before implementing a project

- 1- Whether project key persons are familiar with ITIL principles?
- 2- Whether a process management framework is in operation?

##### ➤ *Familiarization with the ITIL principles*

It is essential that key players know about ITIL principles in IT organization. It will not be adequate to merely rely on outside consultant knowledge in a long term. An ITIL project into IT organization should be carried out by own colleagues in their own positions to increase benefits. Moreover, a good knowledge of ITIL help key players to effectively use any required consulting services.

##### ➤ *Establish process management*

As well as the alignment of IT organization with ITIL, the second purpose is to ensure if the new processes are consecutively approved and monitored.

The process or quality management in the business can be used to manage ITIL processes that will be responsible to make sure that the whole ITIL processes work together into integrated way, provide sufficient tools to manage the processes, ensure the ITIL processes will be documented sufficiently, and help IT staff progress their processes. In the absence of any of these facilities, one appropriate member from IT employees should be chosen for that role (Kempton & Kempton, 2008).

## 2) Definition of the IT Service Structure

### ➤ *Business services and supporting services*

The best way to achieve a clear picture on services is to develop a service structure comprising business and supporting services. On the one hand, business services are made of a set of supporting services that are characterized by representing a direct value to customers. On the other hand, supporting services don't have any direct value for customers, but are required as business services building blocks and provide a network infrastructure.

### ➤ *Creating a list of business services*

A good way to start is to create a list of existing business services.

### ➤ *Determining supporting services*

When business services provided for customers get clarified it gets possible to identify required supporting services. The main point in defining supporting services is to refer responsibilities for the delivery of those services. The responsible service owners will be expected for making sure that their services meet the objectives of agreed service level.

### ➤ *Defining the services structure*

By having identified business and supporting services and specifying relationship between them, IT service structure can be created (Kempton & Kempton, 2008).

## 3) Selection of ITIL Roles and Role Owners

Before starting project, it is significant to choose persons who will be responsible of setting up novel ITIL processes. In other words, determining ITIL roles and relevant responsible for these roles are necessary.

Person who will later have responsibility to implement a particular process should participate in process design to closely have relationship with possible flows in process and get familiar with likely changes (Kempton & Kempton, 2008).

## 4) Analysis of As-Is Processes: ITIL Assessment/ ITIL self Assessment

Before any task, analyzing organization current situation is usually essential. It makes to decide which current processes can remain unchanged.

As-is analysis usually takes accurate information documenting the current processes in detail.

In fact, in this stage should be evaluated the current processes using a set of objective criteria, thereby identifying weaknesses and opportunities for process documentations with the save of effort and time will be possible. As a result, an ITIL self assessment is ideal for this task. The assessment form can also be recommended to carry out this task, if ITIL is introduced for the first time. And members of IT management and staff of functional level can also be selected as interviewees for this assessment (Kempton & Kempton, 2008).

#### **5) Definition of the To-Be Process Structure**

By following prior step analysis, this step will be determined which processes and sub-processes should be introduced. To-be process structure will not consist of detailed process description. It will be developed in the next step.

As an instance, if project purpose is to enhance user support, the incident management process should be established or developed, and because of its close links with the problem management, configuration management, and service asset processes, these processes should also include in scope and project (Kempton & Kempton, 2008).

#### **6) Definition of ITIL Process Interfaces**

In this step must be specified which inputs are received from other processes, and which outputs should be produced for the next processes. These inputs and outputs are called the ITIL information objects.

Process levels are usually contemplated as a step of separate project before getting involved in process internal parts in detail. Indeed, before being able to introduce detailed activities, should be clarified what outputs need to be produced by a process, and what inputs a process ought to expect prior processes (Kempton & Kempton, 2008).

#### **7) Establishing ITIL Process Controlling**

When the process structure and their levels get clear what defined to ensure if processes are getting implemented according to expectations is called process controlling.

A concrete strategy for controlling processes not only helps assess whether objectives followed with ITIL introduction will be acquired, but also has long term benefits delivering necessary data for a continual process improvement.

##### *➤ Determine the process owners*

A process successful management depends on the process owners, indentifying themselves with their works closely, and who are equipped with necessary means.

##### *➤ Define IT metrics and measurement procedures*

Process owners use the objective quality metrics or KPIs to evaluate if their processes are performed well. It makes they make decision upon requirements for process improvements.

In the first step, the overall objective of a process needs to be determined. With this purpose in mind, it may make to choose KPIs which are appropriate to measure a prosperous process implementation.

There are also quantitative measures which are used by the process owner to steer resources inside a process.

In final, suitable KPIs will be chosen and measurement procedures will be requirement for systems to be implemented.

➤ *Set KPI targets*

Target values for KPIs define success in an objective way, and set goals for the process owners.

➤ *Define the reporting procedures*

Reporting on process quality is the overall element at process controlling. Reporting procedures must be defined, characterizing which KPIs in which form and what recipients ought to be reported to (Kempter & Kempter, 2008).

## **8) Designing the ITIL Processes in Detail**

Determining which activities into each process will be expressed in this step. In other words, the detailed activities within individual processes shall be discussed with all relevant parties to be get engaged into the design as much knowledge and experience as possible. The process owner is responsible for this task.

Finally, a consensus will be achieved and documented in the diagram form of the detailed process flow (Kempter & Kempter, 2008).

## **9) Selection and Implementation of Application Systems**

If the processes are fully designed and registered in the form of the detailed ITIL process details, their real implementation can be initiated. If new or changed application systems are needed to support processes, these should be procured, developed, and then implemented.

Essential requirements of the application systems are mainly derived from description of the detailed process, representing which activities the application system ought to support, as well as a set of needs of non-functional will be documented.

After specifying the entire requirements, an itemized and prioritized list will be leveraged from requirements document, which is used as a matrix to assess suppliers (Kempter & Kempter, 2008).

## **10) ITIL Process Implementation and Training**

In final, IT employees receive complete training to be able to apply novel processes in practice, and clients and users may be required to be informed, because they will be impressed by new ITIL processes.

In general, all of participants of the process should get familiar with new processes (Kempter & Kempter, 2008).

### ■ Summary of Steps

In brief, in the first step, employees will get familiar with the ITIL principles and organization ensures that all of processes will be adequately monitored, because the ITIL implementation will fail without monitoring processes. In the second step, the project's objective will be determined. It means by specifying the business services, which will be given to customer, supporting services will be identified. Indeed, it shows for supporting such the business service what infrastructure is needed. In the third step, the ITIL roles will be characterized in every phase, such as financial manager, service level manager, risk manager, and so on. Then qualified personnel will be appointed for each position. In the fourth step, the organization's current processes will be assessed.

In the fifth step, the required processes to carry out the project will be selected through the ITIL best practices. In fact, with attention to prior step, processes which need to be changed or improved will be determined. In the sixth step, relationships, or more clear, inputs and outputs among processes will get clarified. In the seventh step, for not deviating procedures from expectations, processes should be controlled. By using KPIs, the processes can be regularly assessed and the appropriate measurement procedures choice is so significant to figure out improvement procedure. Then all of these procedures must be reported. In the eighth step, detailed activities of all of processes will be identified. In the ninth step, the suitable application systems should be chosen to support the processes. Finally, in the last step, employees should be educated that how to work with new processes (Kempter & Kempter, 2008).

The figure below is an overview from these ten steps

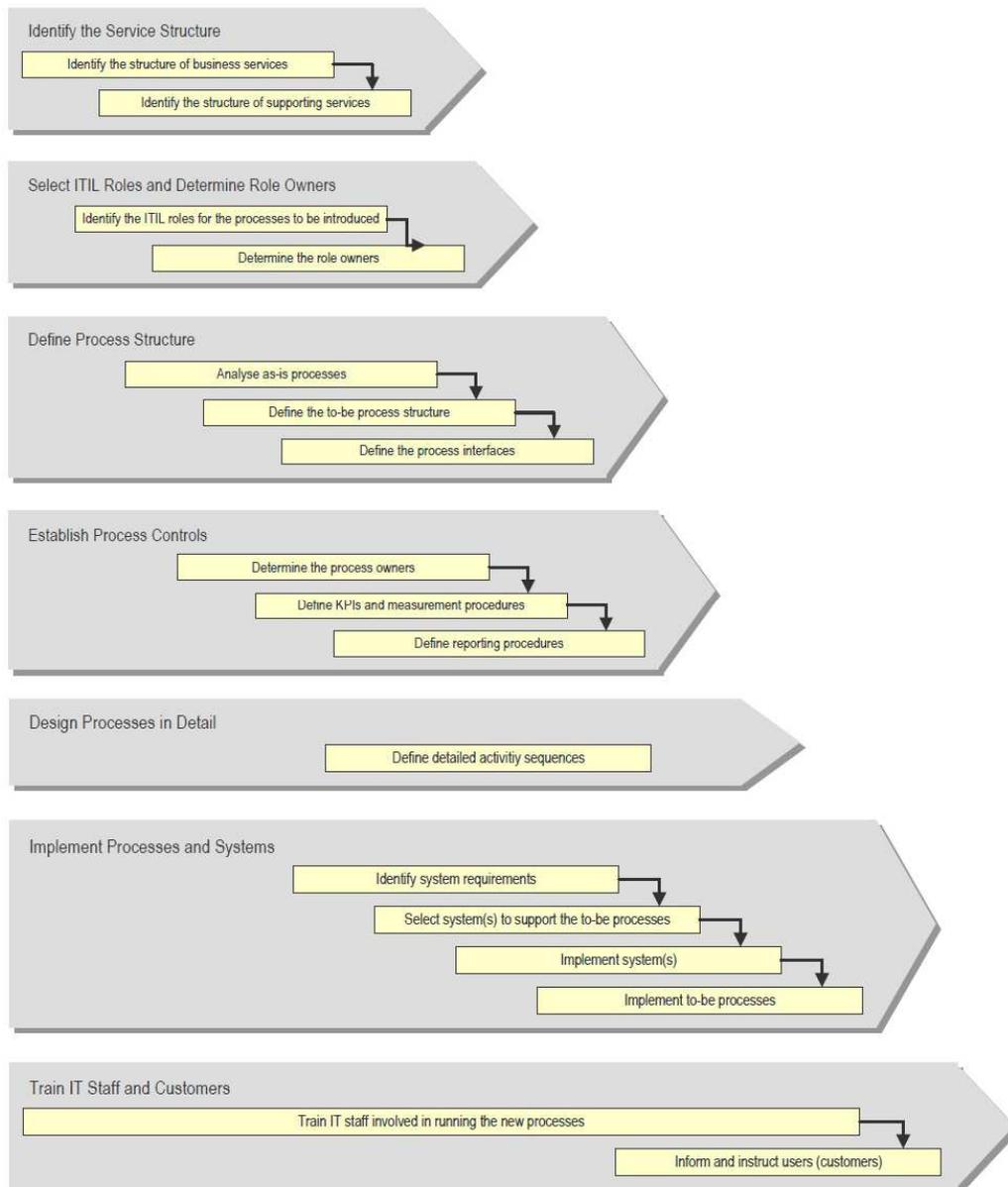


Figure 3-3 10-step ITIL project course (Kempters, 2009)

### 3.7.2 Success Factors

Research on critical success factors (CSFs) is comprised of identification and examination of influencing factors that explain the success of a company or a project (Krcmar, 2004). It has been established and popularized over the last 30 years. There is a great deal of attention devoted to the concept in the IS literature as many argue that the use of CSF can have a major impact on the design, development, and implementation (Ramaprasad, 1998). Studying the critical success factors are valuable for making sense of problems where many potential factors influence the outcome, and where the researcher hopes to make a set of practical recommendations based on the most influential factors (Lam, 2005).

