Examining Challenges in IT Service Desk System and Processes: A Case Study

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Abstract—**The adoption of IT Infrastructure Library (ITIL) framework is a challenging task for many IT service provider organizations. Many government organizations in Finland have also started to use ITIL and need help in configuring tools and defining processes. The research problem of this study is: What types of challenges exist in the IT service provider's customer support? The main contribution of this paper is to present challenges on IT service support of Finnish Tax Administration.**

Keywords-**incident management; service support; IT service.**

I. INTRODUCTION

Many IT service provider organizations consider the improvement of IT service management processes as a difficult and challenging task. Typically, the process improvement is based on the processes and methods of the IT Infrastructure Library (ITIL). ITIL is the most widely used IT service management framework consisting of a set of best practices for managing IT services.

The service management section of the ITIL version 2 consists of two parts [1]: 1) Service Delivery (Service level management, IT financial management, availability management, capacity management, IT service continuity management) and 2) Service Support (service desk function, incident management, problem management, change management, configuration management and release management). The ITIL version 3 emphasized the service lifecycle thinking and introduced five core books: Service Strategy [2], Service Design [3], Service Transition [4], Service Operation [5] and Continual Service Improvement [6]. The recent update 3.1 did not introduce very radical changes to Service Operation processes. However, the Service Strategy book was completely rewritten.

There are several factors that might prevent an effective process improvement. First, the companies have to use external ITIL consultants in providing training for their employees. These consultants know the ITIL framework and IT service management concepts very well but have limited knowledge on the existing business concepts, methods, tools, services, and the structure of service desk groups. Second, inadequate or too complex IT service management tools shall slow down any IT service management process improvement initiative. Third, lack of process culture and process thinking is very common phenomenom among IT companies. ITIL is a process oriented framework. Thus, the

ITIL implementation team should be well-trained and have excellent process improvement and change management skills. Finally, lack of management support for ITSM project may cause that an organization do not allocate enough resources for the process/tool improvement. Besides allocating enough resources for improvement work, the management has to motivate and reward people who pass ITIL certificate exams and participate in IT service management work.

Sharifi et al. [7] have explored why ITIL implementations fail. They list at least the following factors: Spending too much time on complicated process diagrams, Not creating work instructions, Not assigning process owners, Concentrating too much on performance, being too ambitious, allowing departmental demarcation, ignoring or eviewing of the ITIL every time, and not memorizing ITIL books self. Mohamed et al. [8] have integrated knowledge management elements to the IT service management. Moreover, Lahtela et al. [9] have explored how to measure IT service management processes ín practices.

Peppard categorizes information system and technology (IST) services into four categories [10]: *Application services* are services that are delivered via software applications. *Operational services* maintain the IT environment including installation services for hardware and software, change management, and problem shooting services. *Value-enabling services* increase the value of of information assets (e.g. consulting, system design, and help desk). Finally, *infrastructure services* focus on creating an effective IT infrastructure including, for example, security and capacity issues. Bardhan et al. [11] state that IT services have aspects such as the high degree of involvement by people in delivery and that they are more or less intangible.

In order to improve IT service management processes, organizations can use various IT service management frameworks, such as the Control Objectives for IT and related Technology (COBIT) framework [12], Microsoft Operations Framework (MOF) [13], Kapella's Framework for Incident Management and Problem Management [14], IT Service Capability Maturity Model [15] or IT service management standard ISO/IEC 20 000 [16].

More and more academic studies are being published in the field of IT service amanagement, such as incident management problem management [17], success factors in

ITIL implementations [18]. The main contribution of this paper is to describe the challenges regarding IT service support and maintenance of Finnish Tax Administration.

The results of this study might be useful for service managers, service desk managers and IT service management process managers. The remainder of the paper is organized as follows. In Section II, the research methods of this study are described. In Section III, challenges in service desk tool and processes are presented. Section IV is the analysis of findings. The discussion and the conclusions are given in Section V.