Researchers have been interested in finding the crucial success factors in implementing ITIL. After reviewing these articles, 5 researches are summarized and presented here. And all the mentioned factors are listed in the Table 3.1, which is comparison among factors raised in different researches. Because of the difference in country, region, background and perspective, similar factors are often stated in different expressions. This kind of differences has been eliminated in the table for the convenience of comparison.

It is shown by a survey conducted at the 2007 itSMF National conference in Melbourne that top rated five factors emerged among a list of 18 factors on their ranking of 100 effective responses. The factor identified as most critical to successful ITSM implementation is the commitment from senior management. Top management can take a leadership role and adopt a longer-range perspective of the benefits thus ensuring sufficient allocation of resources and overcoming organizational resistance (Cater-Steel, 2007). Involvement of the business was recognized as the second most important factor and having a champion to promote the project was also highly ranked. The need for IT staff to be adaptable to change received the fourth highest weighted score. Understanding the needs of the business came in fifth ranked position. In addition to that, additional success factors were recorded: clear and concise service management strategy; need to link ITIL to key business change; effective capability in organization change management (Cater-Steel, 2007).

As the in-depth case study of the ITIL implementation experience of Queensland Health shows, evident success factors could be recognized. Other organizations embarking on a similar endeavor are encouraged to leverage vendor expertise, from multiple vendors if necessary, and ensure technology transfer is effective to in-house staff. Ensuring the alignment with corporate strategy, tracking according to the benefit realization, identifying the process owners, providing adequately resource and support are all the condition to make it successful (Wui-Gee Tan, 2007).

Another case study of two American companies and Australian companies confirmed success factors including executive management support, interdepartmental communication and collaboration, use of consultants, training and careful software selection. Three new CSFs are identified: creating an ITIL-friendly culture, process as a priority, and customer-focused metrics. These success factors were closely related and need to be carefully monitored and managed throughout all phases of implementation (Cater-Steel C. P.).

There is also another case research conducted before. After studying six cases, it is found that the greatest challenge in implementing and establishing a service-oriented IT management was the lack of acceptance and missing understanding of the necessity for introducing new processes (Axel hochstein, 2005). The crucial factor for success for these case companies were showing the “quick-wins” and significant benefits; emphasize on continuous improvement; marketing campaigns to increase the acceptance and understanding; support of management in order to exert pressure; broad-based training and personnel development; formation of virtual project teams and leaders to integrate the new processes.

Another research identified six ‘successful initiatives’ based on six German firms. It recognize the factors as following: start with processes likely to deliver ‘quick wins’; guarantee

sustainability of success by continuous improvement; create acceptance and understanding through the use of marketing campaigns; request support from management to exert pressure to change; include broad based training and personnel development; and form teams to integrate new processes into service orientation (Aileen Cater-Steel, 2006).

The latest research conducted by fifteen experts from Norwegian Armed forces studied what is required when an IT department will be developed based on best practice processes. A Delphi research method was used to identify 12 factors from plenty of proposed factors. The final ranking shows unambiguously that factors related to senior management and management in general, are the most important in the adoption of ITIL. Factor of “managers at all levels must have ownership to the ITIL introduction” ranked first in this group (Jon Iden, 2010). All the 12 factors are:

F1: Managers at all levels must have an ownership to the ITIL introduction

F2: Senior management must formally decide the introduction of ITIL

F3: Identify and involve key personnel, and let them participate in the design and improvement of processes

F4: Senior management must have knowledge about and understanding of what processes orientation means

F5: Start with and prioritize a few ITIL processes where there are greatest opportunities for success

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

F7: General competence in process thinking, ITSM and ITIL must be provided for all concerned

F8: A modular ITSM system is needed and must be applied for all processes

F9: Plan for and communicate positive project results early and along the way

F10: A specific training program for the ITIL introduction of the various processes must be provided

F11: Implement a standard system for measuring, analyzing, and reporting on service level

F12: be conscious about the fact that introducing ITIL means changing organizational culture

Table 3-1 Comparison Between Success Factors in Previous Research

Success factors	(Axel hochstein, 2005)	(Aileen Cater-Steel, 2006)	(Cater-Steel, 2007)	(Wui-Gee Tan, 2007)	(Jon Iden, 2010)
Senior management commitment	×	×	×	×	×
Involvement of key personnel in the business			×		×
Campaigns to advocate and pro-	×	×	×		

mote ITIL					
Adaptability of IT staff to change (i.e. Culture)			×		×
ITIL training for IT staff	×	×	×	×	×
Leverage vendor expertise				×	
Technology transfer is effective to in-house staff				×	
Tracking by using Standard system for measuring, analyzing, and reporting				×	×
Clearly identified responsibility of project owner/manager	×			×	
form teams to integrate new processes into		×			
Showing the “Quick-wins” and benefits	×	×			×
Emphasize on continuous improvement	×	×			
Software/system “Tools” for ITSM					×
Communicate the result along the way					×

Through reviewing the concepts of IT Service Management, various frameworks for ITSM, the background information is clear. Then ITIL is introduced by reviewing the concept, the benefit and historical / geographical development. To understand ITIL, the crucial thing to be understood is the ITIL service Lifecycle. In the lifecycle, the five elements of Service Strategy, Service Design, Service Transition, Service Operation and continual Service Improvement are linked to each other. As the subject of this research is ITIL implementing, the elements required in the ITIL implementing was discussed. Introducing ITIL to an IT organization is a complex endeavor, depending on the characteristics and the ambitions of the target organization. To implement ITIL, IT managers need to use efficiently and effectively four Ps: People, Process, Products (tools and technology), and Partners (suppliers, vendors, and outsourcing) (Rudd et al., 2004).

But the most important part is the previous research of implementation which is divided into the steps and success factors. From the viewpoints of Consulting Company (INS) and experienced IT managers and consultants, three sets of implementing steps are suggested, including five steps recommended by INS, five by Dr. Eugene Ball and ten steps by the process models provider named IT Process Maps GBR. The detailed analysis of these steps will be discussed in the analysis chapter. Altogether, 14 success factors from 5 researches are also listed in Table 3.1 and will be used in the analysis chapter.

## 4 Empirical Findings

This section presents our empirical findings from the interviews, email contacts and questionnaires. As we mentioned in the methodology, two interviews were conducted from IT consultants' and organization's perspectives. The interviews will be presented using the summarization and manuscript strategies for qualitative studies. The information got from the face-to-face interviews with the HP, DHL and the email contact and questionnaire from TeliaSonera and Ericsson AB is compiled in this section.

### 4.1 Case 1- Hewlett Packard (HP)

The information was obtained from Hong Zhu, who is working as the Business Development Manager. He was certified for the IT Service Manager in 2004 and worked as an IT service Management Senior consultant in the HP Software Professional Services since 2006.

#### 4.1.1 Steps of the Implementation Process

ITIL, as a methodology, provide options and flexibility. With the tool of ITIL, problems in the ITSM could be classified and solved. After using ITIL, what should be done is clarified. Contrarily, many aspects might be missing and undefined without ITIL. And the ability to use ITIL doesn't require the technology background,. Compared to the situation 10 years ago, the responsibility of the IT department has changed dramatically. Their tasks used to be purchasing resources, such as hardware, software and equipment. Many engineering technicians are hired. But along with the outsourcing of the technical part, changes have been brought to the IT department. Service level and requirements of the services became the new important things in ITSM. From ITIL V2 to V3, how to measure and control the outsourcing success level were also added into the consideration.

According to the experience, the 10 essential steps of the ITIL implementation process are as follows:

- Assessment about current state
  - a) Maturity mapping CMM(Capability Maturity Model)
  - b) Quick Wins and recommended actions
- Process improvement plan
- Project scoping and definition
- Process review and design
- Roles and responsibilities clarification
- Workshop for reviews and process documentation
- Tool identification and build of artifacts
- Pilot implementation
  - a) Tool configuration
  - b) Process and workflow workshops
  - c) Tool training
  - d) Handover

- Follow-up and review
- Continuous improvement

The first four steps could be treated as a group. Firstly, since the goal of projects is improvement, at the very beginning, status quo, the target and standards should be defined. These are the prerequisites for solving the problem and finding out what should be done in order to reach that goal and how to measure the improvement. So the steps are assessment, identify the quick win, and make plan to increase the system's availability, capacity or improve change management. Then it is setting scope, which means finding out where should be improved. Among their customers, it is found that some of them are clear about the scope when they firstly approached them. For example, they might want to assess the Incident Management, which is part of ITIL. While some others might not specific and clear, such as "improve the service level". The senior consultant would discuss about the scope with them firstly. Generally speaking, an assessment would be made for the company, in order to understand the company's current situation. HP consultants have their own model and methodology for assessment. This methodology is used to assess the 16 processes included in the ITIL, which are the different areas. Standard questions are used in the interviews, to get the rating in different areas, according to which maturity matrix is produced. Every IT Manager could find out the maturity of the system. The scope, the current picture, and where the weakest points are and where should be changed or improved are clear after these steps. Most importantly, what could be improved to achieve the "quick win" have already been identified. Afterwards, the step of "process review and design" could be taken.

From the fifth to the seventh steps, it's the preparation period for the ITIL implementation. During this period, there will be many workshops to arrange the processes, direct how to conduct the processes according to ITIL best practices and define role's responsibilities. Deliverable documents will be prepared to show the processes, procedures, instructions, and each person's responsibility in each activity and traceable input/output of each process. Tools, which are designed according to ITIL best practices, are used to facilitate and inspect the implementation. For instances, the tools for the part of RFC (request for change), change review, change verification and change input analysis are designed on the base of ITIL Processes. It means there shouldn't be too much customization; otherwise, these software tools couldn't function any more. Without the help of tools, there will be lots of governance of the hand-over of manual reports. So far, there is no tool for capacity management to govern every aspect from the beginning till the end. In this circumstance, plenty of governance meeting have to be held for the hand-over of the input and output.

Besides the training at the beginning, staffs in IT department should be facilitated to complement the training during the pilot implementation. Then follow-up and review are followed. Without follow up, whether the processes are conducted as planned couldn't be guaranteed. The biggest risk of the ITIL implementation is the strategies and instructions failed to be executed. Thus, tools for efficient tracking play a significant role in the implementation.

The last but not the least step is continuous improvement. Since the organization keeps changing all the time, the role's responsibility, and structure of the organization change, the original processes cannot be followed by staff anymore, because processes are related to role's responsibilities. So the implementation of ITIL couldn't be efficacious forever.

#### **4.1.2 Critical Success Factors of Implementing ITIL**

The success includes short- term success for consultancy project and long-term success for the IT department and the organization. The long-term success is greatly determined by continuous management. The challenges in the implementation derived from dealing with people's attitudes toward the change, implementation of tools, implementation of processes, affection to stakeholders' benefits and risk of project management. In order to be successful, these following factors are suggested to be noticed.

- Commitment and continuous support from senior management
- Competent subject matter expert and ITIL knowledgeable project management
- Well developed methodology for implementation
- Tools and processes work go hand in hand
- Start with smaller scope to ensure success and quick win
- Supporting tools compliance with ITIL methodology
- Policy, process and procedure in place
- Roles and responsibilities in place and consensus reached on it.
- Establish KPI in process and start measuring and follow-up earlier in stage.

The hierarchy of ITIL version 3 consists of 4 levels, which include procedure, process, policy and strategy, from bottom to the top. These factors were summarized by looking at the hierarchy of ITIL.

On the process level which is the most important component of ITIL. Each process includes the procedures, which in other words is the working instruction. Whether a project could be successful are affected by the successfulness of these four levels and whether staff could follow these instructions. Meanwhile, these four levels should also be improved continuously when necessary. It is definitely that the instruction used 3 years ago wouldn't be suitable anymore.

On the strategy level, the goal, as most of the time, it is related with business priority. For example, IT targets at providing services for business. If IT itself was treated as the main focus without putting the business goal on the first priority, The business might cannot improved even if there is a quick win for IT department. For instance, during the financial crisis last year, while most companies were working on cutting costs, If IT department want to raise the budget, it conflicts with the business goal even if there was a 'quick win'. It's obvious that the business priority should thought about before the implementation. That's also why strategies are needed, which might sound general, but actually the essential overall guideline. If the cost cutting is included in the strategy, any activity which does not

align with it shouldn't be done. There was another example of Ericsson. With the strategy of growing, it bought a company with 6000 staff, if the IT department cannot support the continuously growing, problems would be brought. Thus, with a growing strategy, any activity plan made in the IT department should have the ability to grow.

On the policy level, policies are made according to the strategy. No matter for the technical or management solutions for IT, to which extent of standardized and customized need to be stipulated by the policy. Too much extent of customization may more adaptive, but it also requires much more effort. One kind of the effort would be the effort to use the tools which manage the numerous applications, servers and PCs. For example, in Incident Management, a great number of changes made to the IT environment need to be approved by every stakeholder through tools instead of the traditional face-to-face meeting and manual handling.

## **4.2 Case 2-DHL**

The interview held with Bo Ireståhl revealed the organization's perspective or the implementation steps and success factors. Bo Ireståhl was the former IT director of the DHL in Northern Europe region, and member of the Management team in DHL Europe.

### **4.2.1 Steps of the Implementation Process**

The logistics Service Network of DHL normally includes transport, warehousing, distribution, IT systems and insurance. And the DHL Business is highly dependent on IT Services, because each business transaction generates many IT transactions. For instances, Customers and end-users interact with the company through the IT interface of global service desk, the use of global applications keeps increasing and solution support team are widely distributed. IT is critical to meet business commitments. But some problems including "long resolution time", "neglected and recurring issues", "inconsistency in response time" and "constantly happening issues which keep distracting developers" showed up and need to be solved urgently in the IT Service.

The implementation of ITIL in DHL was initiated from the thinking of solving these problems. Instead of constantly solving those emergency issues which keep bumping up, DHL seek ways to solve the root of the problem. They switched their state of mind from putting up fires to mission controlling. Due to the increasing cost and complexity of technical and business, mission controlling requires standard framework model to decrease the complexity and guide the changing in organizations

For organizations, the implementations of ITIL are mostly triggered by the centrally emerging incidents. These incidents results from deep rooted problems, by solving which could avoid the incidents in return. (Figure 7) The goal set by DHL for implementing ITLL was managing issues in a consistent manner, reducing client impact, resolving issues proactively before they impact clients and achieve the resolution quickly.

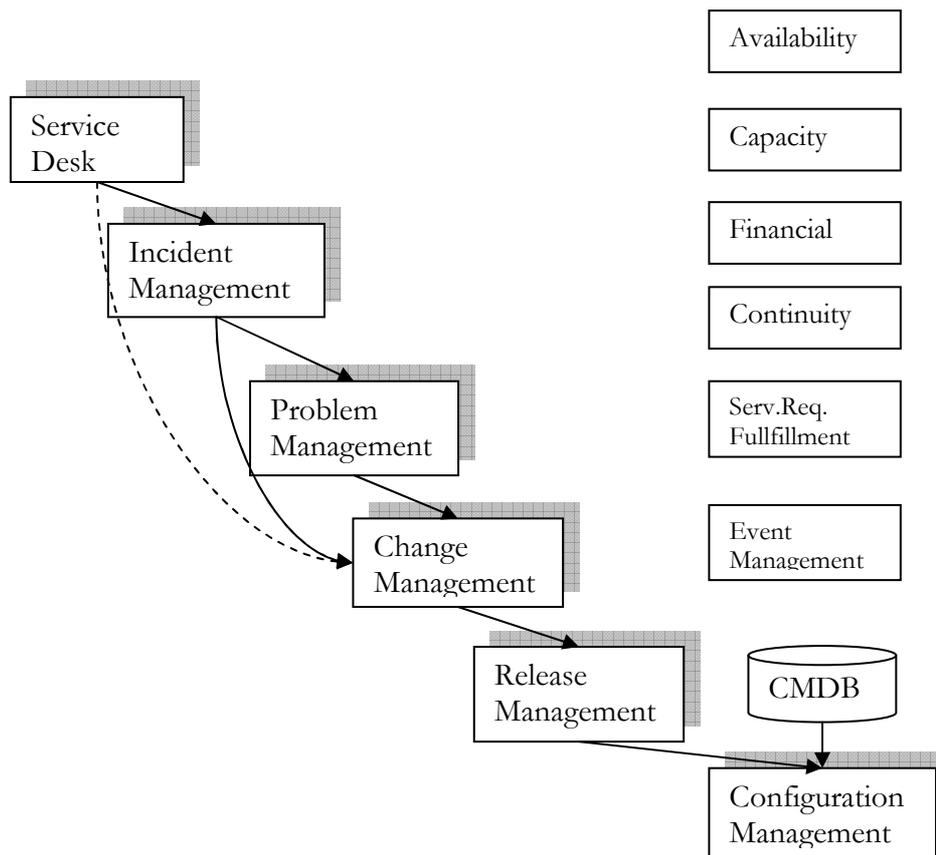


Figure 4-1 ITIL Implementation Based on DHL's goal

Taking a small ITIL project for example, to implement the incident and change processes requires ITIL tutor for 80 hours, project managers for 120 hours and other participants for 24 hours. Changes were made in August and September because of the incidents happened in May and June.

The steps are as follows,

- Work-shop 1 As-is : List all about how we do today (Version 0.1 doc)
- Work-shop 2 To-be : Discuss and define the good Processes (Version 0.2 doc)
- Work-shop 3 The dry run : Desk-top test of cases adjust (Version 0.3 doc)
- Implementing tools
- Test(Pilot implementation)
- Go-live
- Follow-up( Check rules are followed, Measure and optimize)

At first sight, the process of implementing begins with a series of work-shops. But each workshop embodies varies intentions which are supporting the following steps together. In the first workshop, an assessment and thorough understanding could be made though listing how it works today. Afterward, the second workshop discusses and defines the blueprint of good processes which is the initial plan of the object. Whether the blueprint will adapt to the particular environment will be discussed by listing possible cases in the business in the third workshop. Despite the fact that the third workshop is not actually tested

in real business and hidden problems might still exist, it adapts the best practices of heroes into the case company to the most extent.

Subsequently, tools for the real implementation are brought in. It represents the beginning of the practical work. Thereafter, testing of tools and processes are followed by actual actively implementation. All the arranged related roles are already involved in. Since the business and external environment keep changing constantly, follow up checking and measuring ensures the effectiveness and quality of the IT Service. The quality of the provided services that are determined by customers would be impossible to be guaranteed without service providers' thinking in customers' perspective and understanding what customers want. Thus the follow-up and measurements are closely related to obtaining customers opinions. The customers would evaluate the service in three aspects: did the service satisfy the expectation; would the same service be provided next time; is the service provided by a reasonable cost. The users' satisfaction of the services is tracked to ensure the continuous service quality.

The expected results of the alignment are between IT and business, efficiency use of existing resources, reliability of consistent performance and agility of responding to the changing business and technology.

#### **4.2.2 Critical Success Factors of Implementing ITIL**

Measurement was emphasized by DHL among the ITIL's six philosophy of service, quality, process, measurement, cost and proactive. It is thought to be the key to managing and improving the ITIL DHL has "hard measurement" and "soft measurement" for the ITIL implementation. The measurement was integrated in the ever-improvement cycle of PDCA, which includes Plan, Do, Check and Act. It is essential for maintaining the right direction. Hard measurement means the quantified standards in the form of "key performance indicators" and presented goals which could be compared with, while soft ones means the feelings of the users, which, for example, could be discovered by making periodical surveys among these users and be reflected in quantitative information. Thinking of the reason that measurement has costs of tools, time, report and analysis, the measurement couldn't be overly specific, which also could ends up with no measurements.

According to the ITIL implementing experiences in DHL, several advices are given as follows:

- Decisive on implementing ITIL
- Choose the right process to start with
- Adequate standard-tools
- Concentrate on one process at a time
- Clearly roles and responsibility (Especially managers who are in charge of the project.)

These were the resources for preparing the questionnaires, which is also asked to be answered after the interviews to make sure the credibility of the information. Following factors were ranked the highest rate of importance in a five point scale.