II. RESEARCH PROBLEM & METHODOLOGY

This case study is a part of the results of KISMET (Keys to IT Service Management and Effective Transition of Services) project. The research problem of this study is: What types of challenges exist in the IT service provider's customer support?

According to Yin [19], a case study is "an empirical inquiry that investigates a contemporary phenomenon within its real-life context". Eisenhardt [20] defines a case study research as "a research strategy focusing on understanding the dynamics present within single settings". The settings in this paper mean the customer support environment of Tax Administration. A case study research method with a single case was used to answer the research problem. Figure 1 describes the research settings of the case study. The study was carried out in Finnish Tax Administration's Kuopio unit.
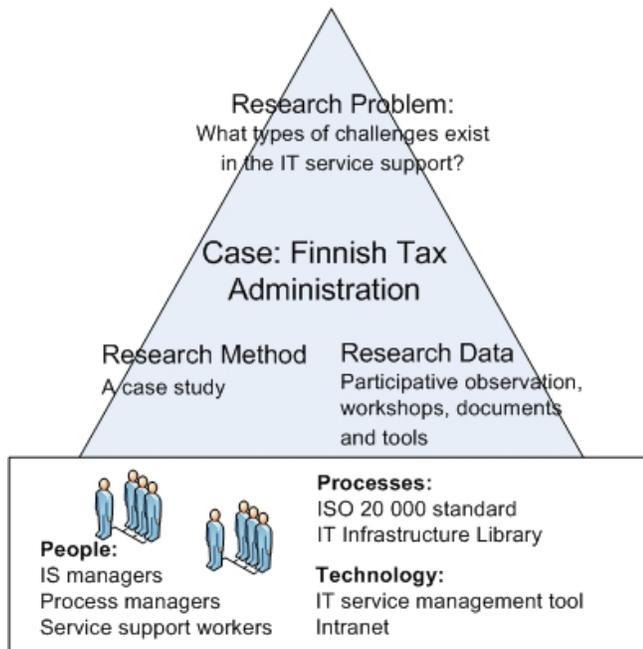

Figure 1.   The research settings of the case study

A. The Case Organization and Data Collection Methods

In Finland, taxation is carried out mainly by four organizations: Ministry of Finance, Tax Administration, Customs Finland and TraFi (Traffic safety agency). Our case organization is the Information System Management unit of Finnish Tax Administration that provides IT services (e.g. desktop services, service desk) to the tax administration staff. The organization had 5336 fulltime employees in 2010. The organization used a phased approach for implementing service management processes. In the first phase, the focus was on incident management and the ITIL-based service desk service was launched in Spring 2011.

The case study was carried out in August-October 2011. In order to increase the quality of the case study, case study researchers can use three important principles of data collection: 1) using multiple sources of evidence: three researchers participated in data collection from several sources 2) creating a case study datastore (a case study diary) 3) maintaining a chain of evidence (linking observations to data sources). The following sources of evidence were used:

- Documentation from the case organization (e.g. incident management process description, service support metrics, ITSM tool user guide, service catalogue, service area, event management material, error handling guide).
- Archives (service classification schema, incident and service request records)
- Interviews/discussions (discussions in work meetings between a research team and the case organization, informal coffee table discussions with service support workers, email conversations with process managers)
- Participative observation (proces improvement meetings and workshops (CSI workshop 27 September) and ITSM process trainings (45 minutes ITSM Introduction, 3 hour Basics of ITSM) organized by the KISMET research team)
- Fysical artefacts: Service desk tool, intranet

B. Data Analysis Method

A within case analysis technique [20] was used to analyze the collected case study data. Researcher triangulation was used in data analysis. Three case study researchers participated in the data collection and analysis. The within-case analysis focuses on examining cases carefully as stand-alone entities before making any generalizations.

III. CHALLENGES IN IT SERVICE DESK

We used KISMET (Keys to IT Service Management Excellence Technique) model as a process improvement tool. The model consists of the following seven phases: Create a process improvement infrastructure, Perform a process assessment, Plan process improvement actions, Improve/Implement the process based on ITSM practices,

Deploy and introduce the process, Evaluate process improvement and Continuous process improvement.