- ITIL training for IT staff
- Commitment and continuous support from senior management
- Roles and responsibilities in place and consensus reached on it
- Establish KPI in process and start measuring and follow-up earlier in stage
- Decisive on implementing ITIL

Except the above highest rated crucial factors, other two factors were following closely by being rated as 4 points in the 5 points scale

- IT staff to adapt to change
- Interdepartmental communication and collaboration

“Decisive on implementing” means that choice should be made when deciding whether ITIL should be used or not. Either goes for ITIL or not, there is no middle way. When it has been decided to utilize ITIL, then “Choose the right process to start with”. Configuration management (and CMDB) is not a good one to start with, whereas Incident Management and Change Management are recommended to be chosen to start with. And adequate standard tools should be in place to facilitate the process. If tools are inadequate, the project is very likely to fail. “Concentrating on one process at a time” means that it is better to focus on one process at a time rather than to have many new processes in parallel. And the last but not the least, “Clearly roles and responsibility” should be defined. Line-Managers should be in charge of the project, otherwise the project would risk not being prioritized.

Although not extracted and listed abstractly among the list when asking about the success factors, *Measurements and continuous improvement* were emphasized in the interview. So these two were added to the list of success factors for DHL’s implementation

### **4.3 Case 3-TeliaSonera**

The information that has been acquired from the TeliaSonera Corporation were obtained via sending emails and questionnaire to Mr. Jan Resell, who is one of the myriad of the IT department staff in this company located in Stockholm. Mr. Jan has been working there as Configuration Manager.

He also implied that the TeliaSonera is using the ITIL framework to largely manage its IT service. In spite of the past, that they just utilized ITIL V2 as framework, this framework originates from a combination of ITIL V2 and ITIL V3, using some of the ITIL processes as follows:

Service Catalogue Management, Capacity Management, Availability Management, Service Level Management, Service Continuity Management, Change Management, Service Assets

and Configuration Management, Knowledge Management, Release and Deployment Management, Event Management, Incident Management, and Problem Management.

That is quite obvious that the TeliaSonera is using most of processes of the service design, service transition, and service operation phases from ITIL V3.

Due to the research major question of the thesis with regard to how to implement ITIL, which is split into two detailed questions of ITIL's implementation steps and success factors, questions of the questionnaire were concentrated on these two cases. By putting ITIL's predefined implementation steps and success factors provided via achieved information from theoretical data and prior interviews in the questionnaire, we asked the relevant respondent to prioritize and specify them in terms of notability degree and also if there are other remarkable points, indicate them (Resell, 2010).

### **4.3.1 Steps of the Implementation Process**

The predefined steps prioritized to implement ITIL by one of the configuration managers of the TeliaSonera Corporation are as follows:

- Assessment about current state
- Gap analysis
- Create a roadmap and plan for project
- Roles and responsibilities clarification
- Workshop:reviews and process documentation
- Tool identification and build of artifacts
- Pilot implementation, implementing tools and measuring
- Establish process governance
- Follow-up and review by measuring
- Continuous improvement

More clearly, at first the current situation of the processes, procedures, and activities will be assessed and with attention to the project goal, the relevant processes of ITIL best practices will be identified. Then gaps between the current state processes and the ITIL best practices processes will be determined and analyzed. Now, to grow processes for closing these gaps, making a roadmap as an overview is necessary determining what tasks in what time limitations with regard of their priorities are required. The plan will also help to understand the type of needed resources to meet these requirements and the entire processes will be fully reviewed and improvement plan of the implied processes will become manifest.

For the next steps as the preparation steps for the implementation, roles and responsibilities of personnel, who are engaged in relevant processes, will be determined. Afterwards, by using the processes documentations which are comprised from the ITIL best practices how to accomplish instructions and procedures of each process for the personnel in the workshops will get clear. Straight after that, tools in accordance with ITIL best practices

will be identified for inspecting the implementation and preparing report of operation of processes.

Now, everything is ready to get implemented. The identified tools will get configured to implementation and will also be educated to staffs. KPIs can be used to measure the effect of the ITIL implementation project and can help specify if a process will work as foreseen, and if will produce the desired outcome. In the next step, establishing a governance framework for processes help ensure these processes support perfectly organizational objectives access. Finally, by following up and measuring the entire activities during implementation can have throughout the project under control. Continuous improvement as an inevitable step should always be considered to be success into competitive market.

#### **4.3.2 Critical Success Factors of Implementing ITIL**

The rates of the predefined success factors specified by that specific manager are also as follows:

- ITIL training for IT staff
- Commitment and continuous support from senior management
- Interdepartmental Communication and Collaboration
- Supporting tools compliance with ITIL methodology
- Policy, process and procedure in place
- Roles and responsibilities in place and consensus reached on it
- Establish KPI in process and start measuring and follow-up earlier in stage

He pointed out these factors above are so critical and have the most importance degree in organizations success to be remarkable considered within implementing ITIL.

He also determined there are other important factors, but not as significant as the factors mentioned above, such as:

- Quality of IT staff to adapt to change
- Competent subject matter expert and ITIL knowledgeable project management
- Formation of Virtual Teams

Ultimately, He indicated other factors, such as use of Consultants, start with smaller scope to ensure success and quick win, and never start with configuration Management (and CMDB) having less significance degree.

#### **4.4 Case 4-Ericsson AB**

The information from Ericsson AB was obtained through emails and questionnaire. Catharina Lundberg, who was the Head of Group Process & IT Operational Development, was the contact person and the source of the information.

The task and responsibility of the department of Group Process & IT Operational Development is to play the role of IT service provider towards the Ericsson global business processes. There are around 300 people in the department. Together with fully implemented ITIL V3, frameworks and Standards of ISO/IEC 27002:2005, IBM SMSL, ISO 27001, ISO 9001 and TL 9000 were used. And ITIL V2 also has been used before V3.

#### **4.4.1 Steps of Implementing Processes**

Among the processes in five service phases of ITIL, following processes have been implemented in Ericsson: Financial Management, Demand Management, Service Portfolio Management (SPM), Service Catalogue Management, Capacity management, Availability Management, Service Level Management, Supplier Management, Service Continuity Management, Change Management, transition Planning & Support, Release and Deployment Management, Incident Management, Problem Management, Request Fulfillment and Access Management

During the implementation, they have worked with lots of consultancies as HP, Connecta, IBM, Accenture, Transcendent Group, Rote Consulting AB, IRM, Advantum and DNV.

Provided with the possible steps, the respondent selected steps and ordered them as following.

- Assessment about current state (assess the maturity, identify the quick wins)
- Gap analysis
- Establish process governance
- Pilot implementation (tool configuration and training, process and workflow workshop) and measuring
- Follow-up and review by measuring
- Continuous improvement

The first 5 steps are conducted successively. But these are far from enough. Whether it could be successful in a long run was largely dependent on the continuous improvement. When foundation 1-5 is created, the continuous improvement is the most important to do for showing the result.

#### **4.4.2 Critical success Factors of Implementing ITIL**

Among the vast choices, only 3 factors were selected and thought to be important according to the respondent.

- Commitment and continuous support from senior management
- Concentrate on one process at a time
- Choose the right process to start with

Among the listed factors, the most important distinguished factor being recognized is the “commitment and continuous support from senior management”. Following that, other two factors were thought to be less important than the management one, but still relatively important.

Regarding other factors, the respondent also stated that although tools implementation and workshops are absolutely essential, planning and assessment during the preparation period is still more important than the tools and workshops. ITIL Implementation is about behavior change and people. It cannot start from a tooling perspective to be successful. Is it about changing an IT Culture and have IT to mature and become aware of processes and how to improve these in such a way that involves practitioners of the processes

## 5 Analysis

This chapter analyses collected empirical information based on the frame of reference. Answers to the research questions are expected to be discovered through analyzing steps and success factors. First, steps mentioned in the frame of reference and empirical findings are discussed separately, followed by an overall analysis on that base. Then the success factors are analyzed firstly among companies then with incorporated references in previous chapter.

### 5.1 Analysis of Steps

#### 5.1.1 Steps in the Frame of Reference

In this part, based on the theoretical information obtained from perusing steps proposed by different consultants of ITIL implementation, best steps to implement ITIL successfully in an organization are expected to be leveraged.

According to the steps recommended to implement ITIL by INS, Dr. Ball, and IT Process Maps GBR the table below can be created.

Table 5-1 ITIL Implementation Consultants' Steps

	ITIL implementation consultants		
	INS	Dr. Ball	IT Process Maps GBR
Steps	Process workshops	Designate an ITIL adoption project owner and develop an implementation team	ITIL Project Preparation
	Gap analysis	Train employees	Definition of the IT Service Structure
	Create a roadmap and plan	Establish a Service-level Agreement process	Selection of ITIL Roles and Role Owners
	Act and Measure	Evaluate IT needs	Analysis of As-Is Processes: ITIL assessment
	Establish process governance	Perform a gap analysis	Definition of the To-Be Process Structure
			Definition of ITIL Process Interfaces
			Establishing ITIL Process Controlling
			Designing the ITIL

<b>S</b>			<b>Processes in Detail</b>
			<b>Selection and Implementation of Application Systems</b>
			<b>ITIL Process Implementation and Training</b>

Some steps of different consultants have very similar tasks, such as Dr. Ball's train employees with GBR's ITIL project preparation. Some other steps suggested by a consultant are included in one or two steps of another consultant, it means the resultant of two steps of a consultant is equal to the resultant of one or two steps of another consultant, such as INS's act, measure, and establishes process governance with GBR's establishing ITIL process controlling. The similar steps are specified with the similar colors. The rest of these steps are different from each other that have no color.

It is quite obvious that the best steps, through the mentioned steps, will be steps which not only provide an efficient and quick way for implementation, but also comprise all of essential steps stated by these consultants.

It's obvious that not just the entire steps, other than one step of INS, are defined in the steps recommended by GBR, but there are some more steps in GBR's steps looking are complementary to have a success ITIL implementation.

But the steps sequence of various consultants is slightly different. So, by determining the appropriate steps sequence in the GBR's steps and adding the step left in INS in the suitable position, the most effective and efficient way to implement ITIL successfully will be submitted.

Based on cited statements above, reasonable procedure sequence of implementing ITIL will be as followings:

At first, staffs need to get familiar with ITIL principles and then the project objective should be characterized. In the following step, the ITIL roles and after that owners of each role need to be identified in the process workshops. The organization's current processes should be analyzed and assessed in the workshops and required processes with attention to the processes of ITIL best practices must be identified. The processes which are needed to be improved or new will be specified and prioritized by analyzing gaps in the workshops. Thereafter, with prioritizing gaps and determining required actions to close gaps in the distinctive time period need to create a roadmap and then a plan can represent a holistic view how is resources availability and if these actions will be done on the due time and date. Afterwards, the inputs and outputs among processes ought to be completely clear. Now, to control processes and procedures is a notable function and the processes, by defining suitable KPIs and measurement procedures, should be continually measured to realize improvement procedure. The next step will be to express details of the whole processes. Then, to introduce the application systems for the processes will be required. At last, the

ITIL processes training with staffs during implementation procedure is necessary that states how staffs should work with novel processes.

To sum up, figure below clearly shows 11 required steps to implement ITIL successfully.

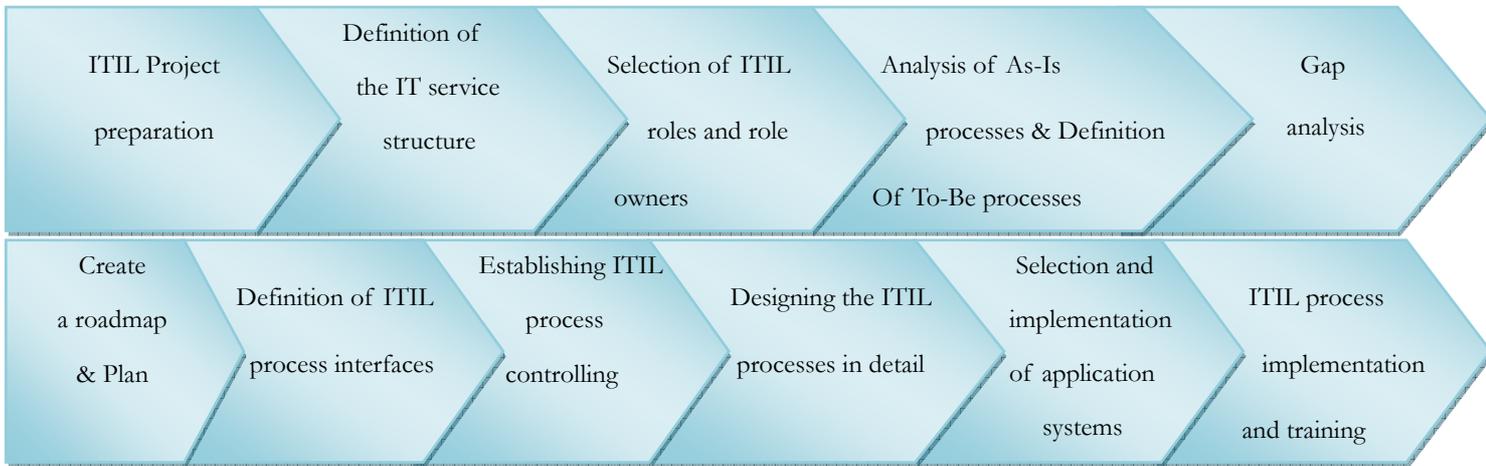


Figure 5-1 Overall Theoretical Steps

### 5.1.2 Steps in the Empirical Findings

In this part, the ITIL implementation steps conducted via interviews achieved from two popular companies and sending questionnaires to two other companies, as empirical findings, will be analyzed.

According to the steps recommended to implement ITIL by interviews got of HP and DHL Company and replies of questionnaires received from TeliaSonera and Ericsson Company the table below can be created.

Table 5-2 ITIL Implementation Companies' Steps

	ITIL implementation companies			
	HP	DHL	Ericsson	TeliaSonera
S t	Assessment about current state	Work-shop 1 As-is: List all about how we do today	Assessment about current state	Assessment about current state
	Process improvement plan	Work-shop 2 To-be: Discuss and define the good Processes	Gap analysis	Gap analysis
	Project scoping and definition	Work-shop 3 The dry run: Desk-top test of cases adjust	Establish process governance	Create a roadmap and plan for project
	Process review and design	Implementing tools	Pilot implementation and measuring	Roles and responsibilities clarification

e p s	Roles and responsibilities clarification	Test (Pilot implementation)	Follow-up and review by measuring	Workshop: reviews and process documentation
	Workshop for reviews and process documentation	Go-live	Continuous improvement	Tool identification and build of artifacts
	Tool identification and build of artifacts	Follow-up (Check rules are followed, Measure and optimize)		Pilot implementation, implementing tools and measuring
	Pilot implementation			Establish process governance
	Follow-up and review			Follow-up and review by measuring
	Continuous improvement			Continuous improvement

As mentioned in preceding section, some steps of varied companies are very similar and some other steps suggested by a company are included in one or more steps of another company, meaning the resultant of some steps of a company is equal to the resultant of one or more steps of another company. These similar steps are highlighted with the similar colors. Other steps that are different have no color.

Majority of steps mentioned by companies are similar not only in terms of type of steps, but in terms of the sequence of steps. There is only a little difference among them. Some of companies even have stated several steps against one step of another company, representing emphasis on a specific step.

Now, by specifying the appropriate steps sequence and adding some steps left in the suitable position, the most effective way to implement ITIL successfully, from the point of view of these companies in the real world, will be presented.

So, based on cited statements above, reasonable procedure sequence of implementing ITIL will be as followings:

There is a consensus in two first steps. It means that companies should assess the current state and processes and then, with attention to growth amount of required processes to reach ITIL best practice processes, gaps will get analyzed and prioritized in the workshops. But in the next step, according to DHL's statements, the processes improvement can be discussed more and be tested before implementation. But this step seems to be a more emphasis on the gap analysis step and can be contemplated alternatively. While after analyzing and prioritizing gaps, in accordance with one TeliaSonera's step, a roadmap and plan step can be suitable to have a better sight on schedule of needed actions on gaps and have a holistic view on the whole processes. Now, before implementing tools and establishing process governance, to specify ITIL roles and competent owners for those roles are neces-

sary. Also providing processes documents representing what activities process owners need to carry out and what results will be expected from them.

In the following step, instead of identifying tools, establishing processes governance sound to be more reasonable, as Ericsson has expressed, to control activities of inputs and outputs among identified processes. Thereafter, requirement tools will get identified and then configured and implemented. Then, with getting results by measuring processes and tools continually, tools role and function will be tested. Afterwards, to follow up processes, procedures, and activities are critical to know if the entire project as predicted is going ahead and if rules need to change and optimize that all of these will be possible by measurement regularly. At last, continuous improvement to simultaneously move with the market changes and customer satisfaction is an essential step to succeed projects.

To sum up, the figure below clearly shows 10 required steps to implement ITIL successfully.

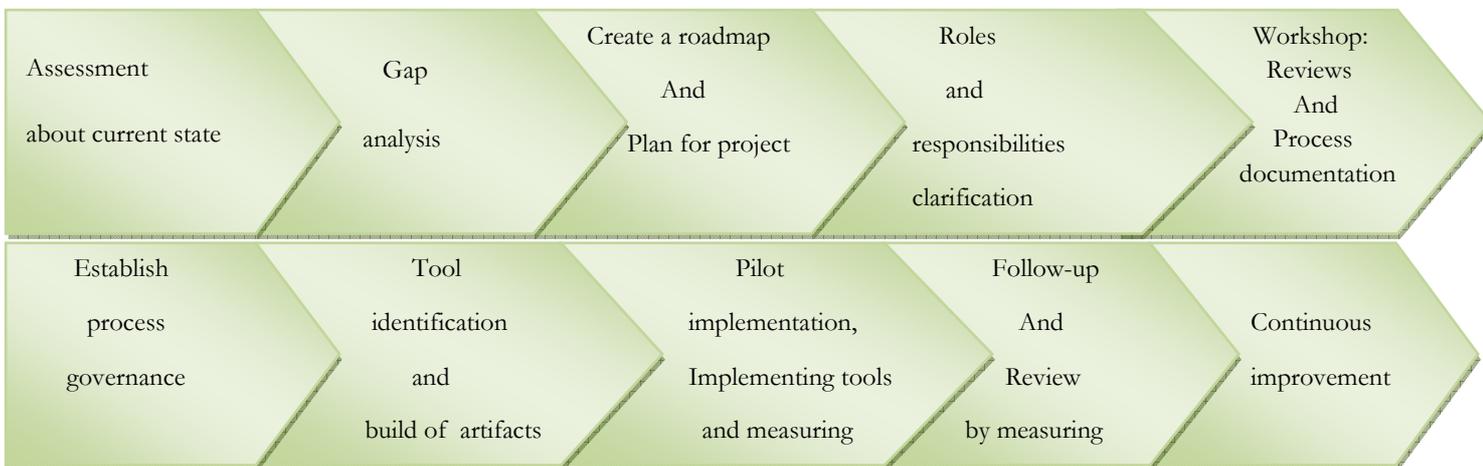


Figure 5-2 Overall Empirical Steps

### 5.1.3 Overall Steps to Implement ITIL Successfully

In this part, the overall steps to implement ITIL successfully, via comparing overall analyzed major steps of theoretical and empirical data to implement ITIL, will be exposed.

According to manifested ITIL implementation steps in theoretical and empirical sections separately, to evolve the best and most efficient steps to implement ITIL will not be very cumbersome.

Most of steps of each section are similar. Only to add two steps from overall theoretical steps as preparation and two steps from overall empirical steps as post implementation and also to add steps which are the only in one of the procedures available, and put them in appropriate situation, look to be more effective and efficient.

By scrutinizing these steps and arranging them in suitable position, 14 steps are identified and classified in four major phases consisting of preparation, pre-implementation, implementation, and post-implementation that particular steps of each phase are as follows:

- Preparation
  - ITIL project preparation
  - Definition of the IT service structure
- Pre-implementation
  - Analysis of As-Is processes and Definition of To-Be processes
  - Gap analysis
  - Create a roadmap and plan for project
  - Selection of ITIL roles and role owners
  - Workshop: Reviews and process documentation
  - Definition of ITIL process interfaces
  - Establishing ITIL process controlling
  - Designing the ITIL processes in detail
  - Tool identification
- Implementation
  - Pilot implementation, implementing tools and processes, and measuring
- Post-implementation
  - Follow up and review by measuring
  - Continue improvement

Review of these steps will be interpreted briefly.

In the preparation phase, ITIL elementary principles will be educated to employees and project's purpose will be exposed.

In the pre-implementation phase, current processes will be analyzed and intended processes will be revealed. Afterward, gaps among processes will be clarified and prioritized and required actions to close gaps will be presented. Then, a roadmap and plan as a complete scope from the whole processes can be beneficial. After getting distinctive all of requirement processes, ITIL roles and role owners should be chosen, that is reasonable in comparison with putting this step prior to statement of current processes that was represented in overall theoretical steps. Straight after that, processes should be reviewed and their documents be handed over to process owners to find out instructions and activities expected from each owner. In the next step, relations among various processes will be represented. Then, ITIL processes must be controlled for not getting out from their main

path by measuring continuously, with defining right KPIs and selecting proper measurement procedures. Now, detailed activities of all processes will be stated and tools with knowing details of all of processes will be identified.