In this paper, we focus on the 'Perform a process assessment' phase and present the customer support challenges that were identified during the phase:

- **Challenge:** Classification of support requests in the service desk requires clarification **Improvement suggestion:** Clarify the options in 'Reason for Contact Request' field of the incident record. Make the difference between service requests and incidents visible. Service area and the type of of support requests should be different fields. Collect concrete examples of both incidents and service request for training purposes.
- **Challenge:** Customers are not able classify support requests correctly **Improvement suggestion:** Remove the classification option from sucustomers and simplify the submission of support requests.
- **Challenge:** It is difficult to identify repeating incidents from the service desk system. **Improvement suggestion:** Mark the repeating incidents (for example, create an additional 'check box' type data field to an incident record: Repeating incident = x). Use the 'Relate Cases' function to establish relationships between similar cases. Create a problem record based on a repeating incident.
- **Challenge:** The interface between incident management and problem management does not work. People do not understand the difference between incidents and problems. **Improvement suggestion:** Train employees to open a problem record. Establish a simple-to-understand guidelines for problem management including triggers for problem management.
- **Challenge:** Service desk workers record several cases under one incident. **Improvement suggestion:** Train service desk workers to record cases in such a way that one incident record includes only one issue.
- **Challenge:** Improvement ideas are not recorded systematically into the service desk system. **Improvement suggestion:** Improvement ideas should be sent to a Continual Service Improvement team or Change Management team.
- **Challenge:** Lack of Configuration Management Database (CMDB). **Improvement suggestion:** Establish a Configuration Management process that is responsible for updating, maintaining and managing a Configuration Management Database (CMDB).

IV. ANALYSIS

Regarding the service desk we observed during the study that the service desk tool supports the implementation of IT service management well. The organization had invested in automatizing the handling of service requests and electronic forms were well exploited in service request management. Regarding incident management roles, we observed that roles and responsibilities and incident management activities were defined in the process description and they followed the IT service management terminology. The organization had assigned a well functioning team (2-3 persons) for configuring the IT service management tool. Detailed process descriptions had been created for ITSM processes. Regarding the results, it has to be mentioned that the organization had focused on service desk and incident management in the first phase of process improvement cycle (starting from Spring 2011). Therefore, the remaining ITSM processes, such as change management and problem management, were inmature.

Many of the challenges seemed to be related to classification of support requests. Service desk workers indicated that users and customers have problems in classifying requests but nobody had measured the number of incorrectly classified requests. Our research team reported to the case organization that the service area requires changes and that the using the service desk system should be as simple as possible for customers.

It was not a surprise that the organization had problems with problem management. This challenge has been noted also in our previous studies. Some service desk workers had classified the case as a "problem" when the problem was one of the options in Reason for Contact field. Crucial for problem management would be recording information on which incidents are repeating incidents and thus sources of problems.

Another challenging area was the continual service improvement that consists of three main areas: measurement, reporting and management of improvement ideas. Organisation needed a model how to handle service improvement ideas in a more systematic way. One possibility would be to assign development ideas to change management team that would open a Request for Change. Interfaces between processes seemed not to work wery well in practice, for example, between incident management and configuration management, change management, and event management.

V. DISCUSSION AND CONCLUSION

This paper aimed to answer the research problem: What types of challenges exist in the IT service provider's customer support? The main contribution of this study was to explore how a service desk tool and the support process was improved in Finnish Tax Administration and describe the identified challenges in incident management.

The key challenges we identified in service support were related to classification of support requests both from service desk workers' viewpoint and customers' viewpoint, understanding the differences between incident and problem management processes, identifying the sources of problems and interfaces between service management processes.

This case study included certain limitations. First, data were collected by using solely qualitative research methods.

Quantitative methods could have provided a richer view on the organization. However, the qualitative case study method suits well to research business process related challenges in organizational context. Second, the case organization was a partner of the software engineering unit's research project and thus not randomly selected. Third, this study included only one case organization's one service area. Further research could explore the IT service management challenges in other service areas of the case organization.

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