In the implementation phase, identified tools will become configured and implemented as well as processes and also will be educated to relevant staffs during implementation. All of these actions should be measure once in a while. This phase along with the last step from prior phase are equal to steps of selection and implementation of application systems and ITIL process implementation and training, originating from two last steps of overall theoretical steps.

In the post-implementation phase, processes, procedures, and activities should be followed up to understand if the whole project as anticipated is moving that will be revealed by measurement consecutively. Finally, continuous improvement with attention to day-to-day changes of customer and customers' expectation levels is a significant step.

To sum up, these 14 steps to implement ITIL successfully are clearly exhibited below.

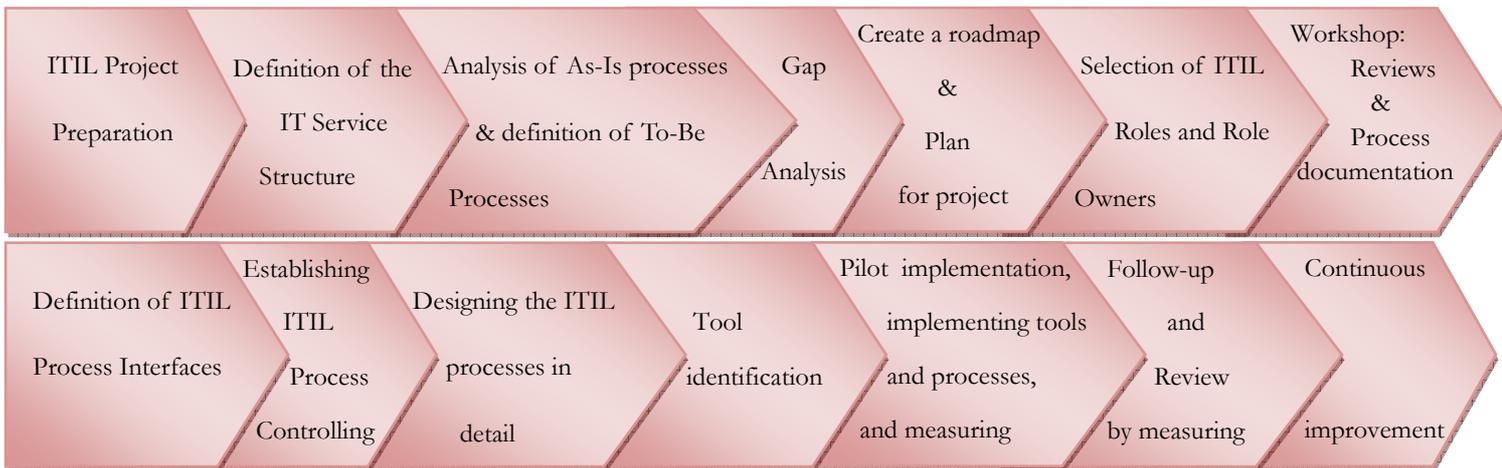


Figure 5-3 Overall Steps (comparison between overall theoretical and empirical steps)

## 5.2 Analysis of Success Factors

### 5.2.1 Comparison among Companies

Organizations that intent to implement ITIL always cooperate with ITSM consultancies to implement successfully. Both sides could benefit from cooperation, as cumulated experiences and cases could be got by consultancies for enriching their knowledge pool, while organizations could reduce the cost and dramatically increased efficiency. Both parties have different roles and responsibilities when they integrate the new process into the IT Service Management. Through investigation, it is found that they also have different perspectives on the crucial factors for successful implementation. Although neither of them ought to

take over the other side's responsibility, have an insight to the holistic ITIL implementation is thought to be essential.

Furthermore, organizations have varies views on the importance of factors as well. But as the inevitable fact of expression differences, statements of the factors have been revised subtlety. Altogether, 16 factors were mentioned by the experienced staff in the companies.

Table 5-3 Comparison of Success Factors between Companies

<b>Mentioned Factors</b>	<b>HP</b>	<b>DHL</b>	<b>Telia-Sone- ra</b>	<b>Ericson AB</b>
Decisive on implementing ITIL		×		
Commitment and continuous support from senior management	×	×	×	×
Competent expert and ITIL knowledgeable project management team	×		×	
Well developed methodology for implementation	×			
Tools and process work go hand in hand	×			
Start with smaller scope to ensure success and quick win	×			
Supporting tools compliance with ITIL methodology/Adequate tools	×	×	×	
Policy, process and procedure in place	×		×	
Roles and responsibilities in place and consensus reached on it	×	×	×	
KPI for measurement and follow-up	×	×	×	
ITIL training for IT staff		×	×	
Interdepartmental communication and collaboration		×	×	
Concentrate on one process at a time		×		×
Choose the right process to start with		×		×
IT staff to adapt to change		×	×	
Virtual teams and responsible project leader			×	

Explanations of the table should be elaborated on some items because of the similarities and relationships between these factors.

HP suggested the factor of “Supporting tools compliance with ITIL methodology (adequate tools)” and “Tools and process work go hand in hand”. As consultancy, HP has access to deeper knowledge of the tools, most of which are developed by them. Factor about tools were separated into two dimensions including making choices of the tools itself and using it properly. However, companies only stressed on “Supporting tools compliance with ITIL methodology (adequate tools)” without thinking about the “properly use of tools”.

The factors of “Choose the right process to start with” and “Start with smaller scope to ensure success and quick-wins” have something in common in terms of discussing about where to begin. DHL suggested that it is better to start with Incident Management and Change Management rather than Configuration Management. It doesn’t mean it has to be started with Incident Management and Change Management. The essence of the success factors hidden behind could be interpreted as to make the right process plan of which process to begin with and which processes could bring quick-wins. It is also suggested by one company that practitioner should “Concentrate on one process at a time” while following the process plan.

“ITIL training for IT staff” and “competent expert and ITIL knowledgeable project management team” exists side by side. The same objective of “having sufficient knowledge support available” is shared by these two factors. The different things between them are the way to get the knowledge base, which are to merely import knowledge for the previous one and to import knowledge or people who possess knowledge for the latter one.

Other reflections can be found by comparing the factor listed by these companies.

Firstly, by contemplating on the factors under these three companies, several points of reflections were made. Obviously, these three companies all treat the “Commitment and continuous support from senior management” as the important factor. It is also the only one all respondents have consensus on.

Secondly, “Supporting tools compliance with ITIL methodology/Adequate tools”, “Roles and responsibilities in place and consensus reached on it” and “KPI for measurement” were thought to be important by three companies.

Most importantly, only consultancy (HP) thought the following factors are important: “Well developed methodology for implementation”, “Tools and process work go hand in hand” and “Start with smaller scope to ensure success and quick win” It is evident that these factors fall into the category of strategizing .A bunch of factors mentioned by companies were not reckoned in the most important ones for consultants.

- Decisive on implementing ITIL
- ITIL training for IT staff
- Interdepartmental communication and collaboration
- Concentrate on one process at a time
- Choose the right process to start with
- IT staff to adapt to change

- Virtual teams and responsible project leader

These factors mostly involve management, structure and practical issues

The factors that were mentioned both by consultancy and companies were

- Commitment and continuous support from senior management
- Competent expert and ITIL knowledgeable project management team
- Supporting tools compliance with ITIL methodology/Adequate tools
- Policy, process and procedure in place
- Roles and responsibilities in place and consensus reached on it
- KPI for measurement

## 5.2.2 Comparison between Theories and Empirical Findings

Obviously, “senior management commitment” was recognized as the important success factor with overwhelming agreement of all the articles and empirical results. Apart from that, “ITIL training for IT staff” was agreed to be important in all the previous researches. The significance of it was also proved by the fact that “Competent expert and ITIL knowledgeable project management team” and “IT training” are important to Consultancy and companies respectively. The factor of “Leverage vendor (including consultancy) expertise” in the research of Wui-Gee Tan in, 2007 shows the similarity with “Competent expert and ITIL knowledgeable project team” of leveraging the experts’ knowledge.

The factors that are exactly the same between the ones from previous researches and empirical results are listed below.

- Senior management commitment,
- Adaptability of IT staff to change (i.e. Culture),
- ITIL training for IT staff,
- Clearly identified responsibility of project owner/manager,
- Virtual teams and responsible project leader,
- Showing the “Quick-wins” and benefits,
- Emphasize on continuous improvement,
- Software/system “Tools” for ITSM

The rest of the factors found in references and empirical results have diversified expressions and viewpoints. Nevertheless the relationships between many factors could be detected. “Interdepartmental communication and collaboration” in the empirical finding, and “Involvement of key personnel in the business” and “Communicate the result along the way” in the references both mentioned the involvement of other departments or key personnel and horizontal and longitudinal communication issues regarding space and time.

While the indispensable tools were underlined in empirical findings in “Supporting tools compliance with ITIL methodology/Adequate tools” and “Tools and process work go hand in hand”, references suggests “Software/system “Tools” for ITSM” and “Tracking

by using Standard system for measuring, analyzing, and reporting” are necessary for the implementation. These factors involved tools for adopting ITIL in the whole lifetime from the very beginning till the continuous improvement, in which “KPI for measurement” is measured.

The only factor that was discussed in previous researches but missing in empirical findings was “Campaigns to advocate and promote ITIL” which was mentioned by three researches before 2007. There is a great possibility that the prevalence of ITIL framework decrease the importance of this factor.

## 6 Conclusion

Through comparatively analyzing the steps and success factors among ITSM consultancy and companies, and previous researches at the end, following conclusions could be drawn to answer the research questions defined in this research.

The ITIL framework as an IT best practices collection can be adopted by various organizations to organize and control their IT functions. From initiating of adopting ITIL to implementation, accomplishment, and utilization of the results, organizations need to go through a set of arranged structured phases and consider some significant factors during implementation procedure to lower the possibility of failure and increase the efficiency. Based on that, this paper comes up with these levels of steps and critical factors.

➤ In accordance with our overall analyses that were achieved through comparing theoretical with empirical findings, fourteen important steps were formed to have a prosperous ITIL implementation in addition to some critical factors, which companies by considering and operating them accurately can systematically organize, implement, and control ITIL in their organizations.

These fourteen steps are also split into four phases, comprising preparation, pre-implementation-implementation, and post-implementation. Then, suitable steps with regard of sequence exhibited into relevant phases.

➤ Besides, some interesting points were found by comparing success factors between consultancy, companies and references. Besides noticing the importance of choosing the right tools, consultants also found the factor of “tools and process go hand in hand” important. Roadmap of processes and solid knowledge base are also interpreted in different ways by them. Generally speaking, consultants emphasize the strategy while companies emphasize on management, structure and practical issues.

But there are 8 common success factors for references and these cases, which are “Senior management commitment”, “Adaptability of IT staff to change (i.e. Culture)”, “ITIL training for IT staff”, “Clearly identified responsibility of project owner/manager”, “Virtual teams and responsible project leader”, “Showing the “Quick-wins” and benefits”, “Emphasize on continuous improvement”, “Software/system “Tools” for ITSM”.

Besides, by characterizing significance degree of success factors within ITIL implementation, this study help for getting implementation this framework effectively and efficiently in an organization.

### 6.1 Reflections

In order to fulfill this research, inductive research approach has to be used by getting qualitative data from a few employees in different companies.

On one hand, we would like to utilize the combination of induction and abduction if more time is available. Because in the abductive approach, hypothesis could be created and then

the theory by only observing, not based on previous theory, and then by continual observation check and recheck hypothesis until confirming or rejecting the observed theory. According to Pierce's statements, however the induction has greater certainty than abduction, has less productivity. Productivity means new ideas, exceeding the information which is implied by the premises. Generally, induction just becomes productive in blend with abduction, as in abductive induction (Svennevig, 1997).

On the other hand, quantitative data as well as qualitative data could be used together. It would be more rigorous if interviews or surveys are conducted among more staffs in those companies or other companies. It made we would be able to measure the importance of components of our research questions and also made our major theory be more concrete and complete. We believe that is a weakness of our study and one higher degree of generality could be achieved by utilization of more respondents.

But to compensate this deficiency previous theoretical data is used and compared to empirical findings obtained from companies. Then, by complementing number of gaps and imperfect points among empirical data in compassion with theoretical data, we tried to establish an appropriate theory to reveal how to implement ITIL successfully.

## **6.2 Further Research**

Since the focus of our research work was on how to implement ITIL and the major focus has been upon the parts of pre-implementation and implementation, further studies can be investigated for the part of post-implementation. It will address what ways and tools should be utilized to follow up ITIL projects and whether a model can be submitted for ITIL continual improvement, to have appropriate reflexes rather than market requirements at a time.

On the other hand, it is revealed that not only Small and Medium-sized Enterprises (SMEs) perceive ITIL as a complex and time-demanding framework, but also the overall steps and factors in this paper explained that to implement ITIL is more suitable for large companies and it may not be cost-effective to pay attention to those SMEs cases. Thus, a new research can be conducted not just to discover how ITIL framework can be customized for SMEs usage, but to find out what steps and factors to implement ITIL can be paid off better for SMEs.

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## **Appendix 1-Interview Questions**

### **1. Basic and Background information. Respondent's information**

- 1.1 What is your position?
- 1.2 What are your tasks and responsibilities?
- 1.3 How long have you been in this position and how long have you worked in the organization?
- 1.4 What have you done in previous tasks and responsibilities?

### **2. Organizational questions-general**

- 2.1 Could you briefly describe your organization or department in terms of processes (and, if of value for ITIL implementation, activities within the processes)?
- 2.2 What is the company's history of using ITIL? (Which versions?)
- 2.3 The change of version 2 to version 3.  
Has it brought any effects? If so, what effects? What version are you using? Have you adapted all the processes? If no, which processes are you using?
- 2.4 How to incorporate ITIL processes within company's everyday work activities? Do you use ITIL in a customized way?
- 2.5 Do you use ITIL in all the projects or is it something that you use in some special cases?
- 2.6 Could you talk about your customer organization?
- 2.7 Why would they choose ITIL, and their expectations?
- 2.8 The overall take up of ITIL.  
To which extent has ITIL influenced the process?
- 2.9 How to measure the outcomes? Measure whether it success or not. Measure the changes before and after adapting ITIL? What kind of standards or tools do they use to measure the success?

### **3. Organizational Questions- Targeted**

- 3.1 Do you have work routines? As companies consultancy.
- 3.2 What do you think as important/inevitable factors contributing towards success?  
What are they in different phases of service strategy, service design, service transition and service operation?
- 3.3 Do they need building or procuring IT tools that can support them?
- 3.4 What are the challenges you encountered in implementing ITIL?
- 3.5 What do you think are the pitfalls in the implementation right now?

## Appendix 2-Interview with HP (Hewlett Packard)

Could you please talk briefly about yourself?

Since April 1<sup>st</sup>, this year, I started to work as the Business Development Manager. From 2006 till then, I worked as an IT Service Management Senior consultant in the HP software professional services. In HP, there is a professional organization, which is called consulting and Integration, who's specialize in Service management and specifically be responsible for helping customers on the improvement of the processes. As the process improvements are about the whole IT management, they might be realize there are something needed to be improved, but they have no idea of what to do and where to start. Then they would refer to us, the professional consultancy department in HP. According to my experiences, Technical problems are only part of what needed to be solved, more problems concerns the processes. In 2004, I become interested in the service management methodology and certified for the IT Service Manager.

Could you please talk about your customers?

Globally speaking, there are departments of consulting and integration in the branches of HP in different countries. The customers within the northern Europe are mostly the IT department in multinational companies. Because they have encountered more problems related to process management. As to small companies, since there are few people and the responsibility for each person in the IT department is not especially detailed, the process management would be necessary in most cases.

I've done cases for organizations such as Swedish Defense...? Ericsson, Karolinska Institute, SL (Stockholm Public Transport), KBM (Swedish Emergence ...). Each project lasts more than half a year, mostly 8 months to 1 year.

What kind of companies are implementing ITIL (and suitable for ITIL)

About the ITIL implementation in small companies, there are different roles in processes. Some are incident managers, some are availability manager, and some are responsible for Service Level Assessment. For small companies, as there are fewer people in the department, the increased efficiency which is expected by improving the process could be achieved. On the contrary, it becomes something bureaucratic. As processes require inputs and outputs, in the circumstance where one person is in charge of more than one responsibility, unnecessary redundancy appears. These inputs and outputs are the visible factors for tracking the process. Thus documentation creating and controlling of the inputs and outputs are essential.

ITIL, as a methodology, provide options and flexibility. With the tool of ITIL, problems in the ITSM could be classified and solved. i.e. The solutions for Disaster coverage in ITIL, such as how to back up the systems, what should be included in the back up, what the test methodology should be and what does the working structure should look like. After using

ITIL, what should be done is clarified. Contrarily, many aspects might be missing and undefined. And the ability to use ITIL doesn't require the technology background, (i.e. programming). Compared to the situation 10 years ago, the responsibility of the IT department has changed dramatically. Their tasks used to be purchasing resources, such as hardware, software and equipment. Many engineering technicians are hired. For instance, Telia is using this kind of traditional style. But along with the outsourcing of the technical part, changes have been brought to the IT department. Service level and requirement of the services became the new important things.

In your professional consulting services, do you have regular implementing process to follow?

Yes. Firstly, it's setting scope. The goal of the projects is improvement. At the very beginning, we need to know the status quo, the target and what the standards are. Then we need to think about what should be done in order to reach that goal and how to measure the improvement. When we approached to our customers, it is found that some of them are clear about the scope. For example, they might want us to assess the Incident Management, which is part of ITIL. While some others might not specific and clarified, such as "improve" the service level. Our senior consultant would discuss about the scope with them firstly. Generally speaking, an assessment would be made for the company, in order to understand the company's current situation. HP consultant has our own model and methodology for assessment. (Part of ITIL was written and compiled by ITIL.) This methodology is used to assess the 16 processes included in the ITIL, which are the different areas. Standard questions are used in the interviews, to get the rating in different areas, according to which could lead to the maturity matrix tool. Every IT Manager could see find out the maturity of the system. This first step would take about 1 month.

Then we would have the workshop. Now we have identified the scope, the current picture, and have known where the weakest points are and where should be changed or improved. Most importantly, what could be improved to achieve the "quick win" have already been identified. According to our maturity model, the maturity level could be identified from 1 to 5. In the highest level, the aim of every process is clear, and there are standards for every part or process to track the whole process, and there are continues follow ups.

Then the 3<sup>rd</sup> one is the strategy level. The goal, as most of the time, it is related with business priority. For example, IT targets at providing services for business. If IT itself was cheated as the main focus without putting the business goal on the first priority, The business might cannot improved even if there is a quick win for IT department. For instance, during the financial crisis last year, while most companies were working on cutting costs, If IT department want to raise the budget, it conflicts with the business goal even if there was a 'quick win'. It's obvious that the business priority should thought about before the implementation. That's also why we need strategies, which might sound general, but actually the essential overall guideline. If the cost cutting is included in the strategy, any activity which is not alignment with it shouldn't be done. There was another example of Ericsson. With the strategy of growing, it bought a company with 6000 staff, if the IT department

cannot support the continuously growing, problems would be brought. Thus, with a growing strategy, any activity plan made in the IT department should have the ability to grow.

The 4<sup>th</sup> one is the Policy Level. Policies are made according to the strategy. No matter for the technical or management solutions for IT, to which extent of standardized and customized need to be stipulated by the policy. Too much extent of customization may more adaptive, but it also requires much more effort. One kind of the effort would be the effort to use the tools which manage the numerous applications, servers and PCs. For example, in Incident Management, a great number of changes made to the IT environment need to be approved by every stakeholders through tools instead of the traditional face-to-face meeting and manual handling. One of the instances is the Virtual Outlook. HP is specialized in developing these tools.

The 5<sup>th</sup> one is the Process which is the most important component of ITIL. Each process includes the procedures, which in other words is the working instruction. Thus, the ITIL hierarchy is conformed of four levels, which are procedure, process, policy and instructions, from bottom to the top. Whether a project could be successful are affected by the successfulness of these four levels and whether staff could follow these instructions. Meanwhile, these four levels should also be improved continuously when necessary. It is definitely that the instruction used 3 years ago wouldn't be suitable anymore.

Has the change from version 2 to version 3 brought any effects? If so? What effects? What version are you using?

Version 3 is completely compatible to version 2, because it expands the range and increased the level, rather than changing the processes. Working instructions and processes are included in the Version 2, while policy and strategy are added to the version 3. In this way, the version 2 is still included in version 3. For example, on the aspect of service strategy, service portfolio management is covered and discussed. The weakness of version 2 is that it doesn't consider the sourcing –model about what should be done when out sources are involved. For instance, more and more companies outsource the service desk, such as call-center, to other companies, ignoring the details but considering the whole image of the strategy. Therefore, how to measure and control the outsourcing success level should be added into the consideration.

As the developing of the technology, version 3 shows new imperfection. The emerging and developing of cloud-computing brings out new problems.

So the steps are assessment, identify the quick win, and make plan to increase the system's availability, capacity or improve change management.

During the implementation, there will be many workshops to arrange the processes, direct how to conduct the processes according to ITIL best practices and define role's responsibilities. Deliverable documents will be prepared to show the processes, procedures, instructions, and each person's responsibility in each activity and traceable input/output of each

process. Tools, which are designed according to ITIL best practices, are used to facilitate and inspect the implementation. For instances, the tools for the part of RFC (request for change), change review, change verification and change input analysis are designed on the base of ITIL Processes. It means there shouldn't be too much customization; otherwise, these software tools couldn't function any more. Without the help of tools, there will be lots of governance of the hand-over of manual reports. So far, there is no tool for capacity management to govern every aspect from the beginning till the end. Plenty of governance meeting have to be held for the hand-over of the input and output.

As to the implementation, staffs in IT department should be facilitated to complement the training. But the staffs in other departments don't need much training, as they simply raise requirements.

Then follow-up and review are followed. Without follow up, whether the processes are conducted as planned couldn't be guaranteed. The biggest risk of the ITIL implementation is the strategies and instructions failed to be executed. Thus, tools for efficient tracking play a significant role in the implementation.

Then continuous improvement will be considered. Since the organization keeps changing all the time, the role's responsibility, and structure of the organization change, the original processes cannot be followed by staff anymore, because processes are related to role's responsibilities. So the implementation of ITIL couldn't be efficacious forever.

About tools, problems would be brought, if tools and the methodology, ITIL processes are not compatible. But many organizations tend to implement the tools before the process, which would be putting the cart before the horse.

The challenges in the implementation are dealing with people's attitudes toward the change, implementation of tools, implementation of processes, affection to stakeholders' benefits and risk challenges of project management.

How to measure the success?

The success includes short- term success for consultancy project and long-term success for the IT department and the organization. The long-term success is greatly determined by continuous management.

## Appendix 3-Interview with DHL

### Main information from the respondent

Former IT director of the DHL in Northern Europe region, and member of the Management team in DHL Europe, Has worked for 35 years and 7 years in Jonkoping. For DHL, there are 1500 employees in the IT department in Northern Europe. They implemented all the processes of ITIL in the IT center in Prague, which was moved from London, 2,3 years ago.

But ITIL has already been in use 10 years ago in London. But in Norway, only four important ones were implemented.

Firstly, there are 4 parts in DHL's businesses, Express, Freight, Supply Chain and Global Forwarding. At the beginning, ITIL was implemented only in the Express section. Then it was introduced to Freight section with a relatively high level of expectation, but because of the "cost -efficiency" is not high, which in other words, is the Service Level (the response time) could be lowered to save the cost without reducing customers' satisfaction.

In future, logistics companies are no longer mere "carriers". Instead, they expand their value chain, invest heavily in R&D, and take on industrial production, maintenance, and other tasks. Logistics companies will become involved in new business areas and are expected to take on different elements of the value chain that go beyond transportation and shipment. Thus Logistic service network normally includes transport, warehousing, distribution IT systems and insurance. DHL Business is highly dependent on IT services. Each business transaction generates many IT transactions. The global service desk is the primary customer and end-user interface to IT. The increasing use of global applications and a "follow-the-sun" support model, and widely distributed solution support teams even make them more important. So IT is the backbone of the Business and the Service Desk is the single point of contact with all user communities

But as the number of participants increases, the integration complexity increases. Many problems also showed up, for example, long resolution time, neglected issues (issues we lose track of until our users remind us), recurring issues, inconsistency in response time and "developers are distracted constantly to resolve issues".

To solve the problem, a change in the mind from fire house to mission control needed to be made, DHL needed clarification on handover from projects to operations, defined interface between build and run, continuous improvement of the Build and Run parts and better service orientation and description of the service and price provided in both Build and Run. ITIL was used to solve these problems. But everything comes with a cost. ITIL would bring equipment cost, software cost, organization cost, accommodation cost, transfer cost and cost accounting.

The continuous improvement is essential. For DHL, the working cycle makes sure the continual improvement. The cycle is “Plan, Do, Check and Act”. Measurements are used to evaluate if we are in the right direction.

The measurement of the implementation could be classified into SLA, and the perception of the customers. (There would be a value, which is the expectation of the customers. Lower or higher then it couldn't get the highest cost-efficiency. It's not the higher, the better.)

In the implementation, IT staffs were trained in the 3 days-course given by HP.

Other departments who used the IT facilities and the higher management group could raise the standards and requirements, such as the recovery time, and log in time, and order entry... So they don't need to know much about the ITIL.

There are over 100 vendors who are providing ITIL tools. The well known tools are Remedy strategic service suite, CA Unicenter Service Desk, Peregrine Service Center and HP Openview Service Desk

## Appendix 4-Questionnaire



Dear respondent, this questionnaire is aimed to get your opinion as the IT department in organizations about the best working procedures of implementing ITIL in the IT service Management. What are the most important success factors in the implementation? This research is a requirement for the completion of master thesis in Informatics in Jönköping International Business School, Jönköping University, Sweden. We promise to treat any information you consider confidential as such and to use it for the sole purpose of this academic undertaking. The feedback being provided by you will only be used in analysis of our master thesis. Your real opinion is very important to us.

This research will strictly follow research ethics. It will take approximately 10 minutes from you, and we will really appreciate that. The results of this survey could be received if you wish. It would be really helpful for us if you could answer the questionnaire within few days.

Total number of questions: 14

Receiving email: [itm08waji@ihh.hj.se](mailto:itm08waji@ihh.hj.se)

1. Company:

2. Position :

3. Task and responsibilities of the IT Department:

4. How many IT staffs are there in your organization?

below 100  100 to 500  500 to 1000  above 1000

5. What kind of frameworks are you using for the IT Service Management?

ITIL V2  ITIL V3  CobiT  ISO/IEC 27002:2005

AS 8018  HP ITSM  IBM SMSL

Internally developed framework

Other:

6. What's the status of the ITIL implementing?

No plan  Starting  Partially  Largely  Fully

7. If ITIL is used, which ITIL version has been used in your organization? (multiple)

ITIL Version 2  ITIL Version 3

8. In the following ITIL processes, which processes have been used in your department?

<p><b>Service Strategy Phase</b></p> <p><input type="checkbox"/> Financial Management</p> <p><input type="checkbox"/> Demand management</p> <p><input type="checkbox"/> Service portfolio management (SPM)</p>	<p><b>Service Design Phase</b></p> <p><input type="checkbox"/> Service Catalogue Management</p> <p><input type="checkbox"/> Capacity Management</p> <p><input type="checkbox"/> Availability Management</p> <p><input type="checkbox"/> Service Level Management</p> <p><input type="checkbox"/> Information Security Management</p> <p><input type="checkbox"/> Supplier Management</p> <p><input type="checkbox"/> Service Continuity Management</p>
<p><b>Service Transition Phase</b></p> <p><input type="checkbox"/> Change Management</p> <p><input type="checkbox"/> Service Assets &amp; Configuration Management (SACM)</p> <p><input type="checkbox"/> Knowledge Management</p> <p><input type="checkbox"/> Transition Planning &amp; Support</p> <p><input type="checkbox"/> Release and Deployment Management</p> <p><input type="checkbox"/> Service Validation and Testing</p> <p><input type="checkbox"/> Evaluation</p>	<p><b>Service Operation Phase</b></p> <p><input type="checkbox"/> Event Management</p> <p><input type="checkbox"/> Incident Management</p> <p><input type="checkbox"/> Problem Management</p> <p><input type="checkbox"/> Request Fulfillment</p> <p><input type="checkbox"/> Access Management</p>
	<p><b>Continue Service Improvement</b></p> <p><input type="checkbox"/> 7-steps Improvement Process</p> <p><input type="checkbox"/> Service Measurement</p> <p><input type="checkbox"/> Service Reporting</p>

9. Did you hire external consultants for the purpose of improving the performance of IT services?

Yes

No

10. If yes in Q9, which company did you work with?

11. You can choose to answer question A or question B

A) In terms of the steps to implement ITIL, some researchers have given suggestions from different perspectives.

Could you please **select and order** the following working procedures in the project of ITIL implementation in your organization?

<input type="checkbox"/> Assessment about current state, (assess the maturity, identify the quick wins	select order
<input type="checkbox"/> Gap analysis	select order
<input type="checkbox"/> Create a roadmap and plan for the whole project	select order
<input type="checkbox"/> Process improvement plan	select order
<input type="checkbox"/> Project scoping and definition	select order
<input type="checkbox"/> Process review and design	select order
<input type="checkbox"/> Roles and responsibilities clarification	select order
<input type="checkbox"/> Workshop for listing how it is done today	select order
<input type="checkbox"/> Workshop for reviews and process	select order
<input type="checkbox"/> Tool identification and build of artifacts	select order
<input type="checkbox"/> Workshop of desk-top test of cases adjust	select order
<input type="checkbox"/> Implementing tools	select order

<input type="checkbox"/> Pilot implementation( tool configuration and training, process and workflow workshop) and measuring	select order
<input type="checkbox"/> Establish process governance	select order
<input type="checkbox"/> Follow-up and review by measuring	select order
<input type="checkbox"/> Continuous improvement	select order
Others <input type="text"/>	select order

B) If u don't agree with the above summarize of steps or prefer other statements, please write down your opinion in the following box.

12. What do you think of the importance of the following factors which would affect the success of ITIL implementing project? Please select from the drop down list.

Quality of IT staff to adapt to change	select
ITIL training for IT staff	select
Use of Consultants	select
Commitment and continuous support from senior management	select
Competent subject matter expert and ITIL knowledgeable project management	select
Formation of Virtual Teams	select
Interdepartmental Communication and Collaboration	select
Adequate Tools which could work with processes	select
Start with smaller scope to ensure success and quick win	select

Supporting tools compliance with ITIL methodology	select
Policy, process and procedure in place	select
Roles and responsibilities in place and consensus reached on it	select
Establish KPI in process and start measuring and follow-up earlier in stage	select
One process at a time	select
Never start with configuration Management (and CMDB)	select
Either go for ITIL or you don't-there is no middle way	select

13. . Do you think tools implementation and workshops represent the start of a project?

Yes       No

14. Do you think that tools and workshops are more important than planning and assessment during the preparation period?

Strongly disagree       Disagree       Neutral       Agree

Strongly agree

Other Comments: