LAPIN AMK
Lapland University of Applied Sciences

IT SERVICE MANAGEMENT BASED ON SERVICE-DOMINANT LOGIC:

CASE LAPLAND UNIVERSITY OF APPLIED SCIENCES

Tuomo Lindholm

Thesis
The School of Business and Culture
International Business Management
Master of Business Administration

2015

LAPIN AMK
Lapland University of Applied Sciences

Opinnäytetyön tiivistelmä

Kaupan ja kulttuurin osaamisala
Tradenomi (ylempi AMK)

Tekijä	Tuomo Lindholm	Vuosi	2015
Ohjaaja	Vladimir Ryabov		
Toimeksiantaja	Lapin Ammattikorkeakoulu		
Työn nimi	IT palvelunhallinta palvelulähtöisen ajattelun pohjalta: Tapaus Lapin Ammattikorkeakoulu		
Sivu- ja liitemäärä	142 + 27		

Tietotekniikan (jatkossa IT) tehokkaalla hyödyntämisellä on huomattava merkitys organisaation suorituskykyyn. Osastokohtaiset siilot voivat rajoittaa niiden välistä yhteistyötä ja muodostaa kuilun IT:stä vastaavien ja muiden liiketoimintayksiköiden väliin. Tämä kuilu on klassinen ongelma organisaatiossa ja IT palvelunhallinnan tieteenalalla. Tämän tutkimuksen tavoite on helpottaa kuilun poistamista Lapin Ammattikorkeakoulussa IT ja muiden yksiköiden välisen yhteistyön kasvattamisen kautta. Tutkimus on tärkeä, koska uusi Ammattikorkeakoulujen rahoitusmalli korostaa toiminnan tuloksellisuutta.

Palvelulähtöisen ajattelun soveltaminen on uudenlainen tapa kasvattaa asiaankuuluvien toimijoiden välistä yhteistyötä. Palvelulähtöisen ajattelun mukaan, palvelu on omien resurssien käyttämistä toisen hyödyksi. Tässä prosessissa, palvelutoimittajan rooli on tehdä arvoehdotuksia ja asiakkaan rooli on realisoida ja määrittää palvelun hyöty omassa kontekstissaan. Tämä lähestymistapa näyttää tehostavan toimijoiden yhteistyötä ja silloittaa siksi kuilua IT palvelutoimittajien ja palvelusta hyötyjien välillä.

Tässä laadullisessa tutkimuksessa käytetään selittävää yksittäisen tapaustutkimuksen menetelmää. Valittu tutkimusmenetelmä on tämän tutkimuksen dualistisen ontologisen perspektiivin ja dialogisen paradigman mukainen. Tutkimuksen tiedot kerättiin analysoimalla relevanttia kirjallisuutta ja haastattelemalla keskeisiä toimijoita. Tutkijan oma kokemus Lapin Ammattikorkeakoulusta sekä työntekijänä että opiskelijana toi lisää näkemystä tapausorganisaatioon.

Tämän tutkimuksen tulokset osoittavat, että IT ja liiketoimintayksiköiden välistä yhteistyötä voidaan kehittää soveltamalla palvelulähtöistä ajattelua. Yksi merkittävimmistä tutkimustuloksista oli tunnistaa kuinka palvelulähtöisen ajattelun soveltaminen voi lisätä ymmärrystä tarjottavan palvelun hyödystä asiakkaiden toiminnoille. Tutkimuksen tulosten pohjalta voidaan ehdottaa useita kehityspolkuja yhteistyön parantamiseen. Koska kehitysresurssit ovat niukat, on kuitenkin perusteltua kohdistaa yhteistyön parantamiseen tähtäävät kehitystoimenpiteet kykyyn hyödyntää tutkimuksessa identifioitujen yhteyksien kautta saatavilla olevaa osaamista ja tietoa.

Avainsanat Palvelulähtöinen ajattelu, IT palvelunhallinta, yhteistyö

LAPIN AMK
Lapland University of Applied Sciences

Abstract of thesis

School of Business and Culture
Master of Business Administration

Author	Tuomo Lindholm	Year	2015
Supervisor	Vladimir Ryabov		
Commissioned by	Lapland University of Applied Sciences		
Title of thesis	IT Service Management Based on Service-Dominant Logic: Case Lapland University of Applied Sciences		
No. of pages + app.	142 + 27		

The effective utilization of Information Technology (henceforth IT) has a significant role in the performance of an organization. Departmental silos may restrain the collaboration between the functions responsible for the IT and other business functions and build a gap between them. This gap is a classic problem in organisations and in the discipline of the IT service management. The objective of this research is to facilitate the removal of the gap in Lapland University of Applied Sciences by enhancing the collaboration between the IT and other functions. This is important because the new funding model of the Universities of Applied Sciences emphasizes the profitability of the operations.

In Service-Dominant (henceforth S-D) logic, service is the application of one's resources for the benefit of another. In this process, the role of a service provider is to make value propositions and the role of a customer is to realize and to determine the value of service in her own context. This approach seems to enhance the collaboration between relevant actors, and thereby, bridge the gap between the providers and beneficiaries of IT service.

The research method of this qualitative research is an explanatory single case study method. The chosen research method is in accordance with the dualistic ontological perspective and dialogic paradigm of this research. The data for this research were collected through the analyses of the relevant literature on S-D Logic and interviews of focal actors. Additional insight into the case organization was drawn from the present author's experience as an employee and a student of the case organization.

Findings of this research indicate that the application of S-D Logic can enhance the collaboration between the IT and other business functions. One of the major findings was to recognize how the application of S-D logic may increase the understanding about how the offered service benefits the operations of the customers. The findings suggest several courses of action for enhancing the collaboration. However, as the development resources are scarce, a realistic approach is to focus the development activities on the utilization of the knowledge and skills accessible through the interconnections identified in this research.

Keywords: IT service management, Service-Dominant Logic, value co-creation

CONTENTS

ACKNOWLEDGEMENTS

I would like to thank Ari Konu, Eero Pekkarinen, Hannele Keränen, Markku Taipale and Timo Vuori for sharing their views on a number of issues relevant to the thesis. Furthermore, I am using this opportunity to express my gratitude to my supervisor Dr. Vladimir Ryabov for introducing me to Service-Dominant logic and providing me with motivation, invaluably constructive criticism and scientific guidance. I would also like to thank Dr. Pirjo Alatalo for support and guidance.

I would also like to express my warm thanks to my loved ones, who have supported me throughout the entire process.

Thank you,

Tuomo Lindholm

SYMBOLS AND ABBREVIATIONS

G-D	Goods-Dominant
S-D	Service-Dominant
ITS ecosystem	IT service ecosystem

1 INTRODUCTION

The management of information technology (henceforth IT) is a complex issue because IT should be seamlessly integrated into business processes to enhance the performance of an organization. If the goals of IT management are not in accordance with the goals of the business, it is possible that IT restrains the performance of the organization. Thereby, it is required that the goals of IT management are set in collaboration with business functions. Moreover, the need for effective collaboration is emphasized in those organizations who have outsourced their IT management responsibilities or have recently began to focus on their IT management. This is the present situation in several Higher Education (henceforth HE) institutions in Finland and therefore, it is important to study how collaboration between business and IT can be enhanced.

This chapter begins with an introduction to the reformation of the University of Applied Sciences system in Finland. Here, it is discussed how changes in a common funding model have established a new relatively more competitive environment and thereby, guide the future operations of HE institutions. The discussion then proceeds to the case organization of this research, which is Lapland University of Applied Sciences (henceforth Lapland UAS). In this section, the present business problems related to the utilization of information technology at Lapland UAS are introduced. In the subsequent section, these problems are approached from the perspective of the business functions responsible for the management of information technology. The discussion about the importance of the alignment of business and information technology takes place in the fourth section and the structure of the present Thesis is explained in the final section of this chapter.

1.1 The reformation of University of Applied Sciences system

In 2011, the Ministry of Education and Culture introduced the reformation program for the University of Applied Sciences (henceforth UAS) system in Finland. The objectives of this reformation are to enhance the quality and the effectiveness of operations, to renew the structure of the UAS system and to reduce costs by

345 million euro through the period of 2012 – 2015. (Ministry of Education and Culture 2011; Salminen 2013.) In order to support the implementation of the reformation program, a new funding model was implemented on 1 January, 2014.

The new funding model consists of core funding, project funding and performance-based funding and replaces the old model where the amount of enrolled students and completed degrees defined the funding. Several indicators, their effects, and a relative review to define UAS specific shares of total funding have also been introduced. (Ministry of Education and Culture 2013, 2014; Niemeläinen 2013.) This implies that in the new funding model, financial benefits accrue from performance enhancements and failure to perform enhancements will lead to the decrease in the current income. In this new competitive setting, the organizations, whose business models and processes have been developed to attract, to keep, and to graduate entrants are now facing completely new challenges.

The HE institutions have been given a transitional period of three years during which the financial effects of the funding reformation may not exceed 3 percent in a year. (Ministry of Education and Culture 2013.) However, the effects of the reformation have been clearly visible. Several organizations have gone through one or more co-determination processes in order to adapt the size of their organizations into the new setting and there have been some mergers. In 2014, the government authorized 24 organizations where as in 2011 there were 30 Universities of Applied Sciences.

Universities of Applied Sciences have begun to develop their business models and business processes in order to meet the requirements of the new environment. Thereby, organizations are now paying increased attention to the performance of their support functions with the aim of identifying opportunities for short and long-term cost reduction and improvements to the relative performance. The new performance indicators have been put into use in order to gain understanding about causalities between the performance of support functions and the relative performance of the whole organization. Among others, the performance and

the value proposals of functions relevant to the use and the development of information technology (henceforth IT) resources are observed and analysed in the Universities of Applied Sciences.

1.2 Lapland University of Applied Sciences

Lapland UAS is the case organization in this research. Lapland UAS was formed on 1 January, 2014 through the merger between Kemi-Tornio University of Applied Sciences (henceforth KTUAS) and Rovaniemi University of Applied Sciences (henceforth RUAS). The fields of expertise (henceforth the schools) of Lapland UAS are Wellness Services, Business and Culture, Travel and Tourism, and Industry and Natural Resources. For the purposes of the development of Finnish Lapland, research, innovation and development work is conducted in each field of expertise. (Lapland UAS 2014e.) Integrated with the different schools, there are units of Education development, Planning, Administration, Finance, and Research, Development and Innovation. Lapland UAS has campuses in Rovaniemi, Tornio and Kemi. In addition to campus education, the Internet is utilized to provide distance education for both Finnish and international students.

Lapland UAS can be seen as the latest competitor in the Finnish UAS system. This means that on the one hand, Lapland UAS is in a challenging position in which it competes with the performance of organizations who have established business processes, organizations and long operational histories. On the other hand, Lapland UAS is in a promising situation, because there are no existing business processes and therefore new required processes may be developed from the beginning to meet the requirements of the new funding model.

The development of the business processes and the organization of Lapland UAS began in late 2013 and is in progress. Until now, the focus of the development has been on enabling a management control system that facilitates the core administrative activities such as management of finance and human resources, and documenting the present processes of education and research, development and innovation. (Keränen 2014; Konu 2014.) This means that the development of the

integration between core and support processes has been set on hold for most parts until the core processes have been determined, documented and evaluated.

The utilization of IT enables public organizations to provision their service with restricted resources (Pang, Lee & DeLone 2014, 200). However, this requires that IT is applied in the business processes in an appropriate way. As the processes that control the development and utilization of IT resources have not yet been thoroughly integrated with other business processes, it is currently problematic to control how IT is utilized at Lapland UAS at the present and in the future. Additionally, the precise determination of the IT business value is very difficult at this time and therefore, it is difficult to estimate the costs of IT.

Despite the fact that the generic benefits of IT are recognized by the executives of Lapland UAS (Konu 2014), there is a need to further develop the collaboration between business and IT to enhance the validity and the effect of IT relevant decisions. The collaboration between IT and business actors is a common problem in the field of IT management but the effectiveness of the present solutions in the present context can be questioned. Thus, the motivation for this research is to develop a novel solution for this commonly acknowledged problem and to enhance the Business IT collaboration at Lapland UAS. In order to provide additional information about the context of this research, the present state of IT management at Lapland UAS is next discussed.

1.3 Information Technology Management at Lapland UAS

In Lapland UAS, two functions are in charge of IT. These functions are the Information Management (henceforth IM) function and the IT Services function. In this research, the term IT functions refers to these two functions. The common purpose of the IT functions is to facilitate other business functions to focus on their core substance by managing the development and the utilization of IT resources in accordance with the needs of other business functions. That is, in Lapland

UAS, the IT functions provision IT as a service to other business functions. Thus, IT service management is a major area of interest in this research.

Service is a key concept of this research and thereby, it is necessary here to clarify exactly what is meant by service. In this research term service is used in accordance with Vargo and Lusch (2004, 2) to refer to the application of specialized knowledge and skills through activities, processes and routines for the benefit for another actor or the actor itself. Thereby, service is a process comprising the provision of a demand by one actor and its fulfilment by another actor (Schulz & Gnoth 2008, 128). Moreover, the use of the singular term 'service' instead of the plural 'services', facilitates one to focus on the process itself rather than the outputs of the process (Vargo & Lusch 2007b, 26). Thus, in this research, the IT service management refers to the management of processes in which the application of specialized IT knowledge and skills for the benefit for another or oneself takes place.

The IT functions have different responsibility areas. The IM function is responsible for a strategic IT service while IT Services function is responsible for an operative IT service (Konu 2014; Lapland UAS & Lapland University Consortium 2015; Taipale 2014). It is important here to point out that besides the IT functions, the Lapland University Consortium IT service area (henceforth LUC IT) is involved in the IT management in Lapland UAS. The LUC provisions the operative IT service for Lapland UAS (Konu 2014; Lapland UAS & Lapland University Consortium 2015; Taipale 2014; Vuori 2014). However, it should be kept in mind that the role of the LUC IT is minor in the development of IT resources and their utilization in Lapland UAS business processes.

In other words, it seems that the IM function is in charge of the development of IT resources and their utilization in Lapland UAS' business operations whereas the IT Services function and LUC IT collaboratively serve the utilization of the present IT resources within established business processes. Thus, the holistic IT service is designed internally but the operative IT service is provisioned by an external actor. This emphasizes the need for successful collaboration between

the stakeholders of the IT management at Lapland UAS. It is now apparent that the role of the IM function is focal in the IT management at Lapland UAS and for that reason, the collaboration between the IT functions, LUC IT and other business functions should be approached from the perspective of the IM function as an internal actor.

However, the use of multiple perspectives facilitates the holistic view to the IT management at Lapland UAS. From the aspect of the service provider – customer relationship, the focal role of the IM function means that Lapland UAS' business functions are a customer for the IT service which IM function provides. This approach implies that the IM function is responsible for aligning IT resources and IT service offering with the needs of business operations. This viewpoint to IT management at Lapland UAS is shown in Figure 1 below.

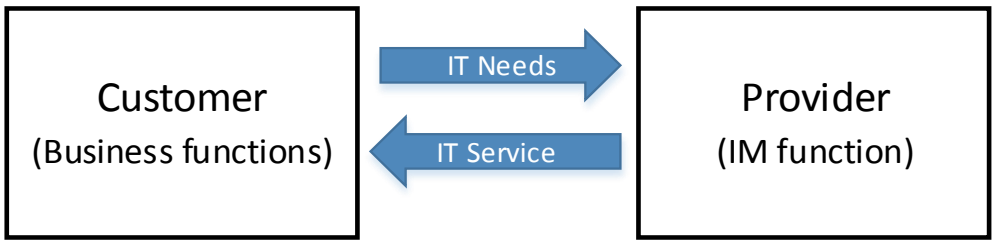

Figure 1 – IT Management at Lapland UAS from the aspect of service provider – customer relationship

From this perspective, the IM function is responsible for developing the mechanisms which facilitate the collaboration between actors involved. However, this view offers a little information about how the IM function is involved in the development of the Lapland UAS' business processes which determine what IT resources are required and how they are utilized. Therefore, the IT management at Lapland UAS should also be approached from the process aspect.

The complexity of the collaboration between IT and business becomes visible from the aspect of processes. The information management process is one of the

management processes and the IT services process is an individual support process entity. The positioning of IM and IT Services processes in relation to the core business processes of Lapland UAS is shown in Figure 2 below.

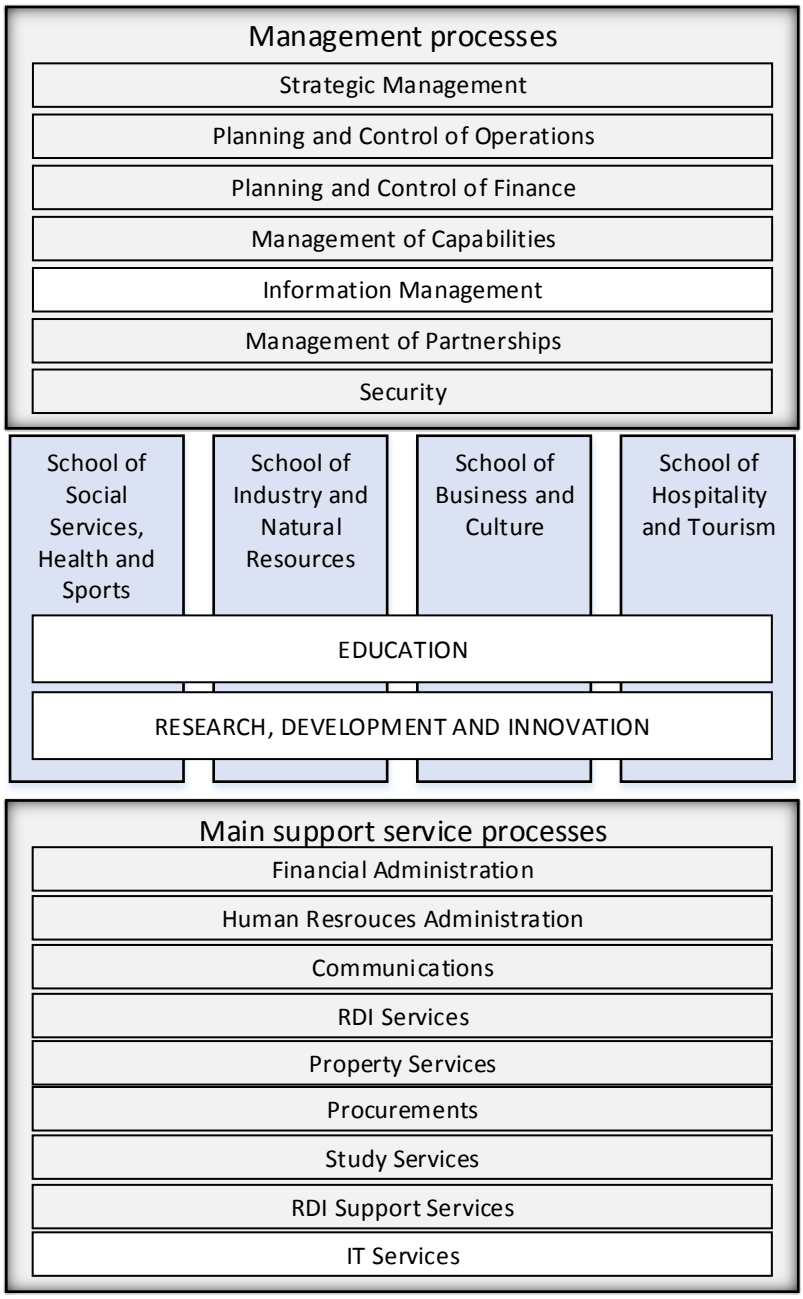

Figure 2 – IT Management at Lapland UAS from the aspect of business processes

The different positioning of these processes emphasizes the fact that the goal and the available means to achieve the goal are different for the two IT management processes. This relative positioning of processes can also be used to deduce their positions within the holistic IT service management system, where the information management process controls the development of IT resources and the IT Services process supports the utilization of present IT resources.

At the time of this research, there are no determined processes linking the IM and the IT Services process together and to other business processes. This means that from the aspect of a business process, there is no systematic and purposeful collaboration between the IT management and the business processes. However, these processes are interrelated and therefore, interaction and collaboration take place in daily business routines and in various business groups.

The lack of the collaboration processes between IM and IT Service functions and their customers has created barriers between them. These barriers undermine the capability of the IM function to manage the development of IT resources and IT service offering according to the needs of Lapland UAS. In other words, the lack of systematic collaboration between the IT and the business prevents their alignment as the match between the needs and the offerings of resources and services cannot be effectively managed by the IM function. This present situation is depicted in Figure 3 below.

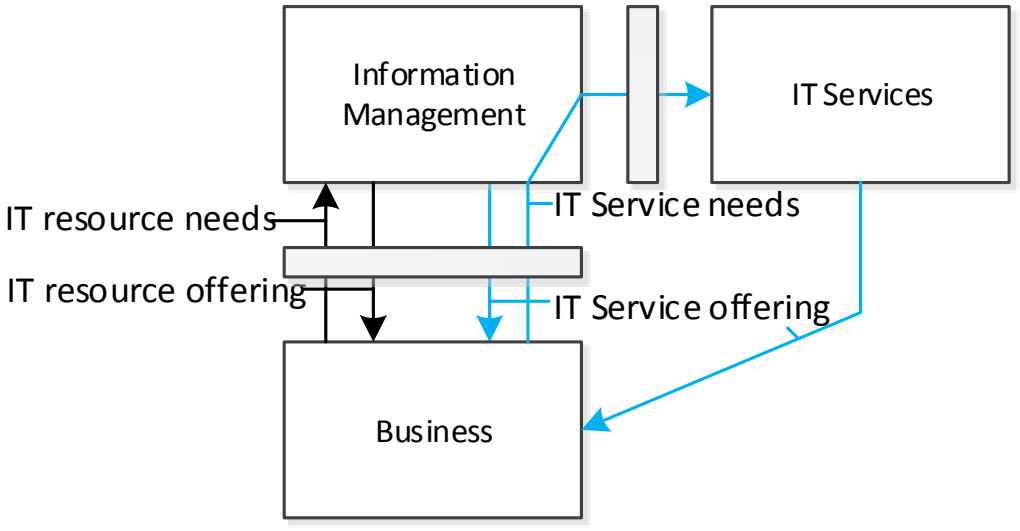

Figure 3 – The IT Management collaboration barriers at Lapland UAS

The successful execution and development of Lapland UAS business operations require that the IT management system is capable of controlling the development and supporting the use of IT resources in accordance with the needs of the business. The IM function is the focal actor who manages Lapland UAS's IT capabilities and coordinates the development of the IT service offering. In order to optimize the use of IT resources and the suitability of service offerings, the collaborative capabilities of the IM function should be developed in a way that reduces the current effects of present collaboration barriers and eventually removes the barriers.

The scarcity of resources requires that the present IT resources should be effectively used to support the present and the future development and implementation activities of the business process of Lapland UAS. In other words, IT resources must be aligned with business operations. This issue is further discussed in the next section to provide essential knowledge about the causality of the business-IT alignment and organizational performance.

1.4 The Business-IT alignment at Lapland UAS

Organizations use IT to create, store and transfer information and to manage transactions and knowledge required to start and sustain their business activities

(IT Governance Institute 2003, 7; Kim, Lee & Han 2010, 154). Thereby, the IT infrastructure, digitized business processes and the automated use of core capabilities can be seen as the foundation for execution for any business (Ross 2006, 4). The alignment of business and IT refers to the organizational capability to apply IT in a suitable and timely way, in consistency with businesses strategy, goals and needs. (Luftman 2000, 3.) According to Pang et al. (2014, 188), the organizational capabilities relate IT assets and capabilities with the organizational performance. Thereby, the development of business-IT alignment (henceforth BIA) can be used to leverage the performance of Lapland UAS through the improved use of IT assets and capabilities. Correspondingly, restricted BIA can be seen to bind the development of Lapland UAS performance.

In order to enhance the performance of Lapland UAS through the realization of new IT value creation opportunities, systematic and purposeful collaboration between IT functions and other business functions is compulsory. The development of organizational capabilities which enable the effective integration of IT and business processes requires detailed communication of businesses goals, values, needs and corresponding IT resources. However, as it was discussed in Section 1.3, at Lapland UAS, IT and business functions are operating in their own silos and their collaboration is limited because of the lack of integrating processes and communication mechanisms. As a result, the business goals are not effectively transformed to IT goals, which undermines the usability of IT resources and thereby, weakens the organizational capabilities to utilize IT.

Based on the findings of analyses conducted in this and previous sections, it seems that the present IT management system cannot be used to manage effectively Lapland UAS's BIA because there are no built in mechanisms to increase the shared knowledge about values and goals of businesses and IT functions. For example, there are no defined processes to collect goals and critical success factors from Lapland UAS's business processes in order to translate them into IT service development targets. The lack of business originated development targets may lead into a situation in which IT functions develop Lapland UAS's IT resources in a way that their usability to support the business activities of other

units is at risk. Equally, it is possible that without the knowledge about present and planned IT resources, the development of the business activities may lead into reduced organizational capability to utilize accessible IT resources.

It can be concluded that if the present setting is not changed, there is an imminent risk that IT creates resistance for the development activities aimed to enhance the performance and the profitability of Lapland UAS. Therefore, it is essential that the Lapland UAS's IT management system's capability to manage the BIA is developed with the aim of optimizing the future utilization of IT. The effectiveness of the immediate development activities is further emphasized by the ongoing development of business processes and IT management, as was noted in Sections 1.2 and 1.3. The research problem, questions and objectives set to overcome present IT management and related BIA problems are discussed in Chapter 2.

1.5 The structure of the Thesis

This thesis is organized as follows. In the first chapter the topic, motivation and the general scope of this research are introduced. The second chapter discusses the research problem, objectives and questions. In the third chapter, the selected research methodology is presented.

Chapters 4 and 5 contribute to the theoretical and practical aspects of this thesis. Here, the analysis of the selected S-D logic literature is conducted for evaluating the applicability of S-D logic through various reflections to the present research setting.

The knowledge of S-D logic is applied in Chapters 6 and 7. In these chapters, the Information Technology Ecosystem at Lapland UAS is analysed from the perspective of S-D logic to identify the relationships, elements and present problems of Lapland UAS. In Chapter 8, S-D logic approach is further applied on collaboration between relevant actors and proposals for enhancing operations to overcome present problems are provided.

Lastly, the findings of this research are discussed and conclusions are drawn in Chapter 9. Moreover, the implications of the findings are suggested and the significance of the findings is discussed from the aspect of the S-D logic discipline and the case organization. Additionally, suggestions for further research and the limitations of this research are discussed.

2 RESEARCH PROBLEM, OBJECTIVES AND QUESTIONS

As it was pointed out in Chapter 1, there is a need to improve the collaboration between IT and business actors at Lapland UAS. Thus, this research seeks to develop mechanisms which can be used to facilitate the continuous improvement of the business-IT collaboration at Lapland UAS.

In this chapter, the present business problems which emerge from the IT management problems raised for discussion in the previous chapters, are initially presented on a general level and then transformed to a more specific research problem. Furthermore, the research objectives are presented and three research questions are introduced and discussed to enable the achievement of the research objectives.

2.1 Research problem and objectives

The optimized IT utilization may enhance the performance and the productivity of Lapland UAS. Therefore, the IT assets and capabilities of Lapland UAS should be continuously adjusted to enable the optimized use of IT in business activities. In order to accomplish the optimal IT utilization, the IT management system should facilitate the synchronized development of the business activities and IT resources and thereby, enable the continuous development of the BIA at Lapland UAS.

Unfortunately, it seems that the present IT management system cannot be used to effectively coordinate the systematic and purposeful collaboration between business and IT functions. As a result, there is a gap between the development of the business activities and IT resources. This gap restricts the management of the BIA and as a result the organizational capabilities to utilize IT cannot be developed effectively.

Insufficient IT utilization capabilities increase the need for manual work and complex internal processes. This limits the Lapland UAS' capabilities to implement

education and to provide research, development and innovation services for its customers. Since the funding of the organization is dependent on the performance of these core business activities, inefficient operations may reduce the revenue and endanger the viability of Lapland UAS.

The focal actor of the present IT management system is the IM function, as was noted in Sections 1.3 and 1.4. The IT management capabilities of the IM function are reduced by the collaboration barriers discussed in Section 1.3 and illustrated in Figure 3. These barriers limit the interactions between the IM function and other functions. Thus, the IM function cannot develop IT resources and their use in accordance with the needs of the business.

This research is conducted to enhance the organizational IT utilization capabilities and as a result, support the performance development activities of Lapland UAS. Enhanced IT utilization capabilities and systematic collaboration between service providers and service beneficiaries may enhance Lapland UAS' ability to predict future needs and to develop corresponding business services. As a result, Lapland UAS' ability to adapt to and to absorb the change in its internal and external business environments can be enhanced. With this aim, the following research objectives have been set.

The main objective of this research is to facilitate the systematic and purposeful collaboration between IT and business functions of Lapland UAS. Therefore, a new framework for collaboration is developed. This collaboration framework can be used to reduce the effect of present collaboration barriers and thereby, to gain insights to an individual actor's purposes and needs. These insights may enhance organizational capabilities to develop IT resources in accordance with business needs and to create business aligned value propositions and service offerings, and thus, enhance the Lapland UAS' IT utilization capabilities.

New and actionable knowledge of IT utilization in Lapland UAS' business operations must be acquired to overcome the previous lack of information on the subject environment. This new knowledge is then applied to the identification of the

key elements and factors of the present IT service system. These are used to determine the arrangement of suitable collaboration and communication frameworks.

Facilitating continuous sharing of knowledge and ideas between the business and IT functions enhances the Business-IT understanding (Luftman 2000, 14–16). Service-Dominant (henceforth S-D) logic views value creation as a collaborative process and emphasises service co-production, value co-creation and actor-to-actor collaboration (Lusch & Vargo 2014, 137). Therefore, adapting S-D logic as the dominant logic of IT service management may enhance the BIA management capabilities and as a result, develop the performance and productivity of Lapland UAS.

In addition, participation in IT management practices may enhance business actors' knowledge of IT and thus, enhance commitment to the long-term development of IT resources and their use. This enhanced commitment may strengthen the value creating effect of the enhanced IT utilization capabilities.

Another research objective is to enhance the continuous development of operations of the IT functions by enabling the management of competences relevant to the development and provisioning of IT service through a knowledge management system. In addition to growing understanding about the business surroundings and insights to customers' operations, the systematic development of relevant knowledge and skills will enhance IM function's capabilities to innovate new solutions for Lapland UAS's needs, thereby further enhance the BIA at Lapland UAS.

Finally, a realistic and justified development plan for the implementation of the proposed collaboration framework is suggested. In order to achieve this objective, the present state of the IT management system is analysed and a roadmap for development activities is proposed. There has been no prior research on the management and the use of Lapland UAS' IT resources, therefore this research

contributes to the organizational understanding of how IT can be used to co-create value at Lapland UAS.

The present author is not aware of prior published research where S-D logic approach is used to develop the IT management system of a HE institution. Therefore, this research possibly represents a prospective theoretical contribution showing one more practical application of S-D Logic. This is, to check the suitability of S-D logic approach in the design of an IT service system structure as S-D logic approach is used to analyse the newly gained knowledge and in the design of the proposed frameworks. In addition to organizational benefits, this is a novel adaption of S-D logic in the management of IT capabilities, especially in a HE institution. Thereby, this research may contribute new knowledge on applicability of S-D logic to the field of IT and IT service management.

2.2 Research questions

The problem and objectives of this research were discussed in the previous section. Thus, it is now possible to set the following research questions to facilitate the achievement of the selected research objectives.

RQ 1. What are elements, interconnections and purposes present in the IT service system in the case organization?

The purpose of the service system, the motivation, restraints and interconnections of involved actors must be understood before it is possible to develop any service system. In this research question, Lapland UAS business environment is analysed through the lens of S-D logic. This will produce a holistic and actionable view on the present actors, their goals and relationships, and their current means to apply available IT resources and service offering into their processes.

RQ 2. How should the collaboration in Lapland UAS' IT service system be organised to incorporate the philosophy of S-D logic?

The collaboration framework is developed here. This means that ideas of S-D logic are utilized to enhance the structure of the Lapland UAS IT service system and to facilitate the long-term optimization of IT resource and service offering i.e., align IT with business. The purpose of this research question is to gain new knowledge of how actors co-create value through their applications of IT service offering and service provision.

RQ 3. How should the IT management system in the case organization be further developed to support the proposed collaboration framework?

The performance of the collaboration framework proposed in research question 2 relates to the ability of the IM function to collect and to utilize new information. Here, the present IT management system is analysed with the aim of developing its capabilities to coordinate activities of the collaboration framework. The focus is set on the decision making processes and the effective allocation of organizational resources. The need for processes to recognize and to develop required IT resources, knowledge and skills is also kept in mind.

3 RESEARCH METHODOLOGY

The selected research paradigm and methodology are discussed in this chapter to explain how the present reality is perceived and approached through the research process. In addition, the selected theoretical framework is explained here to clarify what aspects of the present phenomena are studied. Eventually, it is further discussed how data are collected and analysed in this research.

3.1 Research paradigm

Paradigms are generally acknowledged scientific achievements that for a moment provide exemplary problems and solutions to the community of practitioners (Kuhn, Dewey & Neurath 1971, viii). A paradigm is also a framework, which shapes the construction of theoretical generalizations, focuses data collection and influences the selection of research procedures and projects (Lovelock & Gummesson 2004, 21). Therefore, the employed paradigm explains how the researcher recognizes the world though the world does not change (Kuhn et al. 1971, 121). S-D logic is not a world-view therefore, it is not a paradigm, even though it operates at paradigmatic level (Vargo 2008, 212). Thereby, the paradigm of this research is next elaborated.

In order to understand the nature of service systems, a researcher must recognize both, the personal interactions and the social structures where all knowledge is developed, transmitted and maintained and through which meaning is established. (Tronvoll, Edvardsson & Vargo 2011, 5) The ontological and epistemological positions, the research methodology and research methods of this research were chosen based on above guidance. Next, the ontological and epistemological assumptions of this research are discussed.

Ontology refers to the researcher's understanding on established social reality, specifically to the actor's perceptions about the match between the elements derived from theory and elements present in reality. (Kuhn et al. 1971, 206; Yin

2011, 311.) Epistemology addresses the nature of knowledge and guides the design of the research questions based on the chosen researcher's ontological position. (Tronvoll et al. 2011, 5.) To be more specific, an ontological position guides the selection of epistemological position (Easterby-Smith, Thorpe & Jackson 2008, 62). As recommended by Tronvoll et al. (2011, 8), a dualistic ontological perspective was used in this research.

The dualistic perspective draws from structuralism. The structuration theory can be used to understand the relationships between social structure and the social action, as it recognizes that actors produce and reproduce the established social structures which provide guiding principles for action. (Easterby-Smith et al. 2008, 77; Tronvoll et al. 2011, 7.) The present social structure is of a dynamic nature as it is continuously reconfigured by various organizational entities, employees and students.

This dynamicity is further emphasized when the advances in the fields of education and technologies continuously materialize in the structures and as a result, alter the means of actor interactions. The dualistic perspective merges the a priori and emergent approaches and sets the focus on both the interaction between actors and the structures in which resources are embedded (Tronvoll et al. 2011, 7). The use of chosen perspectives enabled the holistic research on the present service system.

According to Tronvoll et al. (2011, 573–574), the dialogic paradigm of service research is used when the researcher combines dynamic and emergent approaches and attempts to capture the dynamic and complex essence of the field, in collaboration with the object of the study. As the use of dualistic perspective to reality and knowledge was used and knowledge was acquired through collaboration, it is safe to conclude that paradigm of this research was dialogic. Thereby, the research design was built to follow the characteristics of the dialogic paradigm and the dualistic perspective. The chosen research methodology is discussed in the next section.

3.2 Research methodology

This research is driven by two general aims: firstly, to gain new knowledge about interactions between the IT and other business functions of Lapland UAS and secondly, to use this knowledge to improve the IT utilization capabilities and the BIA. As noted in the previous section, the acceptance of the dynamic structure of the research domain and the relative nature of knowledge were both acknowledged through the choice of dualistic research perspective and dialogic research paradigm. It is next discussed, how information was acquired in this research.

This is a qualitative case study. The decision of using qualitative research to study the present phenomenon is based on the match between the used dualistic approach to the analytical framework and qualitative research features. The dualistic analytical framework of a service system comprises evolving and complex intention, reasons, and motivations (Tronvoll, et al. 2011, 6). The features of qualitative research made it possible to collect and validate data required in the analysis. For example, qualitative research encourages the use of multiple sources of evidence and the study of the meaning of people's lives, under real world conditions (Yin 2011, 7–8).

Case study is a common design for the dialogic paradigm of service research because of its qualitative nature and the ability to raise a discussion (Tronvoll, Edvardsson & Vargo 2013, 566). It is a variation of qualitative research which is used to study a phenomenon in its real-world context from which it cannot be separated (Eisenhardt & Graebner 2007, 25; Yin 2009, 8; Yin 2011, 17). Case study methodology was chosen because the service system under study could not be separated from Lapland UAS environment, as it is dynamic and continuously restructured by present actors. Thereby, it was impossible to replicate the service system to another context for analytical purposes.

The case study method can be used for example, to motivate research questions, as the source of inspiration for new ideas, and to illustrate conceptual arguments (Siggelkow 2007, 21–22). New conceptual arguments were put forward in this research, as the present Goods-Dominant (henceforth G-D) logic of was challenged with S-D logic for IT service management. In line with other research methods, the purpose of the case study can be exploratory, descriptive or explanatory (Yin 2009, 8). The purpose of this case study was to explain how the present service system was seen through the lens of S-D logic and how this new view could be used to enhance the structure of the service system.

In a case study, multiple data sources such as interviews, archival data, survey data and observations can be used to collect qualitative or quantitative data (Eisenhardt & Graebner 2007, 28; Yin 2009, 19). Multiple data sources were employed in this research, they are discussed in detail in Section 3.4. Single or multiple-cases are the two variants of the case study method (Yin 2009, 19). For a successful research, the influential research conditions, such as the effects of the operational environment, the businesses strategy and the specific business model of the case company, must be taken into a notice. It was not possible to include other organizations in this research because the available resources were limited. Therefore, this research was conducted to a single case organization, Lapland University of Applied Sciences.

3.3 Theoretical framework

A theoretical framework gives the researcher an opportunity to choose what aspects of the phenomenon under study are observed and perceived (Tavallei & Mansor 2010, 573). In dialogism, it is assumed that reality and knowledge are co-created through communication and thereby it is important to study time, and dynamic and complex interactions to gain complete understanding about service processes. (Tronvoll et al. 2011, 573.) The aspects studied in this research are relationships and interactions between benefactors and beneficiaries of IT service over time.

This research draws on S-D logic (Lusch & Vargo 2014; Vargo & Lusch 2004; Vargo Lusch 2007b), its adaption to the within the firm context (Schulz & Gnoth 2008) and to the context of the design of the IT service descriptions (Brocke, Hau, Vogedes, Schindhlholzer, Uebernickel & Brenner 2009). This initial knowledge is used to construct a lens through which the service system is viewed. The purpose of this lens is to reveal how interdependencies between structure and actors control present activities and interactions, as these are the key elements of the used dualistic framework (Tronvoll et al. 2011, 6). Furthermore, this lens is required to provide answers to research questions 1 and 2.

The use of S-D logic as the main theoretical framework of this research enables the present author to approach the real life business problem at hand through a carefully selected set of focus points aimed to enlighten the interconnections within the phenomenon. In this manner, the lens of S-D logic can be used to gain new understanding about the purpose and the nature of the service system at Lapland UAS and thus, to provide new solutions for enhancing the IT utilization capabilities of Lapland UAS.

In S-D logic, value is co-created through the collaboration between service provider and service beneficiaries. Because the service beneficiaries operate in their own context, it is only them who are capable of the final value determination and should thus be seen as the primary resource integrators. (Lusch & Vargo 2014, 186–187) This element of S-D logic adds emphasis to the theoretical framework for research question 2 where the structure of the service system is altered according to the S-D logic.

The third research question addresses the development of the present IT management system. For this, the theoretical framework of research questions 1 and 2 is extended to include the ICT Standard for Management, which is the framework of the present IT management system. With this extended theoretical

framework it is possible to understand the core structure of and intentions behind the present IT management system and to align the proposed development activities with the government guidance.

3.4 Data collection and analysis

In order to gain a complete understanding about the nature of the present IT service system, qualitative data is collected through various methods and sources. The use of multiple data collection methods and sources is common for qualitative research and its case study variation, as was noted in Section 3.2. In this section these data collection methods, data sources and the used analytical processes are discussed in detail. However, the present author's role in Lapland UAS needs to be first discussed to present the context in which data collection and analysis take place.

The present author is an employee of Lapland UAS and thereby, participates in daily routines and decision making. The organizational role of researcher may affect researcher's ability to interact with others and to gather information and perspectives from other sources (Easterby-Smith et al. 2008, 157). The present author's role as an IT designer and enterprise architect in the Lapland UAS does not limit data collection in any means. On the contrary, the present author is assisted in these activities as information and perspectives are openly shared and new sources of information are pointed out. However, it is possible that during the interview sessions, interviewees make the intentional or unintentional choices of words based on the present author's role.

Complete participation is sometimes required to gain sought insights. It must be also acknowledged that ethical dilemmas are always involved in participatory observation, especially if conducted in covert ways. (Easterby-Smith et al. 2008, 157–158.) The view of the present author is that this research cannot be performed by an outsider as it is impossible to gain essential insight without

longitudinal perspective to the work and the IT management system at hand. As noted, ethical dilemmas may emerge during data collection and analysis. In unclear situations, the present author makes his simultaneous role as a researcher known, and asks for a permission to use the particular information and opinion. Moreover, the information which can be used to reveal the identity of an employee who wants to remain anonymous, should be removed.

Service systems are the structures which enable value co-creation between involved actors (Tronvoll et al. 2011, 8). Thereby, in order to completely understand a service system, the structures and actors must both be studied. For this purpose, data is collected through interviews and conversations, observations, and analyses of the organization's documentation. Different types of data are acquired through utilized methods.

Interviews and conversations are used to collect data and information which cannot be accessed using other methods. This information includes undocumented knowledge about the structures of Lapland UAS and the service system, and interviewees' perspectives on the case relevant elements and factors of collaboration, communication and IT utilization. The selected interview type is a semi-structured interview.

In semi-structured interviews, a researcher has a mental framework and study questions in mind, but the questions may vary based on the participant and the context and setting of the interview. The semi-structured interview is similar to a conversation as there is no pre-determined code of behaviour, and thereby, will also lead to a unique social relationship with participants. (Yin 2011, 134.) The present author alters the structure and the nature of interview questions based on the participants. There is also a discussion between participants and the present author during every interview which supported the chosen dialogic research paradigm.

As the structure of this research develops during the research process, the interviewees are chosen based on their ability to provide insight into the research problem at hand. For example, the Quality manager of Lapland UAS is interviewed first to gain a holistic view on the Lapland UAS business environment, the organizational structure, and the general purpose of a HE institution. This first interview is also used to verify earlier findings based on observations and analyses of organizational documentation. Similarly, the findings of this interview are later validated through observations, analysis of organizational documentation and interviews with the Head of Information Management (Appendix 1), the IT designer responsible for the customer relations (Appendix 2) the Director of Administration (Appendix 3) and the Director of Research and Development.

Collected organizational documents include process documentation, internal result agreements, minutes and agendas of the strategic, operational and combined executive groups, minutes and agendas of the IM steering and development groups, the quality management and operational development documentation, the strategy documentation, IT service agreements from 2014 and 2015. The documents were chosen based on their ability to provide information about the purpose and the structure of the organization and interactions within the service system.

Process documentation is used to learn about the aim and purpose of distinct processes and to understand how processes are interconnected. The process documents are analysed to gain understanding about how documentation is being used to communicate information about the purpose, and the critical success factors of processes and what kind of information can be drawn from them. Also the status of the present documentation, is analysed to gain understanding about how extensive view to organization's operations can be achieved through them. For example, there are 4 types of process documentation in Lapland UAS: a process definition, a process description, a process chart, and a list of relevant guides, forms, and documents.

Internal result agreements are used to learn about the specific goals of the distinct Schools and of research, development and innovation services. The agendas and minutes of steering groups are used to recognize the elements and factors present in the organizational decision making. The IM development group agendas and minutes provide information about the collaboration between the IM function and its customers. The quality management and operational development documentation is used to gain understanding about the quality control mechanisms and development practices of Lapland UAS. The findings of analyses of organizational documentation are validated through cross referencing documentation, interviews, conversations and observations.

In addition, secondary quantitative data about Lapland UAS is used in this research. An organizational employee survey is conducted by Lapland UAS during the research period and the results and raw data from the surveys is available for all employees. The survey is to study employees' opinions about the management of their personal work, collaboration with general management and personal supervisor, communication and openness, and employee involvement. In addition to the analysis of the results and raw data of the survey, the present author takes part in a meeting in which the results are discussed.

The selected research methodology and the theoretical framework of this research were discussed in this chapter. Moreover, in this section, the collection and analysis of utilized data was elaborated. The analysis of S-D logic begins in the next chapter.

4 TOWARDS IT SERVICE MANAGEMENT BASED ON SERVICE-DOMINANT LOGIC

S-D logic is the foundational theoretical framework of this research. Therefore, it is important to understand how S-D logic can be utilized to enhance the collaboration between the IT and business functions and thereby, to enhance the BIA at Lapland UAS. Furthermore, a thorough understanding of S-D logic is crucial for motivating the adjustment of the present IT service management structures in accordance with the communication framework.

This research assumes that it is possible to understand and solve present BIA problems when the context is approached from the perspective of S-D logic. Thus, the purpose of this chapter is to elaborate the key concepts of the S-D logic in relation to IT service management and thereby, to enable the use of the lens of S-D logic to view the business environment of Lapland UAS.

This chapter includes the analysis of the carefully selected S-D logic literature and reflections of findings in the context. The analysis of the literature begins with an overview of the history and the nature of S-D logic and proceeds to the critical analysis of the key concepts, which distinguish S-D logic from other dominant logics. This chapter ends with a discussion about the service ecosystem approach of S-D logic.

4.1 Introduction to the S-D Logic

It has been ten years since Vargo and Lusch (2004) first introduced S-D logic to challenge G-D logic as the dominant paradigm for marketing. In addition to its initial focus on marketing, it was soon pointed out that S-D logic can be used to provide an altered view to firm and market as a whole including for example, IT, operations management, human resources and leadership. (Day, Deighton, Narayandas, Gummesson, Hunt, Prahalad, Rust & Shugan 2004, 18; Gummesson, Lusch & Vargo 2010, 10) This research studies the impact of S-D logic approach on IT service management and the development of BIA.

During the past decade, a number of researchers have discussed (Grönroos & Ravald 2011; Gummesson et al. 2010; Heinonen, Strandvik, Mickelsson, Edvardsson, Sunsdström, Andersson 2010; Schulz & Gnoth 2008) and debated (Day et al. 2004; Lusch 2006; Miles 2014) the initial view, thereby contributing new knowledge to the S-D logic. However, there is lack of research on S-D logic and IT management. Even though, the suitability of S-D logic for business-to-business IT service providers has been studied by Brocke et al. (2009), there is no widely known research on how S-D logic approach can be utilized within an organization to enhance BIA.

As the paradigm is universally recognized scientific achievement, which provides model problems and solutions to practitioners, it is rare that two paradigms can coexist in harmony. (Kuhn et al. 1971, vii–ix.) As was noted in Section 3.1, S-D logic is not a paradigm, but it operates on a paradigmatic level and thereby, challenges the existence of G-D paradigm. This change of the dominant paradigm is also visible in this research when S-D logic is used to identify present problems and solutions instead of the use of the traditional G-D logic paradigm. Therefore, it is important that the analysis conducted in this chapter elaborates how the differences between G-D and S-D logic approaches materialize in the Lapland UAS environment.

The purpose of the S-D logic is to facilitate businesses and academics to focus on the exchange of the service instead of the products (Gummesson et al. 2010, 10; Vargo & Lusch 2004, 15). The continuous change in the field of IT implicates that the whole field is undergoing this conversion of focus as several “solution-as-a-service” concepts have been introduced to the market. For example, platform-as-a-service, software-as-a-service and infrastructure-as-a-service offerings have emerged and often replaced similar product oriented business solutions. These new as-a-service solutions have also arrived at the Lapland UAS business environment where for example, prior in-house solutions such as operative IT service, student e-mail and scheduling, have been replaced with external services.

The shift from product to service solutions is facilitated by new IT and knowledge systems, which enable the coordination of isolated organizational activities and the management of cross-functional processes (Day et al. 2004, 18). This means that in addition to new and improved service offerings, also organizations' decision making and development capabilities are enhanced. As a result, the whole exchange system of the research domain has evolved to an extent where G-D paradigm can no longer be used to effectively model emerging problems and corresponding solutions.

S-D logic offers a holistic and realistic view to economic and social exchange by merging services and goods and viewing customers and people as active actors who co-create value with other entities (Gummesson et al. 2010, 13). Thereby, the customers of Lapland UAS's IT functions should no longer be seen as passive and isolated customers who utilize offered IT service as well as they can. According to Lusch, Vargo and O'Brien (2007, 17) all businesses and customers are resource integrators. This means that from the aspect of S-D logic, the IT functions and the business functions of Lapland UAS are collaborators who integrate their resources in order to co-create value in Lapland UAS.

Moreover, the customers of the IT functions collaborate with each other and external actors through various shared processes and systems. This means that their resource integration and value co-creation activities are continuous and do not require the presence of the IT functions. In this light, it is obvious that the focus of IT service should not be kept exclusively on IT assets and direct interaction with the customers because these isolated elements cannot be used to model the problems of value co-creation in the customers' collaborative processes. Therefore, it is safe to suggest that the adaptation of the perspective of S-D logic on collaboration, resource integration and value co-creation is a necessary step to overcome problems caused by the restraining perspective of G-D logic.

Additionally, in S-D logic, the fundamental role of inter-department and intra-department collaboration is emphasized in value co-creation (Schulz & Gnoth 2008, 135). In Lapland UAS, the scarcity of possessed resources may limit individual departments' and/or employees' resource integration and value co-creation capabilities. However, the collaboration with other departments and employees may enable actors to access and to integrate additional resources into value co-creation processes. For example, resources from various departments are accessed and integrated in educational processes as physical or digital premises, scheduling systems, technologies and access to various information sources are used to support the core activities of a teacher.

Besides their collaboration with the actors of education, the actors of Lapland UAS collaborate with each other to enhance their own resources' suitability for the implementation of education and other business processes. For example, the IT functions and property management function collaborate to enhance the availability and quality of wired and wireless networks to meet the requirements of network users such as staff, students and visitors. This emphasizes the fact that all involved departments also serve various Lapland UAS stakeholders and their needs may vary. In order to improve their viability, departments develop and reorganize their specialized resources based on their own understanding about business environment's current and future wellbeing.

It can be concluded that as the departments collaborate and co-create based on shared and individual purposes, it is difficult, maybe even impossible, to predict future resource requirements from the perspective of an isolated good or service. Therefore, a holistic approach which can be used to understand the complexity of the business environment is needed.

S-D logic introduces the concept of service ecosystem as "a relatively self-contained, self-adjusting system of resource integrating actors that are connected by shared institutional logics and mutual value creation through service exchange" (Vargo & Lusch 2011, 5; Lusch & Vargo 2014, 24). With this approach to organizational activities it is possible to learn how actors interact with each other to gain

access to and to integrate resources in their value co-creation activities at Lapland UAS. As a result, it becomes possible to capture the present and predict the future needs of IT resource and service and thereby, enhance BIA at Lapland UAS.

To sum up, S-D logic provides a holistic and a realistic view to the operations of the organization and can thus be used to identify means to enhance BIA at Lapland UAS. Moreover, the use of S-D logic facilitates new means to elaborate how IT resources and their utilization correlate with organizational performance. Thus, further emphasizing the need to shift away from the present G-D logic.

The lexicon of S-D logic comprises four foundational concepts: actors, resources, service and value. In S-D logic service is the fundamental basis of all exchange (Lusch & Vargo 2014, 56), thereby service can be seen as the most significant concept. Service refers to a process in which one actor uses his/her knowledge and skills for the benefit of another actor. Thus, service is a transcending concept and additionally, it is an inclusive term for the reason that goods are seen as mechanisms for service provision. (Gummesson et al. 2010, 11; Lusch & Vargo 2014, 57, 62). The S-D logic lexicon is illustrated in Figure 4 below.

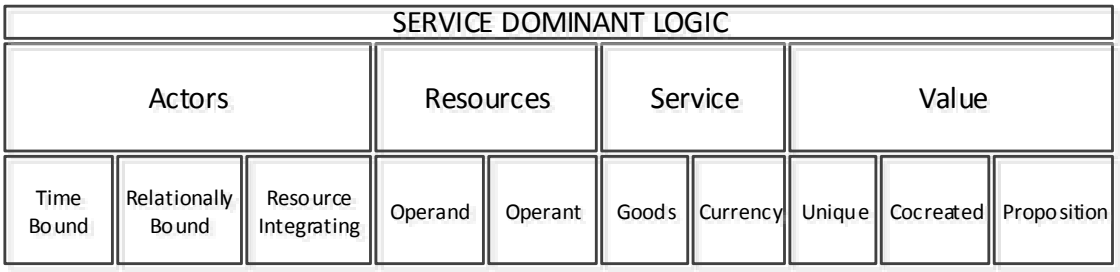

Figure 4 - The S-D logic lexicon (Lusch & Vargo 2014, 55)

In the following sections, the S-D logic lexicon is further analysed in the context to understand how the use of S-D logic influences IT service management operations in general and in Lapland UAS. The following analysis will create the basis for the S-D logic approach to IT service management at Lapland UAS.

4.2 Actors

Actors are entities that act purposefully within limitations, such as norms, traditions and attitudes (Lusch & Vargo 2014, 56). This means that IT service providers and their customers are actors. In addition, employees and students of Lapland UAS are actors. Moreover, it is possible to view business functions and departments as actors because in general, they are groups of people who share specific purposes. Actors co-create systems and environments through their separate and joint actions (Lusch & Vargo 2014, 113). For example, the present Lapland UAS system and its subsystems, such as IT management system, are the result of multiple actions performed by the actors of Lapland UAS and external actors. Thus, involved actors should be recognized and analysed to gain understanding about their specific goals and restraints and thereby, to create actionable knowledge about the Lapland UAS business environment.

At the time of this research, there are 560 employees and 5618 students in the Lapland UAS (Lapland UAS 2014b), the number of involved external actors is unknown. It is clear that within the timeframe of this research, it is impossible to conduct a comprehensive study on all actors. Therefore the unit of analysis should be altered to suit the needs of specific phase of research. For this purpose, the business roles, units, departments and functions can be used to group individual human actors based on their common purposes and limitations.

Actors are time bound and they have unique past based on which they perceive the present in different ways. This means that actors alter their behaviour based on their individual predictions of the future. (Lusch & Vargo 2014, 56). In IT service management, this means that customers' decisions are influenced by their previous experiences and thereby, it is possible to predict customers' future decisions based on the information about their past decisions. Thus, it is possible to study the history of a specific customer to recognize what the customer values and then to adjust the value proposition in accordance with the findings. An IT service provider can use this history information to develop its own resources to meet the future needs of customers.

In addition to the effects on individual actors, the impacts of time on organizational units' views to past, present and future vary. Lapland UAS was formed through a merger between two organizations which had no functions similar to the present IM function (Taipale 2014). Thereby, there is lack of IM experience and furthermore, only a little documented information about IM related decisions is available. This suggests that IM function has a limited view to the history of the present IT infrastructure, which in turn may affect the ability to perceive the present and to predict the future. This constraint should be kept in mind when the operations of IM function are developed.

The fact that only the history of information systems and relevant decisions is documented indicates that G-D logic has been used to build the current bridges between past, present and future. Thus, the paradigm shift from G-D logic to S-D logic must be planned and executed carefully. Moreover, there is a need for coordinated activities to enable IM function to recognize and to understand the reasons for relevant previous decisions and use this knowledge to support its future decision making.

In addition to time, actors are also relationally bound to other internal and external actors (Lusch & Vargo 2014, 56). From the aspect of IT service management, this means that interactions with other actors influence the relationship between actors who provision IT service and actors who benefit from the service. As was noted in Section 4.1, a service ecosystem thinking can be used to gain further understanding about how one actor's resource integration and value co-creation activities are influenced by actor's relationships with other actors. Service ecosystems are discussed in Section 4.6.

Furthermore, S-D logic introduces the actor-to-actor approach, in which all economic and social actors are labelled similarly to avoid confusion and misinterpretations about their role in economic exchange. (Vargo & Lusch 2004, 10). It is rare for a HE institution to have internal invoicing mechanisms, thereby the categorization of actors to producers and consumers is unnecessary and may cause

misunderstanding in some cases. Also, the use of business-to-business or business-to-consumer perspective may restrict the observer's view into a specific function or outcome, and thus mask the holistic resource integration process.

Economic and social actors interact with others for three fundamental reasons: to integrate resources from various sources, to exchange service for service, and to co-create value. (Lusch & Vargo 2014, 9–10) It should be pointed out that the aim of resource integration is to enable and/or to support actor's intended activities (Löbler 2013, 423). One of the reasons why the employees and students of Lapland UAS integrate IT resources is to relieve them from manual work. For example, a workstation is used to produce text which would otherwise be produced with a pen on a paper. The perspective of S-D logic to resources is further discussed in the next section to elaborate the elements and factors of resource integration.

4.3 Resources

Resources are anything that an actor can use to support value creation (Lusch & Vargo 2014, 57). A variety of IT resources are utilized continuously in Lapland UAS. For example, educational business units rely heavily on the use of IT in the planning and implementation of education. In addition, the individual business units' share of corporate IT expenditures is determined by the amount of their possessed workstations. It is safe to conclude that the role of IT resources is significant from the operative and the financial perspectives to the Lapland UAS's business activities and thus, the use of IT resources should be carefully planned.

There are two main types of resources, operand and operant. Operand resources are resources which need to be acted upon by other resources in order to create value and operant resources are used to act on operand resources. (Lusch & Vargo 2014, 57) This categorization of resources as passive i.e., operand and active i.e., operant is unique but can be elaborated through the resource advantage theory of competition (henceforth R-A), from which S-D logic draws and is consistent with. (Day et al. 2004, 19; Vargo & Lusch 2004, 5.) According to R-

A, operand resources are generally physical, whereas human, organizational, informational and relational resources are operant. (Day et al. 2004, 22; Madhavaram & Hunt 2008, 67) This means that physical IT resources such as hardware, software, network routers, and other accessories are operand resources. Operant IT resources are for example, organizational knowledge, skills and institutions relevant to the development and utilization of operand IT resources.

In order to gain a more encompassing view to the value co-creation and service innovation, technology can be conceptualized as an operant resource (Akaka & Vargo 2013, 2). Here, technology refers to the specialized IT asset configurations, practices and digitized processes whose purpose is to act on operand IT resources. For example, workstation management technology is used to act simultaneously on several distinct tangible IT artefacts (hardware and software items) to construct a variety of configurations used to perform business activities.

Operand resources cannot create value for an organization without suitable knowledge, skills and technologies to use and integrate them (Lusch & Vargo 2014, 64–65). This view is important for any IT service management function and especially at Lapland UAS because the majority of its IT resources come from two previous organizations. The lack of coordination in the development and acquisition of IT resources has led into a present situation, where the alignment between operand and operant IT resources is unknown and uncontrollable. Thereby, it is plausible that several operand resources exist but there are no operant resources to act on them and vice versa.

Resources which cannot be currently used by the organization are potential resources (Lusch & Vargo 2014, 121). As noted in the previous paragraph, it is evident that there are several potential IT resources at Lapland UAS. For example, a software or an automated process could only be utilized in one business unit, even though other business units might also benefit from them. Moreover, there may be employee(s) with knowledge and skills to enable the use of acquired but unused software and/or hardware. However there are a little means to connect these potential resources with each other.

Operant resources transform potential resources into useful resources (Vargo & Lusch 2007b, 35). This means that everything can become a resource when it can be used and integrated into value creation processes (Löbler 2013, 423; Lusch & Vargo 2014, 121). It is also important to point out that when a resource becomes unusable it ceases to be a resource (Löbler 2013, 423). In S-D logic, organization's skills and knowledge determine organization's capability to transform potential resources into realized resources through the human evaluation and action (Lusch & Vargo 2014, 121). Therefore, the development of organizational IT utilization capabilities should consist of synchronized development of Lapland UAS's IT resources and resource integration skills.

Operant resources are the essential source of competitive advantage because they enable the transformation from potential resources into value creating resources (Lusch & Vargo 2014, 64). Furthermore, the organization's skills and knowledge relevant to the understanding their customers utilize numerous technologies and how these technologies can be harmonized and holistically managed are core competencies (Prahalad 1993, 44–45). It is now clear that in the present research setting, the development of shared IT skills and knowledge will increase Lapland UAS' capability to transform existing potential resources to value creating resources. Thereby, the main focus of the development activities should be set on knowledge and skills relevant to the utilization of IT instead of operand IT resources which are being utilized.

It is also possible to view actors as resources and to define active actors as operant resources whereas passive actors are operand (Löbler 2013, 422). In order to elaborate this aspect, the role of goods in resource integration process needs to be pointed out. It is the 3rd foundational premise of S-D logic that goods are distribution mechanism for service provision (Lusch & Vargo 2014, 63). Furthermore, all devices constructed to perform activities formerly done by people, epitomise the application of operand resources on operant resources (Löbler 2013, 422). Thereby, following the previous example, a workstation is an indirect distribution mechanism of the resource integration activities of the IT functions.

Furthermore, when an employee or student actor uses the workstation in her own resource integration process to produce text, the resources of the IT functions' are integrated in the same process. Here, the role of the IT functions is passive as they are not directly involved in this integration process. Since resources are anything that actors can use to support their value creation, the IT functions can be seen as resources for the workstation using actor. In this particular example, the IT functions are operand resources.

Operand resources cannot create value since value emerges only through the use of offerings (Lusch & Vargo 2014, 69). However, operand resources turn into operant when they are used to act on other resources. Continuing the previous example, the IT functions are activated when an actor finds it reasonable to use their service offerings on something which improves their own well-being. This may occur when an increase in the actor's knowledge and skills enable new ways to utilize IT and/or when the actor needs to change the currently available IT resource combination.

Resource density is the degree of the combination of resources mobilized to support value creation for a particular situation (Normann 2001, 27). In S-D logic, all actors aim to achieve the best combination of resources to produce the best possible value. This combination is acknowledged as maximum density (Lusch & Vargo 2014, 115). In this research, the maximum density of IT resources is the final goal of every development proposal since it can also be seen as the maximum degree of IT utilization. This means that all enhancement suggestions are given with the aim of increasing Lapland UAS's abilities to understand how IT resources should be developed and combined to achieve the maximum density.

4.4 Service

S-D logic defines service as "the application of resources for the benefit of another actor or oneself" (Lusch & Vargo 2014, 87; Spoher, Anderson, Pass & Ager 2008, 9). In the context of this research, IT service are the various processes and

performances where IT relevant resources are applied for the benefit of other business units. Here, it is emphasized that service is not the output of the application process, but the process itself (Vargo & Lusch 2007b, 26). This approach to service enables the holistic view to IT service, because it is not limited by serving departments or concrete outputs. For example, IT service is provisioned continuously between employees, when they assist each other to perform various tasks with their workstations. If service would be seen as an output of a business function activities, this kind of continuous service activity would be unnoticed.

Service can be provisioned directly and indirectly (Vargo 2009, 56; Vargo & Lusch 2007a, 6). Direct service provision refers to a situation in which actor is being served without intermediates. The traditional view of a service as an intangible product can be used to describe directly provisioned service (Vargo & Lusch 2007b, 26). Specialist consulting and on-site support activities can be used as the examples of direct IT service provisioning in Lapland UAS.

Indirect service provision means that some kind of a distribution mechanism is used to deliver the service for the actor being served (Lusch & Vargo 2014, 56). For example, in Lapland UAS, organizational communication service is provisioned through an e-mail system and access to the Internet service is provided through various devices and network components.

In addition to goods, also currency is used in the indirect service provision as money can be used to transmit future service rights to an actor (Lusch & Vargo 2014, 57). For example, in exchange for their IT service, the business units of Lapland UAS apply their financial resources for the benefit of IT functions. This money provides the IT functions with a right to obtain future service from internal and external actors.

Thus far, there has been a clear grouping between goods and services in Lapland UAS. For example, PCs and servers are goods and resetting a password and fixing an incident are provided services. In contrast to this, S-D logic does not distinguish between goods and services, but between direct and indirect service

provision. (Vargo 2009, 376). As the indirect service provision may be a new concept for Lapland UAS, it is discussed in detail in section 5.2 with the aim of further elaborating the effect of the paradigm shift from G-D logic to S-D logic. S-D logic's view to value is discussed next.

4.5 Value

In S-D logic, value is "*benefit*, an *increase in the well-being* of a particular actor or oneself" (Lusch & Vargo 2014, 56). This suggests that IT service management creates value by increasing the wellbeing of another. Since this research aims to enhance the performance of Lapland UAS through enhanced BIA, it is important to understand how IT service i.e., the application of operant IT resources for the benefit of another, facilitates the increase in the well-being of Lapland UAS' actors.

The aim of service is to create value but actors perceive value differently because they are time bound, relationally bound and they integrate different resources. Therefore, it is impossible to predetermine one universal value for service. From the aspect of S-D logic, value is always determined by the benefiting actor in relational context (Vargo & Lusch 2007a, 3–4). As a consequence, when IT service is provisioned similarly throughout the organization it is likely that different value emerges for different actors.

Furthermore, S-D logic views that value is always co-created with customers instead of being created for customers (Karpen, Bove & Lukas 2012, 33). In the context, this means that the IT functions, as isolated organizational elements, are not capable of creating and determining value for Lapland UAS but the value is co-created in conjunction with their service provisioning activities and business operations. It should also be kept in mind that value is unique, dynamic and responsive to changes in the relevant systems.

4.6 Service Ecosystem

In S-D logic, value co-creation takes place in actor networks which are comprised of actor triads (Lusch & Vargo 2014, 159). Triads can also be found at Lapland UAS where for example, students and teachers, who are involved in reciprocal service exchange use IT service provisioned by the IT functions. Zooming out from the initial triad to 2nd or 3rd level of triads provides the observer with a holistic and realistic view to the service exchange network (Lusch & Vargo 2014, 159). With this extended perspective it is possible to recognize how other actors and resources are connected to the initial service exchange between students, teachers and IT functions.

The network concept can be used to illustrate connections and the complexity of value co-creation, but the static nature of the network maps masks the varying flows and exchanges between actors (Lusch & Vargo 2014, 161). As was noted in Section 4.2, actors are different because they are bound several ways and as a result, their evolution takes different paths. When actors develop their resources or create new resources, their resource integration processes change. This results in changes in their service exchange triads. For example, when students advance in their studies and gain new operant resources, their needs for education and IT service changes thus, flows and exchanges between actors involved in the triad change. This change cannot be recognized through a network map but adapting an ecosystem view makes it possible.

In S-D logic, service ecosystems are defined as, "*Relatively self-contained, self-adjusting system of resource integrating actors that are connected by shared institutional logics and mutual value creation through service exchange"* (Lusch & Vargo 2014, 161). In other words, service ecosystem is the structures which enable the value co-creation between involved actors (Tronvoll et al. 2011, 8), and these structures illustrate the configuration of various actors who take part in exchanges based on their diverse purposes (Mars, Bronstein & Lusch 2012, 274).

In this research, the structures of Lapland UAS which enable the value co-creation through the use of IT resources is seen as the IT service ecosystem (henceforth ITS ecosystem).

It is common that service ecosystems are part of a larger ecosystem or nested within one (Meadows & Wright 2009, 15; Lusch & Vargo 2014, 163). Thus, an IT service provider should always recognize a customer's position in relevant systems. The ITS ecosystem is nested within Lapland UAS service ecosystem and is a part of a LUC IT service ecosystem (henceforth LUC IT ecosystem). As service ecosystems are resource configurations, they can also be seen as a resource and thereby, can be acted upon by another service ecosystems (Maglio, Vargo, Caswell & Spohrer 2009, 404). This means that for example, Lapland UAS service ecosystem, other service ecosystems nested within it and LUC IT ecosystem are capable of acting on the ITS ecosystem and vice versa. For example, the ITS ecosystem integrates LUC IT ecosystem as a resource for service provision.

Service ecosystems can also be seen as systems of processes because all embedded actors are involved in several internal and external processes (Lusch & Vargo 2014, 170). From this perspective, it is possible to recognize the actors of the ITS ecosystem as members of the processes of Lapland UAS's and LUC IT ecosystems. Eventually, it is possible to follow the connections to the processes of LUC partners and even to the extent of national and international processes.

The purpose of any service ecosystem is to co-create value through service interactions by enabling actors to interact through the exchanges, integrations and applications of resources and to enhance its viability as a system (Lusch & Vargo 2014, 183; Maglio et al. 2009, 396; Meadows & Wright 2009, 15). Therefore, the purpose of the ITS ecosystem is to co-create value with other Lapland UAS service ecosystems and to enhance its own viability.

An analysis of essential S-D logic literature was conducted in this chapter to gain understanding about how elements and factors of S-D logic can be applied to

enhance the management of IT service and as a result, the IT utilization capability of Lapland UAS. The findings of the literature analysis were then validated by applying them in the context through carefully chosen real life examples. Moreover, this enabled the identification of potential development opportunities.

This chapter began with an introduction to S-D logic and continued with elaborating its views to actors, resources, service, value, and service ecosystems. It was found out that actors are entities who act purposefully, resources are everything that an actor can draw on to support the achievement of the purpose, service is the process during which value is co-created for another and not an outcome of a process, and value is the increase in the well-being of an actor. In addition, S-D Logic's view to service ecosystems was analysed in the final section of this chapter and the ITS ecosystem concept was defined during this analysis. Furthermore, it was found out that the ITS ecosystem is nested within Lapland UAS service ecosystem and that it is also a part of LUC IT ecosystem.

5 INTERPRETATION OF AXIOMS AND PREMISES OF SERVICE-DOMINANT LOGIC IN IT SERVICE MANAGEMENT

Premises, assumptions and language are the basic elements of all logics. In S-D logic, these elements are explicit and therefore, they must be understood. (Lusch & Vargo 2014, 53–54). In Chapter 4, the applicability of the language and assumptions of S-D logic was verified from the aspects of IT service management and the case organization. Now, the ten foundational premises of S-D logic are analysed individually and adapted to the field of IT service management. These interpreted foundational premises enable the use of S-D logic in the analysis of the ITS ecosystem and in the development of the collaboration framework.

5.1 Foundational Premise 1

The first axiom and foundational premise (henceforth FP) of S-D logic is, "*service is the fundamental basis of exchange"* (Lusch & Vargo 2014, 57). This FP addresses the foundation, the nature and the purpose of actor interactions. Furthermore, it is this FP, which determines how IT functions interpret their role and position in the present value chains of their customers.

All actors develop and apply their basic operant resources on other operant and operand resources as they create value. As skills and knowledge are not distributed equally in the population or within the firm, actors exchange the performance of their specialized activities to enhance the viability of their system. (Lusch & Vargo 2014, 57–58) This application of specialized resources is service.

In addition, this FP applies also in the realm of business-to-business (henceforth B2B) IT service. Thus, businesses providing IT service should focus on IT related operant resources instead of operand resources. (Brocke et al. 2009, 3) S-D logic's approach to an organization is discussed next to elaborate how this FP influences IT service management practices and thereby, enhances the organizational IT utilization capabilities and the BIA.

On a micro economic level, departments and employees are specialized to achieve unique goals and as a result, they have different interests, strengths and limitations. Therefore, continuous service exchange takes place within the organization, in addition to service exchange between the organization and its customers. (Schulz & Gnoth 2008, 129–130) Actors responsible for the IT service management may view this continuous service exchange from the aspect of operant or operand resources. The chosen aspect indicates how actors see their role and the position in the value co-creation and affects to the operations.

From the aspect of operand IT resources, the exchange environment such as the organization, comprises hardware, software and the underlying IT infrastructure. In addition, there is an unidentified mass of users who utilize these operand resources to perform their daily routines. Here, it is common that the common aim of the IT service management is to keep the operand IT resources functional and control the costs of the IT environment. As a result, the development focus of IT Service Management is usually set on preventing malfunctions and reducing the costs of operand resources and their support operations. It is also common in this approach that the users are made responsible for the development of the utilization and usability of operand resources and the role of the IT service management is mainly to adjust operand resources according to the users' will.

When the service exchange environment is approached from the aspect of operant resources dynamicity and complexity emerge. In IT service management, the application of operant IT resources is being exchanged between the stakeholders of any IT service ecosystem. Therefore, it is these IT relevant physical and mental skills, which are being developed and applied to co-create value. The exchange of service i.e., the performance of specialized activities for the benefit of the other, is further emphasized by the fact that in general, the IT service management does not involve manufacturing any hardware or software for others.

It is here proposed that the first foundational premise of IT service management is:

In IT service management, IT service is the fundamental basis of exchange between stakeholders.

For example, in Lapland UAS, the operant resources of the IT functions' are specialized in IT activities to support the execution of Lapland UAS' business processes. These operant resources are continuously applied on various operant and operand resources, which other business functions acquire to support their operations. Moreover, operant resources are also continuously developed to enhance their applicability on present and future operand resources.

5.2 Foundational Premise 2

The 2nd FP of S-D logic is, *"indirect exchange masks the fundamental basis of exchange"*. These indirect service provision mechanisms, which mask the reciprocal service-for-service exchange are goods, currency and organizations. (Lusch & Vargo 2014, 58–59). This is true in the field of IT service management. It is common that IT service is mostly provisioned indirectly through goods and exchanged for currency. Therefore, actors may perceive the exchange of IT service as an exchange of goods and currency. Thus, it is proposed here that the FP 2 should be adapted to the field of IT service management as:

Indirect exchange masks the exchange of IT service.

This applies also in Lapland UAS, where the IT budget represents currency and thereby, compensates the lack of implemented internal invoicing mechanisms. Moreover, most of the employees and students of Lapland UAS interact with IT actors indirectly through the Service Desk. This means that how IT actors use their skills and knowledge for the benefit of employees and students is not visible for those who benefit from service.

The lack of direct interactions between involved actors makes it difficult to gather information and knowledge about the beneficiary actors and as a result, service providing actors eventually shift their focus from service beneficiaries to outputs they produce. (Lusch & Vargo 2014, 61). This shift of focus away from beneficiaries is present in the ITS ecosystem where the actors of LUC IT collaborate to decrease their workload by harmonizing the customers' IT assets and the processes and process outputs of LUC IT.

These harmonization activities do not include systematic interactions with the actors of Lapland UAS, and thereby, it is clear that the focus of IT actors drifts on goods and process outputs instead of intended beneficiaries. The lack of direct interaction may lead into a situation in which service is no longer optimized for the intended beneficiaries and service fails to increase the well-being of the actor being served. In other words, value creation of un-optimized service cannot be guaranteed.

In addition to facilitating the service optimization activities, the direct interaction generates new organizational knowledge and for that reason is a source of competitive advantage (Schulz & Gnoth 2008, 129–130). For example, students benefit from the organization's enhanced capability to implement education which emerges when teachers and IT functions interact to develop relevant processes.

From the aspect of IT service, the ultimate purpose of direct and indirect interactions is to enhance organizational IT utilization capabilities through the creation of new knowledge and skills. Therefore, the masking effects of indirect exchange should be acknowledged and long-term consequences should be mitigated by recognizing, communicating and nourishing the role of intended beneficiaries.

5.3 Foundational Premise 3

"Goods are a distribution mechanism for service provision" is the 3rd foundational premise of S-D logic (Lusch & Vargo 2014, 61). According to Brocke et al. (2009, 4), hardware and software are essential delivery mechanism for IT service. For

example, a personal computer (henceforth PC) consists of several tangible and intangible goods. Tangible goods are the various hardware components whereas an operating system (henceforth OS) and software are intangible goods. However, is should be kept in mind from the aspect of IT service management, these goods are in fact distribution mechanisms for their manufacturers' service provision. The IT goods represent the application of manufacturer's specialized operant resources for the benefit of others.

Schulz and Gnoth (2008, 131) interpret the 3rd foundational premise to intra-firm and intra-employee level by proposing that ideas and information are distribution mechanisms for service. This approach addresses the knowledge creating nature of actor interactions. The previous PC example can be used to adapt this view to the present research setting. The present author interprets ideas as new ways to construct and utilize PC to support business processes. Similarly, information is interpreted as decoded data about the business related possibilities and limitations of the present PC.

Even though both given definitions are true, the view of the present author is that they cannot be used to capture the genuine essence of the indirect IT service provision. This view is next elaborated through the previous PC example. The PC goods are not real distribution mechanisms for IT service provision as actors providing IT service do not build hardware or software, nor alter their core features in any way. The situation is the same with information systems and other elements of generic IT infrastructure. The ideas and information are being used to provision IT service, but their value for the customers depends on the customers' ability to act on offered ideas and information.

Therefore, a new service distribution mechanism needs to be introduced to capture the reality. This distribution mechanism is a configuration, which is one of the key concepts of this research. There are two types of configurations, a feature configuration and a functionality configuration. The feature configuration is the particular combination of tangible and intangible goods which determines the

possibilities and the limitations of the observed IT artefact or solution. The functionality configuration is the particular settings of preferences which alter the behaviour of an individual element within the limits of the present feature configuration. In order to capture the real IT service distribution mechanism of the present research environment it is here proposed that the 3rd FP of IT service management is:

Configurations are distribution mechanisms for IT service provision.

In Lapland UAS, the IT functions serve their customers through configurations when they develop and manage the available features and functionalities of IT resource offerings. For example, by matching various configurations to suit the needs of a specific employee role. Thereby, configurations can also be seen as a means to measure and to control the resource density. This means the IT utilization capability of Lapland UAS is primarily determined by the match between provisioned configurations and organizational needs. This suggests that in order to enhance the BIA, the IT functions should pay attention on their abilities to make, deploy, develop and monitor present and future configurations.

5.4 Foundational Premise 4

The 4th FP of S-D logic is, *"operant resources are the fundamental source of competitive advantage"* (Lusch & Vargo 2014, 64). In S-D logic, value emerges when actors are able to perform activities for the benefit of another party or themselves and therefore, competition is an issue of knowledge creation and application. (Lusch et al. 2007, 17) From the micro economic perspective, the operant resources of an employee are the fundamental source of competitive advantage to the organization (Schulz & Gnoth 2008, 131). In the field of IT service management, this means that actor whose capability to acquire and utilize operant IT resources relevant to customers' needs is relatively high, has a competitive advantage. This is further emphasized by the fact that operant resources are difficult to copy, transfer and combine since they are embedded in actors or in the

organization and not encoded as information or technology (Spoher et al. 2008, 10). Therefore the 4th FP of IT service management is:

Operant IT resources represented by the stakeholders involved in the IT service management are the fundamental source of competitive advantage.

Lapland UAS competes with other HE institutions. Public organizations aim to achieve supreme results by keeping their use of public resources as limited as possible (Pang et al. 2014, 193). In the field of IT, this means that the density of IT resources can be used to assess the relative performance of a HE institution. As was noted in Section 4.3, operant resources turn potential resources into value creating resources and enhanced operant resources may enhance the value acquired from present resources. Thereby, it is true that operant IT resources are a source for competitive advantage at Lapland UAS.

For example, operant IT resources can be used to model relationships and causalities between IT and business. These models may assist in the development of education and research, development and innovation (henceforth RDI) operations. Furthermore, it is possible to use these models to visualize and to predict outcomes from different development scenarios. This may enhance the quality and the validity of the decision making at Lapland UAS.

5.5 Foundational Premise 5

"All economies are service economies" is the 5th FP of S-D logic. This FP addresses the different eras of economic development from the era of hunter-gatherers to the present era of service economy, which some call information economy and knowledge economy. The 5th FP proposes that all these eras have been service economies and they only differ based on their specific macro-specializations i.e., the advancement and enhancement of some certain type of competence that could be exchanged. (Lusch & Vargo 2014, 66–67; Spoher et al. 2008,

10–11). Thus, the history of IT service can be seen to reach throughout all economies because humans have always utilized their skills and knowledge to assist others to convey information between them.

The four eras of IT macro-specialization are pre-mechanical, mechanical, electromechanical and electronic periods. These eras are characterized by a principal technology used to solve the input, processing, output and communication problems of the time. (Butler 1997) Micro-specialization refers to actors shift towards specific specialities (Lusch & Vargo 2014, 67). For example, the advances in the field of electronic learning (henceforth eLearning) have brought the need for new knowledge and skills for actors providing IT service.

Actors who provide eLearning IT service should nowadays be capable of developing optimized configurations for new types of systems such as learning platforms and online conference systems. Before these modern systems, the required competences were related to developing configurations from various phone and point-to-point video negotiation systems.

Another example can be found in the e-mail systems. A growing number of HE institutions have transferred their student e-mails to cloud services offered by global companies. Outsourced solutions require new competences as the developed configurations now comprise internal and external resources, instead of the old on-premises solutions. In conclusion, IT service has always existed and the transitions, which reflect the change in the surrounding social or economic environment, take place in the macro and micro-specialization of competences.

As was noted in Section 1.3, IT service management refers to managing various processes in which actors use their IT resources for the benefit of others. This means that besides IT service, there has always been IT service management which controls the effectiveness of IT service made available for relevant systems. Therefore, the 5th FP of IT service management is here proposed as:

IT service management is a micro-specialization of a service economy.

5.6 Foundational Premise 6

"The customer is always a co-creator of value" is the 2nd Axiom and the 6th FP of S-D logic (Lusch & Vargo 2014, 68; Spoher et al. 2008, 11). This means that service provider and customer are at all times involved in the value co-creation processes (Grönroos & Ravald 2011, 9). In other words, value is ultimately co-created and perceived by the customer who integrates offered service within its own context (Lusch & Vargo 2014, 56; Maglio et al. 2009, 399; Wieland, Polese, Vargo & Lusch 2012, 14). Therefore, a service provider's activities should be seen as inputs for a customer's own resource integration and value creation activities (Vargo 2008, 214).

In IT service, the increase in the well-being at any system takes place only when the intended beneficiary i.e., customer, absorbs offered IT service in the value co-creation processes of the IT functions and therefore, service design should position value for customer and provider actions (Spoher et al. 2008, 11). From the microeconomic aspect, all intra-employee and intra-department relationships are customer-provider relationships (Schulz & Gnoth 2008, 131). This means that in Lapland UAS, interactions between the IT functions and other business functions can be seen as customer-provider interactions and therefore, dependent on this FP.

The 6th FP of S-D logic is the key to understanding how inputs of IT service relates to organizational performance. Thus, it is one of the foundational concepts carrying out this research. It is proposed here that 6th FP should be adapted to IT service management as:

The stakeholders of IT service management are always co-creators of value.

For example, IT service, which enables an access to the Internet at Lapland UAS can be used to elaborate value co-creation. From the perspective of G-D logic,

the value is created for Lapland UAS, employees and students during the production and distribution of internet access points around the organization as the access to the Internet is made possible. However, it may be that these access points are never used or they are being used for unintended purposes and therefore, it is impossible to determine if value is actually created.

From perspective S-D logic, value is created only when employees and students use distributed internet access points to perform their own value creating activities such as the implementation of education, research work, and administrative tasks. In the latter example, value creation is positioned on the actions of actors whose activities facilitate the access and on activities of actors who utilize access points in their operations.

It is the same with IT service management. The customers must absorb the IT management service provisioned by the IM function into their processes to realize the value. For example, the IM function could offer IT service which would facilitate the rationalization of operand IT resources, however the value cannot be created without absorbing service into business processes of Lapland UAS and thereby, rationalize the operant IT resources.

5.7 Foundational Premise 7

The 7th FP of S-D logic is "*The enterprise cannot deliver value, but can only offer value propositions*" (Lusch & Vargo 2014, 71). As elaborated through the previous access to the Internet service example, service providers cannot individually deliver value as actions from the intended service beneficiary are also required in value creation (Schulz & Gnoth 2008, 132; Spoher et al. 2008, 11). Therefore, actors who provide service need to invite intended beneficiaries to get involved in value co-creation.

In S-D logic, a value proposition is how an actor co-proposes to increase the well-being of another actor. (Lusch & Vargo 2014, 71–72). In order to enhance Lap-

land UAS' IT utilization capabilities through the optimization of their service offering, the value propositions of the IT functions should motivate other business functions and students to realize value through their own actions. The common proposal for value of any service in Lapland UAS is that they facilitate the actors of the core processes to focus on their basic tasks such as implementing education (Keränen 2014; Konu 2014). This definition should be the basis of IT service value propositions. However, the specific value propositions should always be co-produced with intended beneficiaries.

The previous access to the Internet service example can be used to illustrate value propositions. In order to motivate intended beneficiaries to invest their resources in value co-creation activities, a value proposition should clearly illustrate the beneficial effects of having an access to the Internet. A G-D logic value proposal could be: access to the Internet is enabled from various access points within the campus area. Here the proposed value i.e., the increase in the well-being of an actor, remains unclear and the success of the invitation depends on intended beneficiaries' perceptions of future value. From the S-D logic perspective, the value proposition could be "Students and employees may use the various internet access points to conduct their professional and educational activities". Here, the value proposition clearly states how the existence of internet access points benefits the employees and students.

The value proposition is a promise therefore, it must also be fulfilled (Lusch & Vargo 2014, 72). Without clear agreement on proposed benefits, intended beneficiaries may interpret that the provisioned service is not valuable even though all intended features and functional options become available. For example, it is common that organizations limit the size of e-mail attachment and failing to communicate limitations to e-mail users, may lead into a negative perception of provisioned service.

The 7th FP is translated into the realm of IT service management as:

IT service providers can only make value propositions.

5.8 Foundational Premise 8

"*A service-centered view is inherently customer oriented and relational",* is the 8th FP of S-D logic. Customer orientation is visible in S-D logic's definition of a service as the application of knowledge and skills for the benefit of another, in which the other means customer. The value co-creation addresses the S-D logic's perspective on relationships. When customers co-create value, they use directly or indirectly provisioned service to enhance the vitality of their own systems. Thereby, value materializes and develops over time and in different systems (Lusch & Vargo 2014, 73–74). The service-centered view enables an observer to recognize how distinct customer types draw value from service and how service increases the viability of the relevant system.

On a microeconomic level, a service-centered view helps to understand individual departments' and employees' motivations and consequences of taken interactions (Schulz & Gnoth 2008, 132). A service provider's knowledge and access to their customers' resources are fundamental elements in the creation of value propositions (Spoher et al. 2008, 11). Therefore, the adaptation of service-centered view enhances the IT functions' capability to optimize their service offerings and thus, to enhance the BIA at Lapland UAS. The 8th FP of IT service management is proposed as:

A service-centered view recognizes the stakeholders of IT service management within their relational settings.

5.9 Foundational Premise 9

The 3rd axiom and 9th FP of S-D logic is, *"all economic and social actors are resource integrators".* Resource integrators are actors who create resources by combining accessible resources from various sources. Combinable resources can be acquired from markets and from private and public actors. (Lusch & Vargo 2014, 74–75; Schulz & Gnoth 2008, 131). Here, the perspective to the value co-

creation and to relationships is expanded beyond the two actors who are directly involved in the service-for-service exchange by introducing other sources for resources.

For example, a student may use his/her own mobile phone i.e., a resource acquired through markets or social exchange networks, to gain new knowledge i.e., operant resource, through the use of an internet database i.e., operand resource, which can be accessed from various access points i.e., operand resource, made available through the IT service of the IT functions of Lapland UAS. In order to provision their service through various access points, the IT functions have combined several operant resources and operand resources from markets including network routers, cablings, wireless transmitters, electricity, and authentication systems, and public sources including laws and recommendations that regulate internet access from public locations.

The 9th IT service management FP is here proposed as:

All stakeholders of IT service management are resource integrators.

5.10 Foundational Premise 10

The 10th FP and the final Axiom of S-D logic is, *"value is always uniquely and phenomenologically determined by the beneficiary"* (Lusch & Vargo 2014, 78). This FP addresses the challenges of assessing and predicting value in use (Schulz & Gnoth 2008, 132), for the reason that actors who ultimately determine value are bound in time, context and relationships with other actors as noted in Section 4.2.

For example, the digital research databases accessible through Lapland UAS network have been very valuable for the present author as they can be used to retrieve peer reviewed articles without purchasing them. However, it is plausible that some students and employees perceive these services differently based on

their context. It may be that they do not need articles in their professional or study activities or that they prefer books as the source of knowledge.

Nevertheless, the situation may be completely different as the context change. Students may begin writing their theses and employees may need to enhance their knowledge to succeed in new professional tasks. As a result, it is challenging, if not impossible, to measure and predict the value in use of the digital research database service. This FP is directly valid in IT service management and therefore, does not need a special interpretation.

5.11 Foundational Premises of IT Service Management

The ten FPs of S-D logic have now been critically analysed from the perspective of IT service management and adapted to the case organization. In Table 1, the resulting ten foundational premises of IT service management are presented.

Table 1 - Foundational Premises of S-D logic and their interpretation in IT service management

FP	Service-Dominant logic	IT Service Management
1	Service is the fundamental basis of exchange.	In IT service management, IT service is the fundamental basis of interaction between stakeholders.
2	Indirect exchange masks the fundamental basis of exchange.	Indirect exchange masks the exchange of IT service.
3	Goods are a distribution mechanism for service provision.	Configurations are distribution mechanisms for IT service provision.
4	Operant resources are the fundamental source of competitive advantage.	Operant IT resources represented by the stakeholders involved in the IT service management are the fundamental source of competitive advantage.
5	All economies are service economies.	IT service is a micro specialization of a service economy.
6	The customer is always a co-creator of value.	The stakeholders of IT service management are always co-creators of value.
7	The enterprise can only make value propositions.	IT service providers can only make value propositions.
8	A service-centered view is inherently customer oriented and relational.	A service-centered view recognizes the stakeholders of IT service management within their relational settings.
9	All economic and social actors are resource integrators.	All stakeholders of IT service management are resource integrators.
10	Value is always uniquely and phenomenologically determined by the beneficiary.	Value is always uniquely and phenomenologically determined by the beneficiary.

Based on the findings of this analysis, it is possible to conclude that the perspective of S-D logic can be used to recognize and to explain the origins of the present problems related to the development and the use of IT at Lapland UAS. Thereby, the ten FPs of IT service management guide the following analysis of the ITS ecosystem and the eventual development of the collaboration framework.

Moreover, it is now clear that S-D logic can be used to enhance collaboration between the IT and the business and therefore, to enhance the BIA. However, it must be pointed out that the analysis of selected literature did not include a thorough analysis of the ITS ecosystem, and without the understanding about the real world context it is impossible to provide actionable development proposal. Therefore, in the next chapter, the ITS ecosystem is discussed in detail.

6 THE INFORMATION TECHNOLOGY SERVICE ECOSYSTEM AT LAPLAND UAS

Until now, this research has focused on clarifying the fundamental reasons of the present business and research problems and validating the use of the selected theoretical framework. It is now apparent that S-D logic can be used to enhance the collaboration between actors responsible for the IT service management at Lapland UAS and actors who utilize IT service to enhance their abilities to achieve their goals. Moreover, ten FPs of IT service management were defined in the previous chapter to specify the impact of S-D logic on IT service management practices. Thus, facilitating the application of S-D logic in the IT service management.

An analysis of the elements, interconnections, and purpose of a system can be used to make a distinction between any systems (Meadows & Wright 2009, 11). The aim of this chapter is to enable the thorough analysis of the phenomena by outlining the boundaries and determining the essential elements of the ITS ecosystem. Furthermore, a thorough understanding about the structure and purpose of the ITS ecosystem is compulsory in the development of the collaboration framework.

6.1 Boundaries of the ITS ecosystem

As was noted in Section 4.6, the ITS ecosystem is a subsystem of Lapland UAS and it is also a part of LUC IT system. Furthermore, the ITS ecosystem is connected to number of other service ecosystems through its actors' reciprocal service exchange and resource integrations. Before proceeding to the analysis of the ITS ecosystem, it is necessary to distinguish the ITS ecosystem from Lapland UAS, LUC IT and other connected systems.

The primary elements of a service ecosystem are resource integrating actors (Akaka, Vargo & Lusch 2013, 7; Lusch & Vargo 2014, 161). Specifically, these

are actors with their embedded skills and knowledge. In addition to operant resources, the operand resources are also elements of a system (Meadows & Wright 2009, 13). However, in S-D logic, operand resources do not have an effect on the structure of the ecosystem even though operant resources act on operand resources. For example, the basic behaviour within the ITS ecosystem is independent of computer brands, classroom size and buildings.

Within the ITS ecosystem, IT resources are mostly integrated and exchanged by the actors of Lapland UAS with the occasional involvement of employees of other LUC IT partners. Therefore, it is possible to define that the actors of Lapland UAS and LUC IT ecosystems are the primary elements of the ITS ecosystem. This constellation is distinct from other related service ecosystems and can thus be used to distinguish the ITS ecosystem from them. Figure 5 below depicts the recognized difference between the actors of the ITS ecosystem and the actors of other connected service ecosystems.

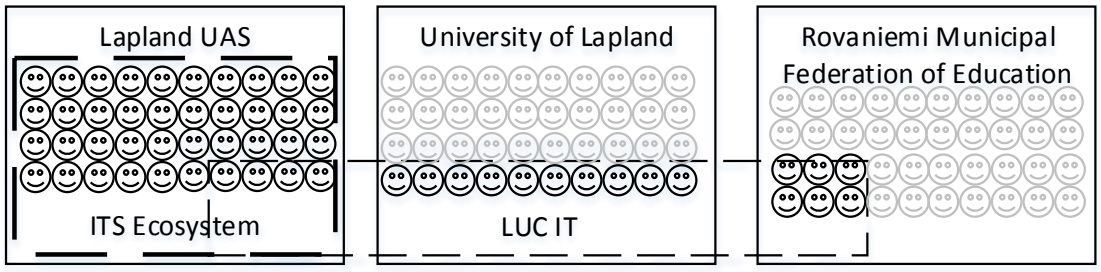

Figure 5 – The ITS ecosystem from the aspect of actors

The ITS ecosystem's connection to actors from ULapland and REDU is shown in Figure 5. This visualizes the fact that the internal IT operations of ULapland and REDU influence the ITS ecosystem because they are partners in LUC IT Service area. Furthermore, it should be kept in mind that other actors such as the students and employees of the ITS ecosystem are similarly connected to various elements of other ecosystems. This means that changes in all these connected external ecosystems may alter the behaviour of the ITS ecosystem. The importance of relationships between the actors of the ITS ecosystem is elaborated next.

In the ITS ecosystem, actors are connected through various relationships which they utilize in their resource integration and service exchange processes. Relationships which keep the elements of a system together are known as interconnections and they can be physical or flows of information (Meadows & Wright 2009, 13). Physical interconnections which connect actors within the ITS ecosystem include IT infrastructure, IT budgets, money, organizational departments and roles, and mechanisms for indirect service provisioning.

Signals between decision and action points within a system are flows of information (Meadows & Wright 2009, 14). Communicating and processing of information plays a central role in complex systems, such as service ecosystems. (Lusch & Vargo 2014, 166; Mitchell 2009, 41) As was discussed in Section 4.6, actors in an individual ecosystem are connected to each other through shared institutional logics. In the ITS ecosystem, actors are also connected to Lapland UAS and LUC IT systems which have their own institutional logics. The use of representational, normalizing and integrative practices may enhance the communication of institutional logics within the ecosystem and between connected ecosystems (Lusch & Vargo 2014, 166).

Physical interconnections such as departments and roles of Lapland UAS can be used to quickly distinguish the ITS ecosystem from other connected systems. It is, however, the information flows, which really make the difference. As the ITS ecosystem is nested within the Lapland UAS ecosystem, it follows the institutional logics of Lapland UAS. Thus, the majority of the information used in making decisions and performing actions flows between the decision and action points within the Lapland UAS ecosystem. The information flows to and from the decision making and action points of LUC IT are in most cases coordinated by the IM function. The information flows within, from and to the ITS ecosystem's decision making and action points are shown in Figure 6 below.

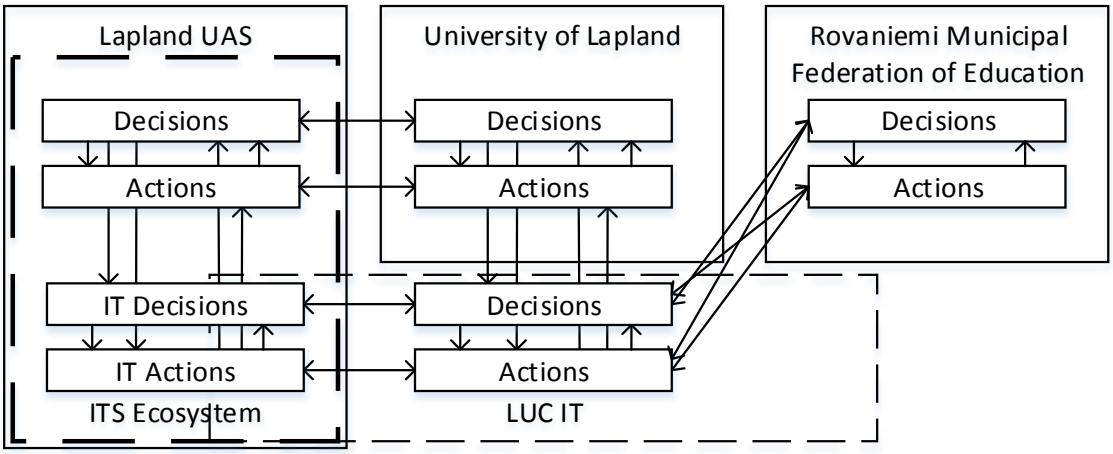

Figure 6 - The ITS ecosystem from the aspect of information flows

As it was pointed out in Section 4.6, the purpose of any service ecosystem is to improve its own viability as a system by enabling the application and integration of possessed and accessible resources for involved actors. Therefore, it is possible that decisions made in the ITS ecosystem and other shown systems are not the same and this may cause resistance for the development of the ITS ecosystem's ability to serve Lapland UAS.

In addition, it is important to recognize the particular purpose of the ITS ecosystem which also separates it from other connected service ecosystems. According to Meadows and Wright (2009, 14), the best way to deduce the purpose of a specific system is to observe its behaviour. In Chapters 4 and 5, S-D logic's applicability to current research was confirmed through the analysis of the behaviour of IT service management at Lapland UAS. Moreover, in this section, the elements and interconnections of the ITS ecosystem have been analysed. Throughout these analyses, new knowledge about involved actors, resources and their interconnections was acquired into an extent where it is possible for the present author to outline the unique purpose of the ITS ecosystem.

In addition to the general purpose of every service ecosystem, the purpose of the ITS ecosystem is to facilitate the achievement of maximum IT resource density for Lapland UAS. Furthermore, the sub-purpose of the ITS ecosystem is to enhance the collaboration with LUC IT.

In this section, the boundaries of the ITS ecosystem were drawn for two reasons. To concretize the existence of the ITS ecosystem in the present research environment and to exclude systems which cannot be affected through the collaboration framework. It should be kept in mind that these boundaries are artificial and drawn solely for the purposes of this research and may not be suitable for next development activities.

6.2 General view to present actors and their purposes

In the previous section, it was found out that an individual human actor is the primary element of the ITS ecosystem. In general, the individual human actors of the ITS ecosystem are either students or employees. These are two main categories for actors. Students are actors whose common purpose is to enhance their operant resources by integrating resources made available through their studies in Lapland UAS. Employees are actors who have a contract of employment with Lapland UAS and thereby, their common purpose is to integrate resources to enhance the vitality of Lapland UAS's systems. There are also employees who study at Lapland UAS, in this research, these actors are seen as employees.

In addition, from the aspect of IT service, there are two types of actors in the ITS ecosystem. Those whose provision and those who benefit from service. This means that the customers of IT service are either students or employees. It is important to recognize the purpose and the context of each actor to understand how they co-create value at Lapland UAS. Students are members of various groups and employees are assigned to various business functions of Lapland UAS. The purpose of a group and function can be used to determine the purpose and the context for actors. This analysis takes place in Chapter 7.

Moreover, two distinguishable IT functions of Lapland UAS are present in the ITS ecosystem, the IM function and the IT Services function. Employees who provision IT service at the ITS ecosystem belong to either of these. According to the Head of Information Management (Taipale 2014), the main purpose of the IM

function is to provision service which supports the development of customers' business operations.

Additionally, the IM function supports the implementation of business operations by co-producing appropriate operative IT service with the IT Services function and ordering their provisioning from LUC IT (Konu 2014; Taipale 2014). By this and the information acquired through the previous analysis, it is possible to deduce that the purpose of the IT Services function is to support the implementation of the business operations of Lapland UAS by providing operative IT service in collaboration with LUC IT and in accordance with the IT service order.

Thus, it is possible to view the IT Services function as a service distribution mechanism for the IM function. Therefore, it is possible to define the IM function as the focal actor of the ITS ecosystem and therefore, the analysis of the ITS ecosystem should emphasize the perspective of the IM function.

The boundaries of the ITS ecosystem are now determined and a general view to actors and their purposes is presented. In addition, it is now apparent that from the aspect of IT service management, the IM Function is a focal actor in both Lapland UAS and the ITS ecosystems. Thereby, it is possible to proceed to the analysis of the ITS ecosystem.

7 ANALYSIS OF THE INFORMATION TECHNOLOGY SERVICE ECOSYSTEM AT LAPLAND UAS

This research is conducted to enhance the performance of Lapland UAS through enhanced BIA. This requires that the present problems in the collaboration between relevant actors are resolved. In the previous chapter, the structures enabling the use of IT at Lapland UAS were outlined. Moreover, relevant actors and their purposes were identified on a general level. Nevertheless, further analysis of the structures i.e., the ITS ecosystem, and present actors needs to be performed to gain more information about the nature of the collaboration at the ITS ecosystem.

The aim of this chapter is to facilitate the development of the collaboration framework which can be used to enhance the actor-to-actor collaboration at the ITS ecosystem and thereby, enhance BIA at Lapland UAS. The focus of this chapter is on creating new understanding of how the present actors' decisions and actions influence BIA and how the present collaboration problems could be resolved through the application of S-D logic. The identification of elements and factors, which may prevent the systematic and purposeful collaboration in the future is kept in mind as well.

In this chapter, the ITS ecosystem is analysed from the perspective of S-D logic and its adaption to IT service management. The purpose of this analysis is to identify how the operations of IT and business functions should be integrated to enhance the collaboration between actors. In order to determine appropriate integrations, it is also required that the ITS ecosystem is analysed to identify the purposes of actors and their ability to reconfigure the ITS ecosystem.

In addition, as was noted in Section 4.2, the number of the present actors may cause problems for the analysis and for that reason, suitable classification methods should be developed when necessary. Therefore, in this chapter, common factors are searched to identify the basis for purposeful classification.

7.1 The Information Management function

In S-D logic, the first element of effectual thinking is to understand who is the firm? Only then it is possible to understand what the firm knows, whom the firm knows, and eventually, to understand what the firm can do to design and reconfigure markets. (Lusch & Vargo 2014, 196) In this research, the firm is the IM function and markets are the ITS ecosystem. This analysis of the IM function begins with a discussion about the management model in use.

The management model of the IM function is based on an ICT Standard for Management framework. In the ICT Standard for Management, the management of Information and Communication Technology (henceforth ICT) is a part of general management and thereby, business driven (ICT Standard Forum 2012a). In Lapland UAS, the information management process is a sub process of the general management process (Lapland UAS 2014i). Therefore, the selected management model is appropriate for the IM function.

Management streams are specific fields of ICT management. These streams are Business Alignment, Strategy and Governance, Sourcing and Vendor Relationships, Project Management, and Service Management. Each stream consists of several functions which represent different ICT management tasks. (ICT Standard Forum 2012a, 12, 19). Five management streams and their functions are illustrated in Figure 7 below to provide a holistic view to the management model.

The Business Alignment stream connects all streams together and steers their goals and operations (ICT Standard Forum 2012a, 24). From the aspect of S-D logic, the functions of the Business Alignment stream are the foundational means to steer the development of IT resources and service in accordance with the strategic and operative goals of the business. It should, however, be kept in mind that in S-D logic, value is always co-created, and therefore, collaboration with the customers of the ITS ecosystem is essential in all streams and corresponding functions.

Figure 7 - Management streams and functions (ICT Standard Forum 2012b)

The IM function began the implementation of the management model in April, 2014. The present decision making structure was established at the same time to assist the implementation activities. The implementation is still in progress and this complicates the collaboration with the customers and the management of IT development. (Taipale 2014; Vuori 2014.) This indicates that meanwhile the IM function builds its collaborative capabilities, the customers may undertake development activities which weaken the present BIA and IT utilization capabilities. For example, the customers may procure an IS which does not meet the requirements of the present IT infrastructure or business processes.

The present challenges of the effective collaboration with the customers include the customers' lack of present experience of IM functions, the present phase of the organizational development at Lapland UAS, different interpretations of the concept of the information management, and the lack of systematic and purposeful dialogue between the IM function and the customers. (Keränen 2014; Konu 2014; Pekkarinen 2014; Taipale 2014; Vuori 2014).

To conclude, the design of selected management model facilitates systematic and purposeful collaboration between the IM function and the customers when it is implemented. However, in order to gain the control of present and future development work relevant to the configuration or use of IT resources, the IM function should accelerate the implementation of the management model by resourcing the implementation activities. Nevertheless, it should be kept in mind that implementation activities require collaboration between appropriate stakeholders. Therefore, the implementation cannot be done exclusively by the IM function. This analysis will now proceed to the actors of the IM function to increase understanding about the present firm. The analysis of the actors of the customers are conducted in Sections 7.3, 7.4 and 7.5.

The IM function operates in a triad with the IT Services function and the customers. This basic triad is depicted in Figure 8 below and it is utilized in this analysis to present and to elaborate purposes and positions of the actors of the IM function.

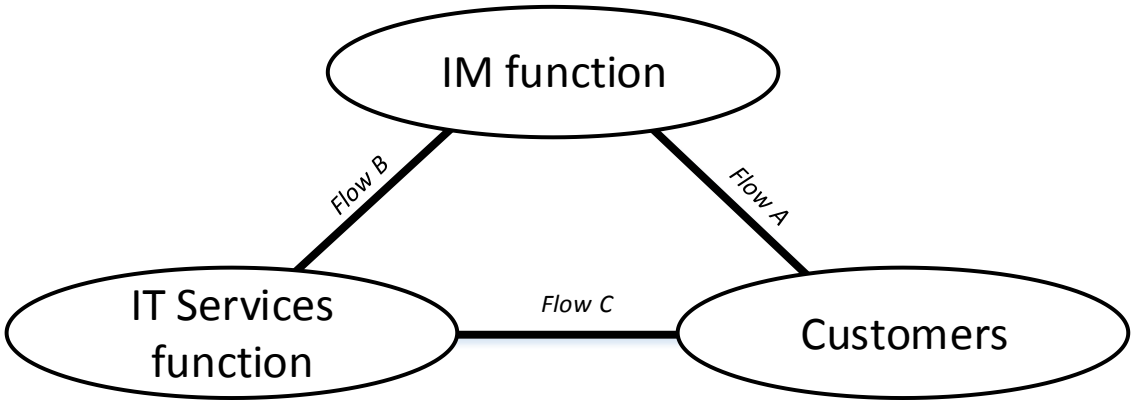

Figure 8 - The basic triad of the ITS ecosystem

The interconnections shown in Figure 8, represent the collaboration between the involved actors and are labelled as *Flow A*, *Flow B* and *Flow C* to support the analysis of the environment. The focus of the following analysis is set on *Flow A* because it embodies the collaboration between IM Function and the customers.

This collaboration is essential for the implementation of the IM function's management model. In addition, through *Flow A,* information concerning the business operations, service needs and corresponding service, and value propositions is conveyed between relevant management streams and functions. Furthermore, *Flow A* is the main provisioning channel for the IM function's service.

As was noted in Section 4.4, service is the process in which actor integrates accessible resources for the benefit of another actor. The IM function's service includes the management of operation plan, ICT contract management, ICT budgeting and financial monitoring, IT service management, ICT project portfolio management, the management of enterprise architecture, and ICT collaboration with other national HE institutions, LUC, and external businesses. (Lapland UAS 2015b.) It is possible to deduce the focal actors of *Flow A* from this service offering.

In general, service responsibilities are divided between the Head of Information Management, person in charge of customer relations (henceforth Customer Manager) person in charge of enterprise architecture (henceforth Enterprise Architect), and the person responsible of IT Service Desk (henceforth Service Manager). (Lapland UAS 2015b.) The IT Services function is in charge of the Service Desk service, therefore the Service Manager is not a focal actor in the collaboration between the IM function and the customers. In addition to delegating service responsibilities directly to organizational roles, the decision making system of the IM function consists of IM steering group (henceforth IMSG) and IM development group (henceforth IMDG). (Taipale 2014.)

Therefore, the focal actors of *Flow A* are the Head of Information Management, the Customer Manager, the Enterprise Architect, the IMSG, and the IMDG. The purposes of the identified focal actors are different and thus, they have their own flows of information and service provision. When these flows are combined, they eventually build the *Flow A*. Figure 9 below depicts the IM function's actors and their information flows inside *Flow A*.

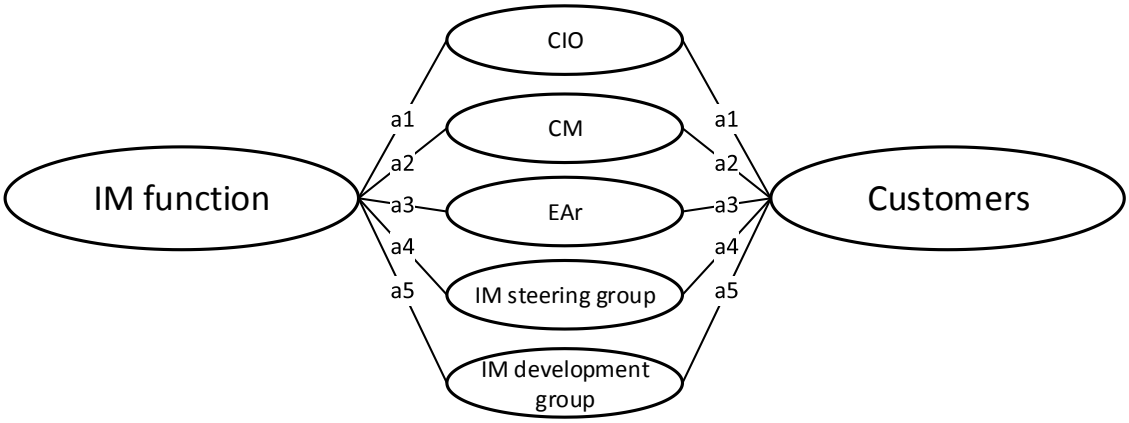

Figure 9 – Individual flows of information inside *Flow A*

The common purpose of the actors presented in Figure 9 is to enhance the density of IT resources. For this purpose, actors observe how IT resources are utilized in business processes and analyse the recognized process-resource combinations to identify development opportunities. The success of these activities requires information and knowledge, which can only be acquired through systematic and purposeful collaboration between the actors of the IM function and the customers.

When asked about the collaboration with the customers, the Head of Information Management pointed out that the purpose and the role of the IM function is still somewhat unclear for some and the collaboration with educational actors is relatively weak when compared with the collaboration with administrative actors (Taipale 2014). In line with this interpretation, the customer manager expressed that even though information management is an organizational issue, the customers usually seek collaboration with the IM function only when their own organization does not possess sufficient know-how to solve a problem and in some problem situations, never. (Vuori 2014.) The present author is the Enterprise Architect and has noted the same issue, the customers' willingness to collaborate and to provide information about its processes, problems and use of resources depends on their understanding about the IM function.

These findings indicate that for the success of customer collaboration, it is important that actors involved in the ITS ecosystem have sufficient information

about the role and the purpose of the IM function. Specifically, the actors of the IM function should be able to effectively communicate who the IM function is and what the IM function does. This analysis proceeds to a discussion about the focal actors of *Flow A* to elaborate on these issues.

The tasks of the Head of Information Management include developing the IM strategy, preparing and enacting of IM related contracts, supporting the IS procurements, planning and monitoring IM finances, designing IM service, and launching and governing statutory enterprise architecture work. (Lapland UAS 2014g.) The IM strategy and enterprise architecture work are intertwined. The IM strategy determines how IT resources are developed to meet the future needs of business strategy and the enterprise architecture illustrates how present and future IT resources are utilized in business operations. Thereby, the IM strategy and enterprise architecture work can be seen as the foundational mechanisms for the long-term development of BIA and organizational IT utilization capabilities.

IM service design and management of IM finance, IS procurements and IM contracts are mechanisms to control the implementation of the IM strategy and outputs of enterprise architecture development activities. Moreover, they are the essential means to manage the expected benefits, usability and costs of Lapland UAS' IT resources on an organizational level.

Additionally, the Head of Information Management develops the collaboration with LUC and takes part in duties of the LUC IT executive group (Lapland UAS 2014g). These activities take place within the *Flow B* shown in Figure 8. Moreover, s/he is a member of various national higher education collaboration networks, such as AAPA, which entails IT executives of every Finnish UAS. From the aspect of S-D logic, the purpose of collaboration with these external actors is to enhance Lapland UAS abilities to adapt and to absorb changes in connected service ecosystems. For example, future changes, which influence the whole UAS sector are discussed in AAPA group. The Head of Information Management brings this information back to Lapland UAS and begins the preparations to mitigate the negative influences of change imposed from external sources.

Furthermore, the Head of Information Management operates within *Flow C*, as s/he is involved in the preparation of IT service agreement with LUC IT, monitors the quality of service provisioning and makes correcting activities when required. (Taipale 2014.) This is a practical example of IT Service Management activity. Additionally, it is possible to interpret these activities as examples of short-term management of the BIA and IT utilization because the effects of these actions are usually relatively immediate and improve the usability of IT resources.

It is now possible to deduce that the initial purpose of the Head of Information Management is to enhance the suitability and the use of IT resources in accordance with the strategy of Lapland UAS. Here, the focus is on the long-term resource development, but there are also occasional short-time activities. Furthermore, the purpose of the Head of Information Management is to enhance Lapland UAS' capabilities to adapt and absorb changes in connected service ecosystems.

The job description for the Enterprise Architect has not been formally defined in Lapland UAS. However, a proposal for the job description has been made by participants of the national University Enterprise Architecture training. This proposal has been made to harmonize the varying job descriptions within the sector of higher education institutions of Finland. The proposal has been discussed with IM function and the description has been accepted in general.

According to the proposal, the Enterprise Architect is in charge of the organization's architecture and reports to the management. The Enterprise Architect defines the architecture in a way which supports the achievement of organizational goals and monitors the implementation of enterprise architecture (henceforth EA). He/she knows the organization's strategy, main processes and resources. The Enterprise Architect evaluates the long and short-term operational and financial effects of solutions and is responsible of continuous improvement of architecture. S/he monitors that the development work is conducted in accordance with architecture. The Enterprise Architect coordinates the collaboration between individual process, information, service and technology architects who develop the EA from their perspectives. It is also pointed out that the Enterprise Architect

does not make decisions, but analyses and makes proposals. (Naarmala, Kuosmanen, Pesonen & Välimäki 2014.) The present author's views are in line with this proposal as his current assignment is to make proposals for structures and activities which enable above mentioned operations.

The purpose of the Enterprise Architect can be deduced from the job description presented above. It is to provide the management of Lapland UAS with understandable and actionable insights into how information, information systems and technologies are utilized in the Lapland UAS' business processes. Moreover, to make enhancement proposals based on his evaluations. In terms of S-D logic, to analyse, to explain and to enhance the ways operand resources are interconnected and acted upon by operant resources. Furthermore, the Enterprise Architect operates to co-create value on the intersections of the Business Alignment management and other management streams.

There is no job description for the Customer Manager. However, the employee currently assigned to the role was interviewed for this research and the present author has worked in a similar role for several years. Therefore, there is substantial knowledge to elaborate the purpose of this role. The Customer Manager monitors the customers' daily operations and development activities with the aim of recognizing IT related need and development opportunities. In addition, s/he combines and analyses the information acquired from individual customers to identify generalizable elements and to enhance the area of impact, effectiveness and efficiency of an individual service process.

Moreover, the Customer Manager observers the quality, utilization and suitability of the present IT resources and predicts the need for future resources. In addition, the purpose of the Customer Manager is to take part and to enhance the value co-creation activities in the Business Alignment management stream.

The IMSG was appointed by the Rector/Managing Director of Lapland UAS to support the present Head of Information Management in his/her decision making. The IMSG formulates the IM development plan and monitors its implementation,

plans and constructs the IM budget in accordance with the instructions provided by the Director of Finance, steers the management of the ICT Project Portfolio towards the strategic areas of emphasis, and controls the management of ICT Project Portfolio. Furthermore, the IMSG is in charge of the content and the prioritization of the ICT Project Portfolio and thereby, analyses and reports the ICT Project Portfolio at least four times in a year. In addition, the IMSG presents the ICT Project Portfolio for the Rector/Managing Director for the decision making. (Lapland UAS 2014h) Based on the responsibilities of the IMSG it is possible to deduce that focal IM management tools are ICT Project Portfolio, IM Development Plan and the IM budget.

The IMSG is the focal element of collaboration between the executives of the customers and the IM function (Taipale 2014). Thus, it is important that all customer segments are represented. The IMSG comprises the Directors of Administration, Finance, Education, and the School of Business and Culture, the Quality Manager, the Head of eLearning Services, and the coordinator of Procurements (Lapland UAS 2014h; Taipale 2014).

The Director of the School of Business and Culture is the sole representative of the four Schools of Lapland UAS. This implies that information relevant to the use of IT in the four Schools should be channelled through her/him. Thus, collaboration is required between the Directors of the four Schools to form a holistic opinion about present issues and corresponding decisions. A little evidence on such collaboration was found during this analysis.

Moreover, it is possible to notice that the Director of Planning and the Director of Research and Development are not present in the IMSG. The Quality Manager repots to the Director of Planning, thereby there is a connection between the IM function and the Planning function of Lapland UAS. However, there is no visible connection between the RDI and the IM functions. In addition to Education, RDI is a core process in Lapland UAS, therefore there should be a connection from RDI to the IMSG.

The IMDG is an informal group established to support the Head of Information Management in the decision making and to enhance the transparency of the IM function's operations (Taipale 2014). The IMDG operates on the operative level and consists of the actors of the IM function and other business functions. For example, the present author is a member of the IMDG. It is the main responsibility of the IMDG to enhance the BIA and the organizational IT utilization capabilities on the operative level. To accomplish this, the IMDG analyses the ITS ecosystem from the aspect of IT resources and their use and makes development proposals for the ITSG.

The IMDG's shared knowledge of the business processes and the use of IT resources is extensive and it is enhanced through the collaborative analyses of business processes. This shared knowledge assists in making generalizations, which in turn, enhances the IMDG's capability to analyse the processes in a systematic and purposeful way resulting in the enhanced quality of the information supporting the development proposals.

The purpose of the IM function, the present management model, and the focal actors involved in the development of the BIA and IT utilization capabilities were identified and analysed in this section. This analysis created new and actionable information about the IM function and the structures of the ITS ecosystem. This information can be used in the development of the collaboration framework. However, additional information about the structures of operative IT service provisioning is required. Thereby, the collaboration between the IM function, the IT Services function and LUC IT is analysed next.

7.2 The IT Services function and the Lapland University Consortium IT Service Centre

The purpose of IT Services function is to support the implementation and the development of Lapland UAS' business processes by providing operative IT service for planning, procuring and implementing IS and IT tools. Employees of IT Services function are assigned to LUC IT, which is a strategic alliance between

Lapland UAS, the University of Lapland (henceforth ULapland), and Rovaniemi Municipal Federation of Education (henceforth REDU). The partners of alliance have formed a shared IT service centre where they have combined a majority of their IT resources. It is the responsibility of the LUC IT to provision operative IT service for Lapland UAS and to develop relevant operations. (Lapland UAS 2014j; Lapland UAS & Lapland University Consortium 2015.)

This present setting is based on a customer-provider approach to the provisioning of operational IT services (Taipale 2014). The focal actors of the collaboration between the IT functions and LUC IT are the Head of Information Management, the Director of Administration and the Head of IT Services. These actors prepare the Lapland UAS' IT service agreement with LUC IT and thereby, control the IT service levels and resource allocation in accordance with the strategy and the budget of Lapland UAS.

The IT service agreement determines by what means LUC IT supports the utilization of IT resources in Lapland UAS and with what resources (Lapland UAS & Lapland University Consortium 2015). According to the Head of Information Management (Taipale 2014), the IT service agreement is an expression of intent and related IT service or individual service outcomes are not described in detail. The analysis of the service agreement confirms this as there is only a generic list of produced operative IT service. This list includes for example, IT service desk operations, the technical preparation of IT procurements, information network services, and workstation life cycle services (Lapland UAS & Lapland University Consortium 2015). From the perspective of S-D Logic, this list can be seen as an attempt to categorize various service provision activities from the aspect of organizing an IT service provider's staff.

For example, IT service desk operations indicate that the staff of LUC IT will perform undisclosed activities for Lapland UAS for undisclosed reason. This kind of service description has a little value as it is incapable of expressing how service increases the well-being of the customers. According to Brocke et al. (2009, 6), service descriptions should be an outcome oriented and express how service

supports the value co-creation. In this particular case, the description should state how IT service desk operations support the customers' value co-creation that is, a single point of contact for reporting malfunctions, requesting assistance and ordering other operational IT service.

It should be kept in mind that from the aspect of S-D logic, service providers make value propositions and customers realize and determine value. Therefore, in the previous example the value proposition is embedded in the "single point of contact" statement which implies that because of this service, the customers do not have to invest time in selecting the appropriate contact method for their different needs. Furthermore, it should be kept in mind that because all actors are bound by context, the customers may sometimes prefer an appointed contact person instead of anonymous Service Desk to increase their confidence on service (Konu 2014).

The structure of the LUC IT system comprises a Service Desk, six service groups, a coordination group and an IT executive group. The sole customer facing element is the Service Desk which has two distinguishable levels. The Level 1 is the single point of contact to the incident management and service request processes. The Incidents and service requests, which cannot be fulfilled on the Level 1 are escalated into the Level 2, which consists of six service groups.

The LUC IT decision making takes place in six service groups, coordination group and IT executive group. The service groups comprise relevant specialists from every partner organization and therefore, is capable of making decisions related to service in their field of speciality. (Taipale 2014.) For example, the service group in charge of Server and Data Centre Services make operational decisions which influence only their relevant field.

When decisions influence several fields of service, they are made in the Coordination Group which consists of the coordinators of service groups and the Head of IT Services. If the Coordination Group is unable to make unanimous decision, the decision will be escalated to the IT Executive Group. The members of the IT

executive group ensure that decisions are made in accordance of their relevant business strategies and operational goals. (Taipale 2014.) The structure of the LUC IT system and its position in the basic triad is shown in Figure 10 below. Moreover, relevant actors are positioned to appropriate flows.

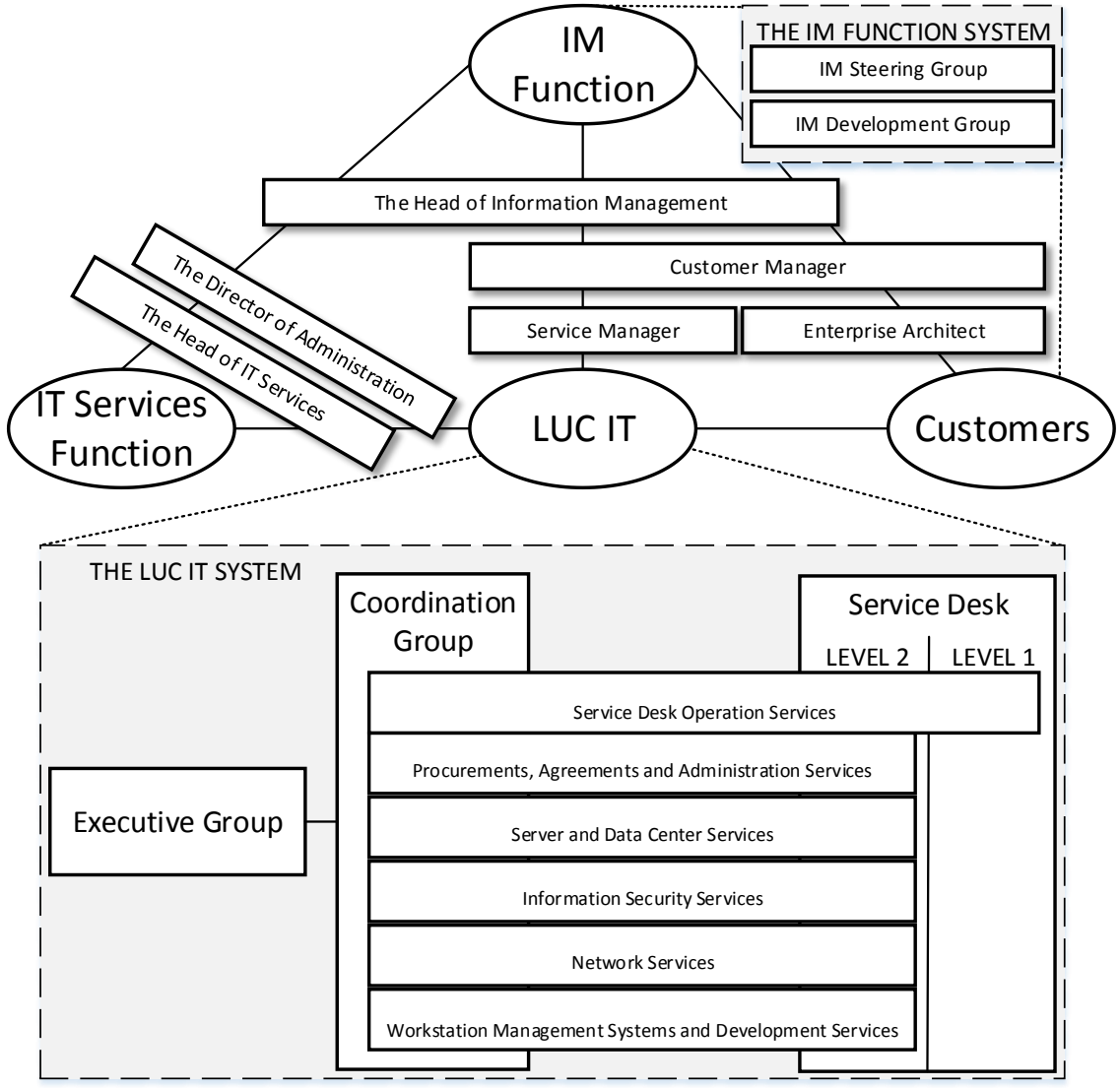

Figure 10 - The IT Service Management system of the ITS ecosystem

Operational IT service is provisioned within service groups shown in the figure above. For example, the Network Services service group resolves network problems and to enables the customers to access corporate network and the Internet from various locations. It is common that service provisioning requires collaboration between various service groups and the customers. Meaning that, following the previous example, the Network Services service group may collaborate with

several other service groups and the customers to identify the reason of a problem. It is not unusual that the initially perceived reason of a problem changes after a thorough analysis.

As was noted in Section 4.4, S-D Logic views service as the process in which an actor applies his/her resources for the benefit of another. Therefore, the IT service process should be adjusted when there is a need to enhance features and the quality of service or when defects are found. In S-D logic, service should always be co-produced with intended beneficiary. In other words, service process should be designed in collaboration with the customers. It is important to analyse the IT services processes to understand how the customers are involved in the process development at Lapland UAS.

The focal actors of the IT service process are determined in the process definition. The Director of Administration is the owner of the process and the Head of IT Services is responsible for the process. The process team includes the Head of IT Services and the executives in charge of the information management in the LUC IT partner organizations. In addition, the members of the service groups are defined as process actors. (Lapland UAS 2014j). Except for the Director of Administration, the actors of the IT service processes can be found in the LUC IT system. This indicates that LUC IT is in charge of the development of the process. Therefore, it can be concluded that the IM function does not have an exclusive control of the process. This outsourced development of a focal IT process can be seen as a high risk factor of the development of organizational IT utilization capabilities and the BIA.

In addition, there is a little evidence of the customers' involvement in the development of the IT Service process. This implies that the process is not co-produced with the customers. Moreover, there are no documented means to recognize and to control how customers' value co-creation activities are supported by the process. In other words, the IM function and the customers have currently a little formal control over operative IT services offering and IT service process. However, the Head of Information Management has informal means to influence

the quality and features of IT service provisioned for the customers of the ITS ecosystem.

There is a continuous dialogue between the Head of Information Management and Lapland UAS' IT employees operating in LUC IT. Through these dialogues it is possible to make adjustments to IT service they provision. When IT service requiring adjustment is provisioned by employees of the other partner organizations, the Head of Information Management asks the relevant IT executive to make adjustments. (Taipale 2014.) Directly requested adjustments may bypass change management activities and thereby, undermine the efficiency and the effectiveness of the operations of LUC IT. Therefore, the use of informal service adjustments channels should be considered very carefully.

In addition, the importance of informal collaboration and exchange of information is similarly recognized by the Director of Administration. S/he points out that Head of Information Management provides him/her with essential background information of service processes and capabilities for the strategic operative IT service decisions. (Konu 2014.)

This present setting emphasizes the customer-provider relationship established between the IT Services function and LUC IT. However, it is unusual that the service provider i.e., LUC IT is given the control over internal IT service processes specifically when, LUC IT also serves two additional customers. This indicates that serving the ITS ecosystem is not the sole purpose of the LUC IT, which in turn, undermines the IT functions' and the customers' ability to influence the development of operational IT service.

Furthermore, the generic nature of the present IT service agreement and the defects recognized in service descriptions suggest that the IT service management capability of Lapland UAS is rather weak when it comes to operational IT service. Lapland UAS' capability to control the suitability of available operative IT service

can be enhanced by increasing the IM function's control over the IT service process. From the aspect of S-D logic, this will facilitate the co-production of operational IT service. This issue will be further discussed in Sections 8.5 and 8.6.6.

It was noted in Section 5.4 that operant IT resources represented by the stakeholders of the IT service management are the fundamental source of the competitive advantage. The development of the operant resources of LUC IT is the responsibility of partner organizations and Lapland UAS is in charge of the development of operant resources represented by their employees (Lapland UAS & Lapland University Consortium 2015). This means that partners may develop shared operant resources in accordance with their own strategic and operational goals. In order to gain synergic benefits, these activities should be carefully coordinated.

This analysis found a little evidence of systematic and purposeful coordination of the development of operant resources on the LUC IT level. According to the Head of Information Management (Taipale 2014), the analysis of Lapland UAS' current and required operant IT resources was supposed to begin in September 2014. However, in March 2015, this task been delayed several times for various reasons. The Head of Information Management also pointed out that because it is currently impossible to recruit new employees, the only way to enhance the use of present operant IT resources is to match employees with suitable roles (Taipale 2014). Nevertheless, identifying appropriate matches is difficult because the requirements for operant resources have not been defined and there is no map of available operant resources.

This present situation indicates that there are no established mechanisms which the IM function can utilize to measure, control or to enhance the present resource density of operative IT service provisioning. This defect is further emphasized by the lack of mechanisms to measure the costs of service provisioning. The present Service Desk system facilitates the measurement of for example, the time spent in service provisioning and thereby, analyses of process and employee efficiency

from various perspectives. These mechanisms have not been put into use for unrevealed reasons.

It is possible to conclude that presently, the IM function is not sufficiently capable of controlling the density of operant resources of LUC IT. Thus, it is difficult to enhance the BIA of operative IT service at Lapland UAS. Furthermore, the value propositions of the LUC IT cannot be used to understand how the operative IT service offering is intend to support the value co-creation activities at the ITS ecosystem. Thereby, the IM function cannot enhance the organizational capabilities to utilize operant IT service. Chapter 8 discusses how S-D logic can be used to overcome these barriers and to enhance the BIA and organizational IT utilization capabilities relevant to operant IT service.

This analysis of provided new information about the IM function and the structures which facilitate the provisioning of IT service to the customers of the ITS ecosystem. Moreover, relevant actors and their relative positioning in the basic triad were recognized. This new information can be used to form collaborative relationships between the actors who are needed to enhance the operations of relevant IT service providing functions. For example, in order to enhance the provisioning of operative IT service for the customers, the actors who should be selected for the collaboration are the Head of Information Management, Customer Manager, Service Manager, and the actors of the representatives of the customers.

The relevant actors of the IT service providers of the ITS ecosystem have now been analysed and there is new information about the possibilities and problems of the IT Service Management system of the ITS ecosystem. Therefore, it is possible to proceed to the analysis of the customers of the ITS ecosystem and the markets to gain understanding about how the BIA and the organizational IT utilization capabilities of Lapland UAS can be enhanced.

7.3 The Administration of Lapland UAS

The discussion about what the IM function knows, whom the IM function knows and what IM function can do to design and reconfigure markets begins here. In this section, the administrative actors of Lapland UAS and their means to control the operations Lapland UAS are analysed. The analysis includes identifying actors and organizational structures important to the decision making concerning the use and the development of the IT resources of Lapland UAS. Additionally, collaboration problems and their origins are recognized to find out how S-D logic approach can be used to enhance the collaboration. In this analysis, individual actors are discussed only to an extent that facilitates the development of the collaboration framework.

A primary concern of facilitating collaborative relationships is to identify appropriate collaboration partners and to establish a connection between them. Forming a successful collaborative relationship with the administration of Lapland UAS requires that the IM function understands who the administrative actors are, what their responsibilities are and how they implement their decisions within the organization. In Figure 11 below, the organization of Lapland UAS is illustrated.

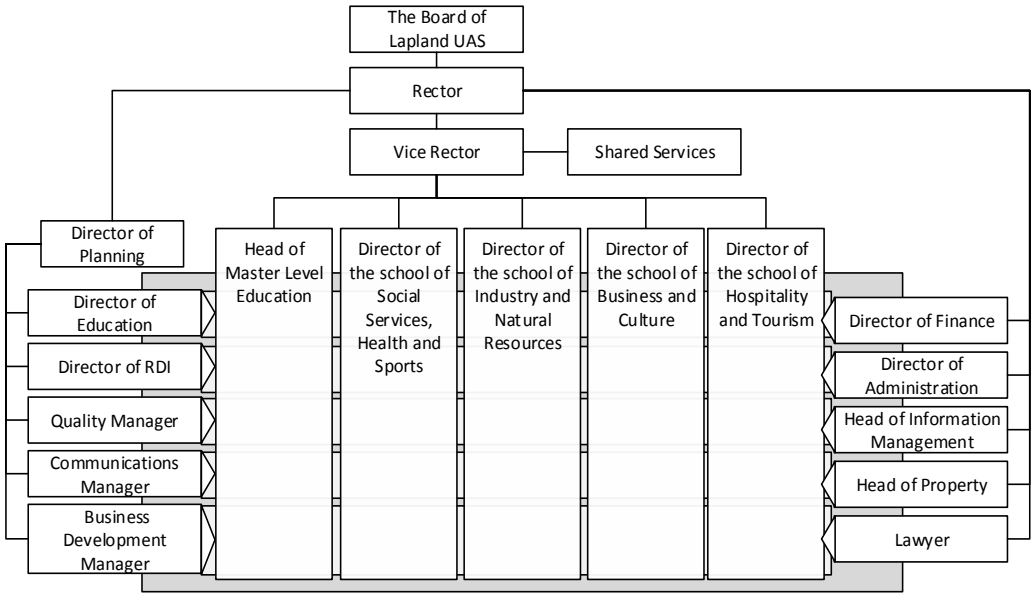

Figure 11 - The organization of Lapland UAS

The main administrative duties of Lapland UAS are allocated between a Rector and a Vice Rector (henceforth VR). The duties of the Rector include the control of operations, development and organization of Lapland UAS and the VR is in charge of the education and RDI operations. (Lapland UAS 2014f.) Here, it is important to notice that while the Rector is responsible for the holistic performance of Lapland UAS, the VR is responsible for the successful execution of the basic tasks of Lapland UAS. Thereby, their individual goals and the context in which they make decisions and determine value are different. Thus, different approaches should be used in the making value propositions of the IM function.

In addition to MD and VR, there are nine directors who are in charge of Administration, Planning, Finance, Education Development, and Research and Development functions, and the four schools of Lapland UAS. (Lapland UAS 2014f.) In Figure 12, it is visible that the general structure of the organization of Lapland UAS is two-dimensional. According to Galbraight (2009, 25–26), this indicates the presence of typical corporate function – profit centre matrix structure. This is emphasized by the fact that the majority of the funding of Lapland UAS depends on the performance of the education and RDI operations of four schools.

Thereby, it is possible to suggest that the directors of four schools are in charge of the operations of the profit centres of Lapland UAS, whereas other administrative actors are responsible of the corporate functions. The operational regulations of Lapland UAS can be used to recognize the context where particular director operates.

The Director of Administration (henceforth DA) is responsible for the human resources (henceforth HR) and HR services. The Director of Finance (henceforth DF) is in charge of preparing, enacting and monitoring the budget, the funding, cash management, financial transactions, asset management, financial statements and the financial services. (Lapland UAS 2014f.) According to the DA (Konu 2014), the purpose of the HR function is to enable the legal working environment in accordance with appropriate collective agreements. Correspondingly,

the Finance function has several obligatory responsibilities related to financial reporting, accounting and payment transactions.

Furthermore, the Finance function provides the management of Lapland UAS with up-to-date finance related information to support their decision making and development activities. (Lapland UAS 2014d) These two functions are heavily dependent on IT because of the nature of their operations and the scarcity of resources. For example, during his interview the DA pointed out that convenient digitized HR processes and systems are critical success factors of the HR function and it is no longer possible to return to the manual processes of the past (Konu 2014).

The scope of the responsibilities of the Director of Planning (henceforth DP) includes the management of the planning services, the development of executive functions, quality management and communication systems, and the preparing and coordination of the goal and the result agreements. (Lapland UAS 2014c; Lapland UAS 2014f) It is possible to deduce that the purpose of the DP is to facilitate and to coordinate the cooperation and operational collaboration within Lapland UAS. The analysis of goal and result agreements indicates that they are the main management control mechanisms in Lapland UAS and will be next elaborated.

The goal agreements are made between Lapland UAS and the Ministry of Education and Culture and include the qualitative and quantitative objectives for the operations of Lapland UAS. Correspondingly, in the result agreements the VR, the RDI services and four schools agree on the qualitative and quantitative results of their operations. From the aspect of IT Service management, goal and result agreements bear a resemblance to the service level agreement (henceforth SLA) and the operational level agreement (henceforth OLA) which also comprise essential information about the shared and individual goals. Therefore, the IM function should have a clear understanding about their content.

For example, result agreements include the agreed development activities, which may involve changes in IT resources. Knowledge about the customers' future development activities can be used to adjust the development of future IT resources in accordance with the development of business operations and thereby, to develop the BIA. Unfortunately, this research found little evidence on the systematic and purposeful analysis of these agreements within the IM function. The lack of agreement analysis practices, indicates that the IM function's position towards future changes emerging from the customers' development activities is more reactive than proactive.

A Director of a School (henceforth DS) is responsible for operations, finance and development within his/her relevant School (Lapland UAS 2014f). The education and RDI activities of a School determine the context in which DS operates and assesses the value of IT. For example, the context in which DS of Industry and Natural Resources operates is very dissimilar when compared with the context of the DS of Social Services, Health and Sports. The present author has encountered several issues where the Directors of these two schools have different perceptions about the value of a shared IT resource or service. This complexes the coordination of the development and the use of shared IT resources and service. Besides, as was pointed out in Section 7.1, only one DS is a member of the IMSG.

Each DS has a 30 000 euro case-specific mandate to procure assets and external service to support their operations (Lapland UAS 2014f). IT relevant procurements should be done in systematic collaboration with the IM function because they may introduce new IT resources or change the ways current IT resources are utilized. However, there have been cases in which the IM function finds about the procurement of a new IS only when the procurement decision has already been made and the resources for implementation and maintenance are requested from the IM function (Taipale 2014). These *behind the curtain* procurements should be removed because they undermine the IM functions ability to manage the use and the development of IT resources.

The Director of Education Development (henceforth DED) is in charge of the development of the education operations implemented in four schools, curriculum work, student services, international affairs, student intake process and the library and information services. Besides education operations, four schools also conduct RDI operations. The Director of Research and Development (henceforth DRD) is in charge of the strategic planning and development of these operations, improving and harmonizing the RDI processes, contract management and funding negotiations. (Lapland UAS 2014f). The context where these two directors operate is elaborated in the next section.

The purpose of this arrangement is to make a clear difference between the development and implementation activities and to facilitate actors to focus their contribution in accordance with the goals of their relevant function (Keränen 2014). This development vs. implementation arrangement should be recognized by the IM function when planning collaborative relationships with profit centres.

The formal cross-functional discussion and decision making relevant to major strategic and operational IT issues takes place in three executive groups of Lapland UAS. The strategic executive group (henceforth SEG) supports the Rector in the strategic management of Lapland UAS and includes the VR, the directors of corporate functions and the Communications Manager. The VR, the directors of the profit centres, the DED, the DRD and the Quality manager form the operative executive group (henceforth OEG) which supports the VR in the management of the basic tasks of Lapland UAS. The extended executive group (henceforth EEG) is responsible for making yearly operational plans and includes members of SEG and OEG. (Lapland UAS 2014a)

Taken together, this analysis of the administration of Lapland UAS recognized the structures and actors who are able to change the ways Lapland UAS operates. Thereby, enabled the IM function to establish appropriate collaborative relationships on the corporate level. In addition, these findings indicate that there is a little systematic and purposeful analysis of documentation produced by the administration. Thus, it is plausible that the IM function does not have a holistic view

to the current and future corporate level development activities of Lapland UAS. This analysis of the customers and the ITS ecosystem will now proceed to the Profit Centres of Lapland UAS.

7.4 The Profit Centres of Lapland UAS

The management structures of the four schools differentiate between development and implementation responsibilities in accordance with the present matrix. This means that within a specific school, a Degree Programme Coordinator (henceforth DPC) manages the implementation of education and RDI operations of a relevant degree programme (henceforth DP). The development of all degree programmes of a school are shared between of the Head of Education (henceforth HE) and the Head of Research and Development (henceforth HRD). (Keränen 2014; Lapland UAS 2014f) In order to clarify the present system, the relevant actors and responsibilities are illustrated in Figure 12 below.

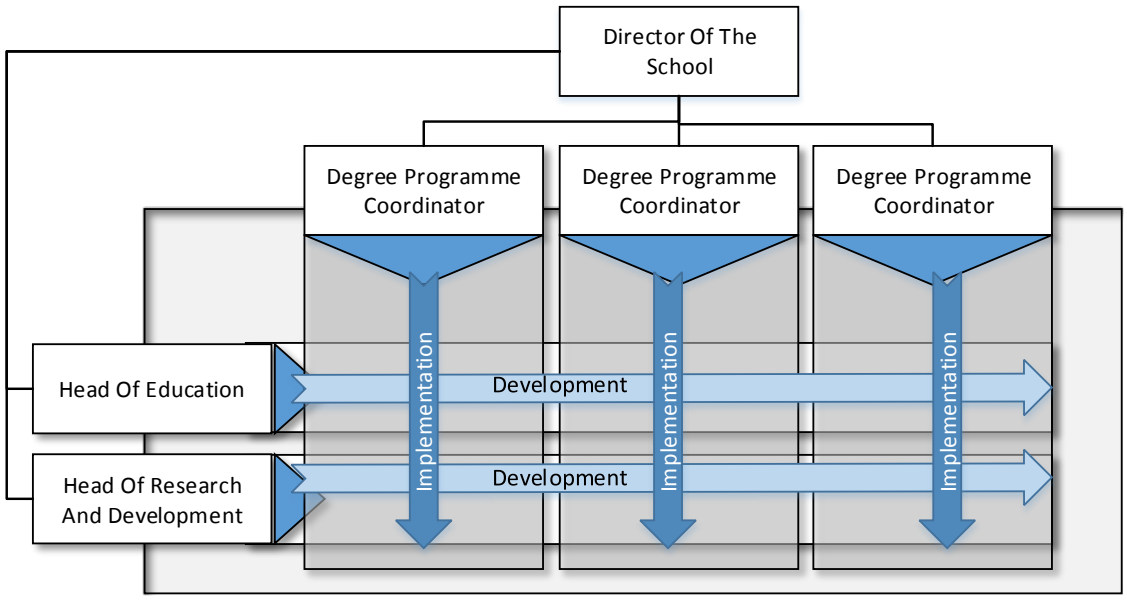

Figure 12 - An example of the administrative system of a School in Lapland UAS

As shown in Figure 12, the implementation of any development activity changes the implementation of education and RDI in three DPs. Consequently, a holistic development changes the implementation in all 16 DPs of Lapland UAS. This

means that implementing change in the education operation throughout the four Schools of Lapland UAS requires commitment and managerial activities from eight DPCs and four HEs.

Knowledge about involved actors and their relevant systems is an important element of collaboration. According to Customer Manager (Vuori 2014), successful collaboration requires that everyone understands the effects of the present issue in their relevant circumstances. Figure 13 below is presented to illustrate IM function's relationships with the development and implementation of the education and RDI operations. Furthermore, the three identified interconnections are labelled as *D1*, *D2* and *D3* to facilitate further analysis.

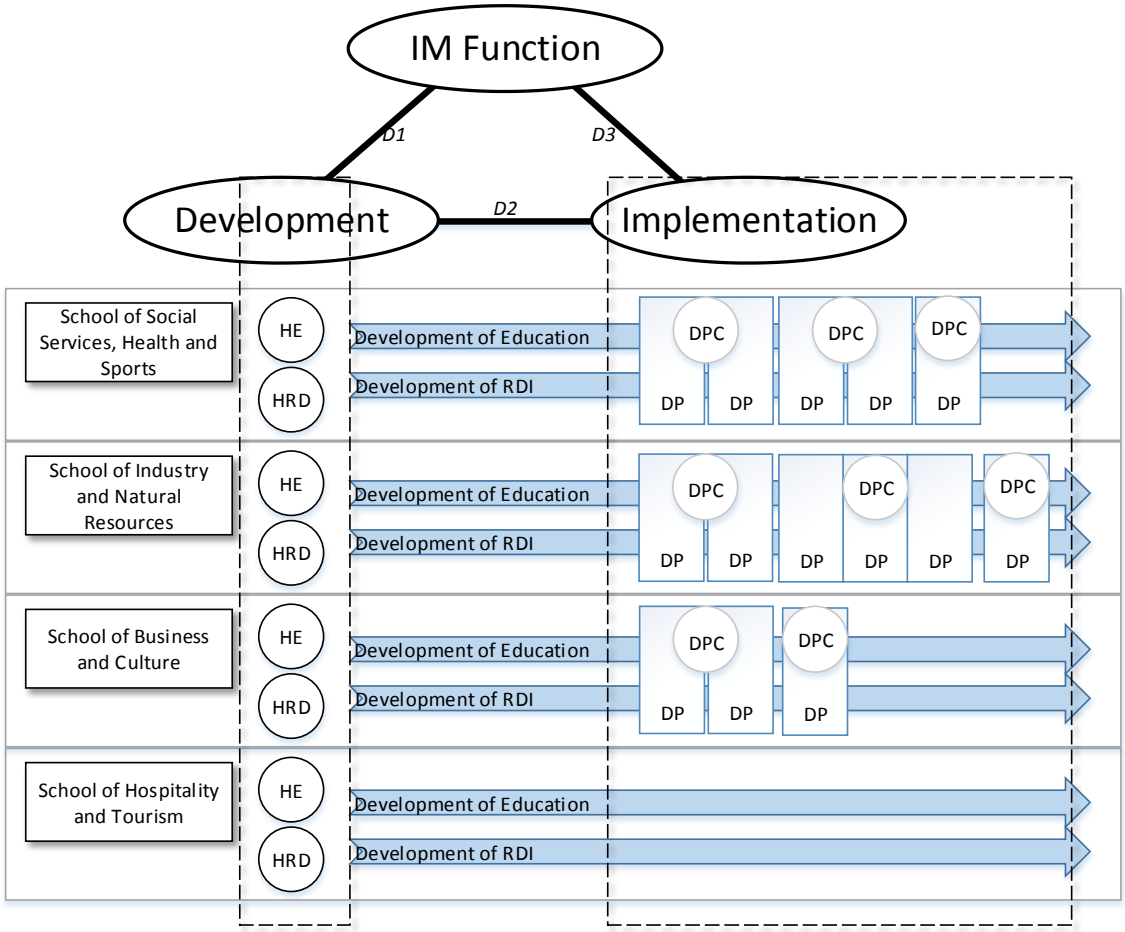

Figure 13 - The development triad and the four schools of Lapland UAS

Actors relevant to the development of education and RDI operations exchange information and service through the interconnections shown in Figure 14. The *D1* connects the IM function with the actors in charge of development of education and RDI operations and thereby, enables the market reconfiguration activities. In other words, the *D1* facilitates the IM function to enhance the future utilization of IT in education and RDI operations and to develop IT resources in accordance with operational needs.

As the HEs and HRDs develop the education and RDI operations, it is safe to suggest that the intended purpose of the IM function is to increase their knowledge about the causalities between IT resources and strategic and operational goals. For example, the IM function began recently serving HEs by enhancing their abilities to understand how IT resources are utilized in education operations. The intended outcome of this service is a system which facilitates knowledge based decision making in the rationalization process for operand IT resources i.e. software. Additionally, this system provides HEs with information about required and available operant resources.

In addition to the ongoing development project, there is a little evidence of systematic and purposeful collaboration between the IM function and actors in charge of the development of education and RDI operations. For example, there are no HEs or HRDs in the IMSG and the IMDG. This indicates that the current ability of the IM function to influence the development of education is weak.

However, there is an education development workgroup which comprises Director of Education, Coordinator of education development, all HEs and three specialists. The documentation of this group can be used to gain understanding about the context and the plans of education development operations. Furthermore, it is safe to suggest that if IM function would acquire a specialist membership in this workgroup this would be beneficial for the workgroup and for the IM function.

In addition, there is also a corresponding workgroup for RDI development. Unfortunately the analysis of organizational documentation conducted for this research revealed a little information about the members of the group. It is plausible that the structure and the operations of this workgroup are very similar to the education development work group. Therefore, it is safe to conduct that the RDI workgroup should be approached in the same vain as the education development workgroup. In Figure 14 below, workgroups discussed and their own interconnections within the *D1* are shown to facilitate further collaboration development activities.

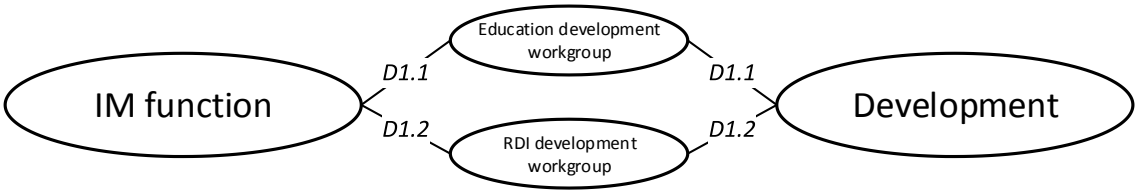

Figure 14 – The development workgroups within the interconnection *D1*

Problems may emerge when education and RDI processes are combined with the content even if they are streamlined and look good on paper. (Keränen 2014) Therefore, the IM function should collaborate with actors who have insights into the content of the education and RDI.to enhance the organizational capability to utilize IT in processes. The majority of the knowledge about the content is embedded in DP's.

The *D3* shown in Figure 13, facilitates the exchange of service and information between IM function and DPCs who are in charge of the implementation of education and RDI. Moreover, the *D3* can be seen as a feedback loop which provides information about the success of the development and the effects of the implemented outcomes. Thereby, the exchange of information through interconnection *D3* affects the future development activities.

The aim of development activities is to increase resource density by changing the combinations of operand and operant IT resources mobilized to support value co-

creation in education and RDI. From the aspect of S-D logic, only the employees and students involved in education and RDI can determine whether the development improved their well-being or not. Thus, the information about the value of the development can be seen as the most important development feedback communicated through interconnection *D3*.

The active role of customers is an essential element of S-D logic orientation as was pointed out in Sections 4.2 and 5.6. The *D3* enables DPCs to provide the IM function with information about the suitability, usability and the need for the development of the present IT resources and service. By this, the service beneficiaries can co-produce IT service by influencing service processes and outcomes in accordance with their operational knowledge.

As was noted in Section 4.6, the appearance of new resources influences continuous resource integrations in a service ecosystem. Similarly, the increase in operant resources may turn potential resources into new value creating resources. Therefore, it is important that IM is capable of collecting and analysing relevant information. The *D3* can be seen as the main source to information concerning new and potential resources because number of relevant actors are involved in the implementation of education and RDI.

There is a lack of systematic communication between customers and IM function and that it is difficult to pull the information out of customer silos. There is also a need for processes and matrices, which would assist in the collection and the analysis of the acquired information. (Vuori 2014.) In line with his views, this analysis found a little evidence of systematic collaborative activities between the IM function and DPC's.

Furthermore, established workgroups similar to education development and RDI workgroups were not found inside DPs. This may indicate that in some cases, there is a little coordinated interaction between DPCs and teachers. This may undermine the DPCs' ability to understand relevant IT needs of a DP.

The analysis of the *D3* indicates a lack of coordinated collaboration activities between relevant actors. This may restrain the collection of feedback of development activities and result in differences between the intended and realized benefits. Thus, undermine the customers trust in the value propositions of the IM function. In addition, it is now clear that the IM function's capability to collect information from its customers should be enhanced to gain more understanding about the utilization of IT service and resources in education and RDI processes. The lack of IT utilization knowledge may reduce the IM function's ability to serve actors in charge of the development of education and RDI. This emphasises the importance of centrally coordinated collaborative activities.

In contrast to *D1* and *D3*, the D2 does not include collaboration with the IM function. However, the IM function should monitor the collaboration between actors who develop and implement education to enhance its development proposals. The information within *D2* can be used to understand how relevant actors operate and communicate to each other. This knowledge can be used to enhance the representational and normalizing practices of the IM function. Moreover, analysis of D2 may provide an insight into the means and standards customers use to assess and determine value of service.

Disagreements and operational delays in the development-implementation collaboration may have negative effects on the implementation of IT related development outcomes. The application of the matrix structure on the organization of Lapland UAS is still in progress and as a result, employees are sometimes confused about responsibilities and decision making structures. (Keränen 2014) This means that are problems in the collaboration between development and implementation functions.

Problems in the implementation of development outcomes may cause complications when the nature of development requires that various environments are changed simultaneously. For example, the implementation of the new version of word processing or spreadsheet software should be conducted at the same time in all DPs to avoid version conflicts which may corrupt data. In the same way,

replacing old practices with new ones should be well coordinated and swift because the diversity in the means used to achieve the same goal causes confusion and undermines the ability to coordinate operations.

In order to mitigate the negative effects the IM function should pay additional attention to its ability to support the implementation of change. This may require assistance in the management of implementation projects, short-time allocation of support resources and one time automation of various implementation activities. Furthermore, the value propositions of the IM function should motivate the actors of the development and implementation functions to collaborate.

Changes in the implementation of education and RDI affect the ways actors integrate resources and co-create value. Therefore, the IM function should recognize how the operations of Lapland UAS evolve. Until now, the focus of this analysis has been on facilitating the IM function's market reconfiguration activities by recognizing the mechanisms and actors relevant to the development and implementation of operations of the profit centres, i.e. the four schools.

These mechanisms and actors have now been identified and there is sufficient knowledge to design a collaboration framework which can be used to enhance the BIA and the IT utilization capabilities of the profit centres. However, the mechanisms and actors relevant to the development of the operations of corporate functions have not yet been analysed to complete the holistic view into the ITS ecosystem. Additionally, the following analyses will reveal interconnections and causalities between the profit centres and corporate functions, and thereby contribute to the understanding about holistic development of IT in Lapland UAS.

7.5 The Corporate functions of Lapland UAS

The common purpose of the corporate functions of Lapland UAS is to support the implementation of education and RDI operations. In other words, to enable the

actors of the profit centres to focus on the activities for which they have specialized their resources. The operations of an individual corporate function are developed by a process organization shown in Figure 15 below.

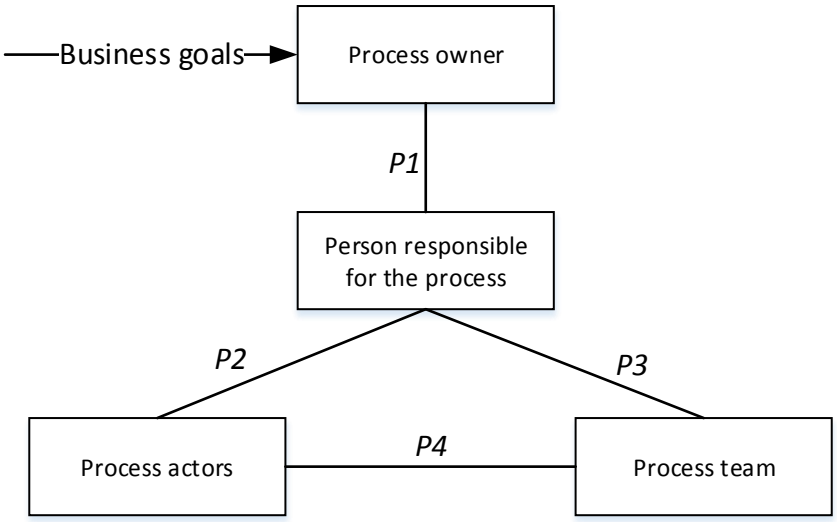

Figure 15 - The process development system at Lapland UAS

The process owner is either the Rector, the VR or one of the nine directors and it is his/her duty to set the objectives for the process development and allocate resources for the development activities. (Lapland UAS 2014i.) For example, the Director of Finance owns the processes of the Finance function and decides how, when and by whom the processes of are developed.

The person responsible for the process is a specialist and a focal actor in the process. S/he is responsible for the process description and acts as contact person between process owner and process actors. The process team consists of process actors across functions and schools and is responsible of ensuring the shared view to real-world practices. The process actors are responsible of evaluating and developing the process through their feedback and development suggestions. (Lapland UAS 2014i.)

Most of the data, information and knowledge relevant to the successful development and implementation of the process flows through interconnections *P1, P2,*

P3 and P4 shown in Figure 17 above. The development of the IT utilization capabilities of an individual process requires that the information flows of the IM function are properly connected with the structures of the process development system. Additionally, it is important that the IM function recognizes how relevant actors interact and when the influence of the development extends outside a specific functional silo.

Establishing information flows between the IM function and process development provides the IM function with additional information about the operations of the customers. There are currently 80 identified business processes in Lapland UAS (Lapland UAS 2014i). Thereby, individual connections to every process may lead into a situation where available resources are not sufficient for the analysis of the acquired information. It is possible to limit the number of connections by identifying the common factors of process development.

The common factors can be identified from the process documentation. For example, the Communications Manager is responsible for most of the communication processes and a Communication team is the process team of the majority of these processes (Lapland UAS 2014i). Thus, the IM function should collaborate with the Communications Manager and the Communication team to influence and to gain information about most of the communication processes.

In addition to their common purpose, corporate functions have individual purposes. The purpose, the context and the restrains of an individual human actor of the ITS ecosystem can be deduced from the purpose of a relevant profit centre or corporate function, a business process and the specific role of the actor. For example, the purpose of the procurement services is to advise and to train the staff of Lapland UAS in issues related to tendering and application of the procurement act (Lapland UAS 2015a). For the actors of the procurement services, this determines the context as the procurements of Lapland UAS, and the shared purpose as to advise and to train other employees. Moreover, it is also possible to deduce that the procurement act is a major source of possible restraints.

Based on this analysis, the IM function does not perform systematic and purposeful analyses to recognize and to document the purposes, contexts and the restraints of the identified corporate functions. Thus, these issues should be discussed during collaboration sessions. However, because of the lack of established documentation practices there is a risk to lose acquired knowledge after the session. Thus, the analysis must be repeated in the next session. This risk is emphasized when actors involved the collaboration are different than in previous sessions. Therefore, the IM function should analyse the corporate functions and document findings in an appropriate way.

The administration, profit centres and corporate functions of Lapland UAS are now analysed. The students of Lapland UAS are analysed next to understand their influence over the ITS ecosystem and to complete the analysis of the customers.

7.6 The Students of Lapland UAS

The students of Lapland UAS enhance their own well-being by integrating their own resources with resources made available by Lapland UAS. At the moment there are over 5,000 students at Lapland UAS, which makes them the largest group of the IT resource integrators of the ITS ecosystem. Thus, they are also a significant source of new IT resources.

New IT resources influence the foundational student-teacher resource integration and related support activities throughout the ITS ecosystem. The number of students makes it difficult to detect what resources are currently being created and to predict what resources will be created in the future. However, S-D logic reveals the reasons why new resources emerge to the ITS ecosystem.

In Section 4.3, it was noted that in S-D logic, actors seek the density of resources. In other words, all students search for the best possible combination of IT resources to achieve their educational goals. Therefore, the IM function should

choose whether to support students in their quest for maximum density or to develop a compensatory offering to reduce the need for new IT resources. This is a strategic decision because it determines how the IT resources of Lapland UAS are developed and utilized in the future.

The present Bring-Your-Own-Device (henceforth BYOD) trend can be used to elaborate on this issue as it is a current topic in Lapland UAS and the other HE institutions of Finland. From the aspect of S-D logic, students' desire to use their own devices to support their learning activities is driven by their need to maximize the use of their present IT resources and to minimize their investments in new IT resources.

For example, during their previous studies, students may have optimized their own laptops for their learning style and thereby, achieved a high density of the IT resources in their learning activities. However, the PC configurations of Lapland UAS are not optimized for any learning style but for stability and maintainability. Thus, the student may find it difficult to utilize the offered PC in her/his learning activities. Therefore, there may be a significant difference in how the student benefits from these two IT resource combinations.

To conclude, in order to enable the students of Lapland UAS to focus on their learning activities, the IM function should support the students in their attempts to achieve maximum resource density. For this, the IM function should monitor the contexts where students use IT service to recognize how they realize and determine the value of service.

Moreover, analyses of the curriculums and course descriptions of Lapland UAS may provide additional information about the IT requirements of the contexts. It should also be kept in mind that IT requirements may vary between day and blended study methods. This analysis of the students of Lapland UAS concludes the analysis of the ITS ecosystem. The collaboration framework is developed next.

8 PROPOSAL FOR A SERVICE DOMINANT COLLABORATION FRAMEWORK

The ITS ecosystem is now thoroughly analysed from the perspective of S-D logic. As a result, the relevant actors, their interconnections and purposes, and the reasons of the present business-IT collaboration problems are recognized. Moreover, the mechanisms for reconfiguring the ITS ecosystem were identified the previous chapter. Thereby, it is now possible to start the development of a collaboration framework, which when implemented, integrates appropriate decision and actions points in the ITS ecosystem.

This chapter begins with an analysis of collaboration and collaborative competences from the aspect of the IM function. This enables the sequential development of the collaboration framework, which facilitates the IM function to develop the future IT service and configuration offerings in accordance with the customers' needs. The prerequisites for the implementation of the collaboration framework are discussed in the end of this chapter.

8.1 Collaboration

Actors of service ecosystems create social practices to facilitate collaboration, co-production and co-creation for mutual gain. These representational, normalizing and integrating practices enable service ecosystems to co-create value and markets, and to coordinate meaning making, actions and behaviour of actors involved in service-for-service exchange. (Lusch & Vargo 2014, 137). In the ITS ecosystem, all involved actors collaborate continuously with other actors from Lapland UAS ecosystems and from external service ecosystems. Vastly collaborative relationships can be seen as one of the core concepts of S-D logic (Wieland et al. 2012, 20), therefore, S-D logics view to collaboration is discussed in this section.

Representational practices determine how actors communicate by transmitting and interpreting symbols and signs cast in relational statements. Standardization

of relational statements through a common language is the foundational solution for various communication problems. Language is a mechanism of co-creation and has no value if it is not used. (Lusch & Vargo 2014, 138.) Languages used in the ITS ecosystem are Finnish, English and Swedish. Finnish is the main communication language, though English is in used when communications involve employees and students who are not able to communicate in Finnish. Most of the common software have multi language user interfaces, but some of the specialized software in use have only English user interfaces.

Additionally, business functions use their own professional terms in their communications. These professional terms may be hard to understand without knowledge of their relational context, and therefore they can be perceived as a very different dialect of the main language or in some cases as a totally different language.

The skills to communicate in more than one language are not distributed evenly among countries (Hofstede 2010, 389), this applies also to organizations, departments, employees and students within the ITS ecosystem. Without the knowledge about the used language, actors may become relatively outsiders (Hofstede 2010, 390). In order to enable collaboration, it is essential that actors are capable of using the same language and terminology.

Normalizing practices are a short and simple way to coordinate how actors collaborate effectively and efficiently. Shared objectives and goals, policies and models used to control the internal behaviour of firms are some of the guidelines and parameters which coordinate actors' interactions. Furthermore, the modular architecture and standardized ways of performing a task and/or making a product are examples of normative practices (Lusch & Vargo 2014, 139). The ITS ecosystem and actors within, are subjects of several normalizing practices set by Lapland UAS, LUC IT and Finnish government. Additionally, normalizing practices are also developed within the ITS ecosystem to be applied within connected service ecosystems. All normalizing practices affect organizational cultures.

Organizational culture is "*the collective programming of the mind that distinguishes the members of one organization from others*" (Hofstede 2010, 344). Normalization of organizational practices changes the means available for the employees to make a distinction between themselves and their surroundings. For example, when an actor is obligated to perform a specific job according to a new standard imposed by another actor, the specific job loses its ability to differentiate the performing actor from other internal and external actors who follow the same standard.

Moreover, the adaptation of new normalized practices may change the requirements for operant and operand resources which may require actors to invest in new resources or enable actors to turn their potential resources into value creating resources. Actors may support, follow or resist normalization based on their perception of the value of new practices. As was pointed out in Section 5.10 value is always uniquely determined by the beneficiary. Therefore, it is always important to carefully communicate with the intended beneficiaries about the benefits of the normalizing practices being applied.

As was noted in Section 5.9, in S-D logic, all economic and social actors are resource integrators and therefore, in the ITS ecosystem, all stakeholders integrate IT resources. In S-D logic, integrative practices address the way actors integrate resources. Many integrative practices are closely intertwined with representational and normalizing practices and therefore hidden from the actor. (Lusch & Vargo 2014, 140–141) For example, a standardized set of activities can be used to define what resources are being integrated and in which order actors integrate them.

Exchange practices are a large part of integrative practices. Exchange practices include for example, merchandising, marketing and price negotiation practices. From the customer or buyer perspective storing, sharing, negotiation and transporting practices are also exchange practices and thereby, integrative practices (Lusch & Vargo 2014, 140–141). Actors involved in service-for-service exchange activities may or may not share the same organizational culture. For example, in

the ITS ecosystem, actors exchange with the internal i.e., departments, employees, students and the external i.e., government, global enterprises, local firms, strategic partners actors and thereby, interact within shared organizational culture and between different organizational cultures.

In the ITS ecosystem, the IT functions exchange in the roles of service customer and provider. This means that the IT functions make and receive value propositions continuously, and therefore negotiate with various entities. Effective intercultural negotiations demand language and communication skills, understanding about differences in cultures, and skills for planning and arranging meetings (Hofstede 2010, 400). In addition to negotiations with external actors, this is also true within the microeconomic level, where it is important that involved departments, employees and/or students share the same understanding about the present exchange situation.

When actors collaborate, they integrate their value creation processes with the aim of co-creation of mutual benefit. However, it is difficult and expensive to identify, retrieve and adapt knowledge about other actor's value creation processes (Gustafsson, Kristensson & Witell 2012, 313). Thereby, several exchange and trade coordination problems have emerged because of the lack of available information and knowledge about partners' value creation processes. Advances in the IT can be used to mitigate these problems and to leverage organization's capabilities to enhance their resource density (Lusch & Vargo 2014, 140–141). As pointed out in Section 2.1, the general aim of this research is to enhance the IT utilization capabilities of Lapland UAS, through the systematic and purposeful collaboration between IT functions and other business units. Therefore, representational, normalizing and integrative practices used in the ITS ecosystem are kept in mind throughout the following sections.

Collaborative advantage is a source for a competitive advantage and enhanced system viability. The five most important competences that build collaborative advantage are collaborative process competency, absorptive competency, resource

integration competency and learning competency. (Lusch & Vargo 2014, 150) These collaborative competences are discussed next.

8.2 Collaborative process competency

Collaborative process competency consists of organization's capabilities to select right actors for collaboration, to form a vital collaborative relationship between them and to successfully manage their collaborative process. To accomplish this, processes for monitoring initiatives and resolving emerging disagreements must be put in place. (Lusch & Vargo 2014, 150) In the ITS ecosystem, most of the initiatives come from the customers and the amount of their development activities will increase in the near future. In addition, technology initiatives may emerge from LUC IT. (Konu 2014; Taipale 2014). This means that the IM function should monitor development activities of the customers and LUC IT to identify initiatives and act on them.

The analysis in Section 7.4 revealed that the planning of the Customer's development activities takes place in the development triad shown in Figure 14. Moreover, the LUC IT develops it operations in the service and coordination groups, which were recognized in section 7.2 and shown in Figure 10. Additionally, it was found out in Section 7.1 that the ICT project portfolio is the tool for monitoring and managing the IM function's involvement with initiatives and related projects. Thereby, it is important that the monitoring activities convey gathered information about initiatives to the process.

Unfortunately, it was found out that there are no defined processes to systematically collect new initiatives to the ICT project portfolio. As a result, it is plausible that initiatives which involve some kind of change in IT resources or in their utilization may progress to the implementation phase without the involvement of the IM function.

Therefore, an initiative monitoring process should definition proposal is included in the collaboration framework. The purpose of this process is to facilitate the

management of all ICT related development initiatives at the ITS ecosystem in accordance with the ICT project portfolio management practices. The aim of this process is to coordinate the systematic monitoring of the ITS ecosystem to ensure that all ICT related projects are included in the ICT project portfolio. The process for monitoring initiatives is further discussed in Section 8.6.1.

The processes and structures for resolving emerging disagreements are next discussed. The decision making processes of the IT functions were recognized and analysed in sections 7.1 and 7.2. In addition, it was found out that there are direct links between the Head of Information Management, the MD, the DA and the Head of IT services. These structures facilitate solving disagreements related to strategic and operative IT service as they are the focal elements responsible for organizational reconfigurations.

Furthermore, analysis in Sections 7.4 and 7.5 identified the corresponding decision making structures of the customer. These structures include for example, SEG, OEG, EEG, and the development groups for education and RDI processes of Lapland UAS. Moreover the process development structure for individual processes at Lapland UAS was identified. To conclude, the decision making structures of the customers can be used for resolving disagreements. However, as it was discussed in Section 7.6, the Customer Manager perceives that the actors of the ITS ecosystem may not have appropriate understanding about the causalities between issues and organizational levels. Thus, there is a need to clarify how issues can be related to organization. Therefore, a process for resolving disagreements and a map of decision making structures at Lapland UAS are proposed in Section 8.6.2.

In addition to processes for monitoring initiatives and resolving disagreements, it is essential for collaboration that the operant resources of collaborating actors are sufficient and that the chosen actors are willing to solve problems and pursue opportunities in collaboratively. (Lusch & Vargo 2014, 150) Moreover, actors must have time to collaborate.

The present research found out that the IM function does not have sufficient knowledge of business processes to determine what operant resources are required in the specific collaboration situation. It is also important that collaborating actors have a clear understanding about the operand resource requirements. With this combined information it is possible to choose appropriate actors for a specific collaboration situation and to develop organizational resources in accordance with the needs of business processes.

Therefore, the definition of a process for analysing business processes to collect information about required resources is therefore included in the collaboration framework. The purpose of this process is to facilitate the management and development of Lapland UAS' IT resources in accordance, with the needs of business processes. The aim of this process is to identify the operant and operand resource requirements of the observed business process. The discussion about this process takes place in Section 8.6.3.

8.3 Absorptive and adaptive competency

In dynamic and complex environments, collaborative process competency is enhanced by absorptive and adaptive competences. In S-D logic, absorptive competence refers to actor's capability to first, understand trends in environment and service ecosystem and then, to combine this knowledge with information and knowledge acquired from other actors in the service ecosystem and finally, turn this knowledge into value creating resources. (Lusch & Vargo 2014, 150–151; Lusch et al. 2007, 9) It was discussed in Section 4.6 how continuous resource integrations in other service ecosystems influence the ITS ecosystem and related ecosystems. Moreover, it was found out that the appearance of new IT resources and business practices cause continual change in IT resource requirements and IT utilization in the ITS ecosystem.

In addition, it was discussed in Chapter 7, how and why these new IT resources and business practices emerge from the number of connected service ecosystems. Therefore, it is important for the wellbeing of the ITS ecosystem that the IM

function is capable of absorbing emerging practices and IT resources and adapting its operations to changes in the surroundings.

In the ITS ecosystem, external and internal trends are analysed during the development of the IM function's Operation Plan. The trend analysis is the basis for assumptions and decisions regarding the IM function's resourcing and development for following three years. This means that in order to succeed in predicting the future IT needs in the ITS ecosystem, it is important that the IM function recognizes relevant trends and understands how they influence future needs of education and RDI operations.

The Operation Plan for the years 2015-2017 includes an analysis of trends in the HE sector, Finnish education policies, collaboration with LUC IT, second level education, and in the field of IT. (Taipale 2015). However, the analysis of trends in education and RDI activities of the Schools of Lapland UAS is not included. This means that the current trend analysis is focused on external trends and fails to recognize internal trends in a way which would enable the transformation of emerging potential resources to value creating resources for Lapland UAS.

In addition, the trend analysis was conducted without direct collaboration with the customers (Taipale 2015). The lack of collaboration in the analysis phase implies that some essential trends may have not been recognized and/or a trend may have been understood the wrong way. This research found little evidence for other systematic and purposeful trend monitoring and analyses practices which would compensate the recognized shortcomings of the present trend analysis. Therefore, there is a need for enhanced trend monitoring and analysis process. This process is proposed in Section 8.6.4.

Adaptive competency reflects actor's ability to adjust to change in surroundings and increase in actor's specialization decreases general adaptability. (Lusch & Vargo 2014, 151). In the ITS ecosystem change is mostly driven by advances in the field of education, RDI and IT. Additionally, the recent change in the funding

model shifted the nature of operations of the HE institutions towards more competitive environment, which in turn, is another driver for change. The IM function's operant resources have been specialized towards IT and therefore, it is not truly capable of recognizing how changes in education and RDI may alter the operations in the ITS ecosystem. Thus, collaboration with other actors is required.

Collaboration with other specialized actors may enhance actors' adaptive competences, lower the relative resource costs and enhance the relative value propositions. (Lusch & Vargo 2014, 151; Lusch et al. 2007, 9). The IM function collaborates with the IT Services function and the LUC IT to enhance its ability to adapt to change in the field of IT. This collaboration enables the IM function to access required operant IT resources otherwise unavailable (Taipale 2014) and thereby, facilitates making the required adjustments of the IM function. The increased level of IT resource utilization may reduce the relative resource costs of a particular provisioning of IT service. However, as was noted in Section 7.2, the IM function's value propositions may suffer from the G-D logic approach used in the LUC IT.

Cross-functional collaboration may reduce the need for highly specialized tasks. Thereby, organizations should enable cross-functional collaboration to enhance their agility and flexibility. (Lusch & Vargo 2014, 151). This means that in order to adapt to change in legal environment and education and RDI operations, the IM function should engage in systematic and purposeful dialogue with appropriate actors identified in 7.3, 7.4, and 7.5. Yet, it should be kept in mind that the amount of available resources in the ITS ecosystem is limited and present actors are afraid of ineffective meetings (Konu 2014; Taipale 2015; Vuori 2014). This means that the dialogue should be well structured and the resource investments of collaborating actors should be minimized.

IT communication can be used to enhance the cross-functional collaboration (Lusch & Vargo 2014, 151). In the ITS ecosystem, IT communication has a strategic role because the campuses of Lapland UAS are located in three different cities in Finnish Lapland. This means that the IT communication is preferred over face-to-face communication, which requires actors to travel between locations. In

order to facilitate effective IT communications the IT communication capabilities of Lapland UAS are being systematically developed. It is possible for the IM function to use these IT communication mechanisms to establish low-cost collaborative relationships with other actors.

It is also possible to analyse organizational documentation to gather information about change in the ITS ecosystem. The IM function can analyse the agendas and minutes of the executive groups of Lapland UAS and the result agreements of the four Schools and RDI services. This information may provide the IM function with information about long-term change and trends. Furthermore, it is possible to gain more specific information by analysing documentation from process development structures. Selected sources for information are presented in Section 8.6.5.

8.4 Resource integration competency

In S-D logic, resource integration competency reflects available skills, knowledge and expertise required for integrating and combining resources in a way that enhances the resource density (Lusch & Vargo 2014, 150). Besides direct service provisioning activities, it is possible to relate this competence to the IM functions capability to optimize feature and functionality configurations introduced in Section 5.3. Moreover, in the ITS ecosystem, it is these configurations, which eventually materialize BIA at Lapland UAS. This means that the processes which aim to optimize configurations are concrete mechanisms for BIA enhancement.

In order to increase the resource density through enhanced resource integrations, actors must be able to recognize how various IT resources can be combined and to understand how particular combinations can be used to create novel service offerings. (Lusch & Vargo 2014, 152). In the ITS ecosystem, the IM function is in charge of creating IT service offerings for the customers and thereby, responsible for determining the optimized resource integration combinations. However, as was noted in Sections 5.7 and 5.10, the IM function is only capable

of making value propositions and the value is always determined by the beneficiary. This indicates that the IM function needs to collaborate with the customers to understand how service offerings are integrated in the value co-creation processes of the customers. Furthermore, collaboration with LUC IT enhances the IM function's capability to innovate and develop its IT resource combinations.

Involving customers and value network partners to the creation of core service offering and to innovation and design phases of service may increase the competitive advantage of any Firm. (Lusch et al. 2007, 11). Thereby, IT service offerings and the more concrete feature and functionality configurations should be co-produced by the IM function, LUC IT and the customers. Moreover, collaboration with external actors may be required in cases which service is provisioned by actors outside the ITS ecosystem.

Collaboration with customers can improve the success of the outcomes of a development project (Gustafsson et al. 2012, 321). In other words, co-produced IT service offerings undergo first optimization phases during their initial innovation and development activities and thereby, needs to make reactive adjustments for final service are reduced. Furthermore, it is important that employees understand the experiences which increase the well-being of customers (Gustafsson et al. 2012, 321). This facilitates the actors of the IM function to innovate new combinations for IT resource integrations through the application of their specialized operant resources.

The IM function has not established any process or practices to innovate or to design IT service and as a result, actors have developed their own and varying practices varying success. (Vuori 2014). Therefore, there is a need to develop a generic co-production process which can be used in the development of IT service and configuration offerings. This process is further discussed in Section 8.6.6.

8.5 Learning competency

In S-D logic, learning competency is the final source of collaborative advantage (Lusch & Vargo 2014, 152). Continuous learning is required because knowledge can only consist of what was previously learnt and since all knowledge is an abstraction of a whole, it is at all times limited. (Bohm 2004, 89). In this context, the need for learning is emphasized by the fact that the IM function is a new element in Lapland UAS and in the ITS ecosystem. This means that from the aspect of the IM function, previously acquired knowledge about IT resources and their use may be partially incoherent in the present environment. Moreover, the business actors of the Lapland UAS need to learn about the role of the IM function in the ITS ecosystem and its practices and service offerings.

In addition, there is a little collaboration between the IM function and the students of Lapland UAS. However, as was found out in Section 7.6, the ITS ecosystem is being influenced by the continuous development of new resources. In order to enhance the IT utilization capabilities of the students, the IM function should engage in dialogue with the students to learn about present changes in their relevant ecosystems. In addition, the IM function should collaborate with secondary educational institutes to learn about their practices and experiences about the students' capabilities to utilize IT.

Learning through frequent contacts is the suggested method for learning from customers (Gustafsson et al. 2012, 322). In the ITS ecosystem, this should be seen as a reciprocal knowledge for knowledge exchange where learning takes place in the IM function and other functions. In this sense, frequent contacts between the actors of the ITS ecosystem enhance the viability of the ITS ecosystem and connected service ecosystems.

When actors learn about each other and how they can interact, it becomes possible for them to use effectual and abductive thinking to design and reconfigure markets (Lusch & Vargo 2014, 196). For example, effectual thinking was used in Chapters 4-7, where a thorough analysis of S-D logic and the ITS ecosystem was

conducted from the aspect of the IM function to provide new information about who the IM function is, what the IM function knows, whom the IM function knows and what the IM function can do to design and reconfigure markets.

Abductive thinking may comprise for example, envisioning of a desired future and then, building a history for that future. At that point, it becomes possible to once again apply effective thinking to S-D logic's axioms and foundational premises and to the environment and thereby, begin shaping the future of a firm. (Lusch & Vargo 2014, 196.) The development of the collaboration framework represents these two final stages of this cycle. In other words, the collaboration framework is developed in this chapter to steer the future of the IM function's operations towards S-D logic.

8.6 The collaboration framework

The collaboration framework developed in this section is a collection of rules, guides, process definitions and interconnection maps which explain the structure and operations of the ITS ecosystem. The main purpose of the collaboration framework is to enable the systematic development of the collaborative competences of the IM function. These competences are essential for the long-term enhancement of the BIA and the organizational IT utilization capabilities in Lapland UAS.

In addition, the collaboration framework can be used to enhance the transparency of IM function's purpose, goals and operations. It is plausible that business-IT collaboration will increase when other business functions are able to understand how the well-being of their relevant systems can be enhanced through collaboration with the IM function.

The structure of the proposed collaboration framework is modular, which means that distinguishable elements can be implemented and further developed apart from the others. However, the interconnections between the components should be noted. The purpose of the modular structure is to assist the implementation of

the framework by facilitating gradual implementation in accordance with accessible operant and operand resources.

Only the initial set of rules, guides, processes and maps is included in this proposal. The components of this proposal were selected based on their perceived ability to enhance the viability of the ITS ecosystem. The processes are defined in accordance with the process definition template of Lapland UAS.

The ownership of the included processes is allocated to the Head of Information Management. Even though, the processes of Lapland UAS are generally owned by directors, it is here important to recognize that these processes are in fact, IT service of which the Head of Information Management is responsible for. This means that s/he is in charge of the development, costs and outcomes of these processes. Therefore, they cannot be owned by any other actor.

It should be kept in mind that the implementation of the collaboration framework does not optimize the BIA or the IT utilization capabilities of Lapland UAS *per se,* but the implementation will facilitate the intended optimization activities. The components of collaboration framework are presented next in accordance with collaborative competences discussed in previous sections.

8.6.1 Process for monitoring initiatives

An initiative monitoring process (Appendix 4) guides the actors of the ITS ecosystem to systematically monitor their relevant information flows to identify new initiatives and projects. Furthermore, when new initiatives or projects are found, actors collect the basic information about the initiative or project and feed this information to ICT project portfolio. This will enable the application of the ICT project portfolio management practices on identified initiatives and projects and thereby, ensure that the development activities are conducted in accordance with the rules of Lapland UAS.

The focal actors of this process are the Head of Information Management, Customer Manager, Service Manager and Enterprise Architect. When their individual perspectives to the essential information flows of the ITS ecosystem are combined, a holistic view is attained to action and decision making points through which initiatives and projects proceed.

It is possible to enhance the efficiency of this process by drawing from the core values of participatory decision-making, which are: full participation, mutual understanding, inclusive solutions and shared responsibility (Kaner 2007, 24). Meaning that relevant dialogues amongst the actors of the IM function, IT Services function and the customers should be encouraged. The analysis of the ITS ecosystem indicates that the IMDG group, and individual service groups and the coordination group of LUC IT are appropriate groups for this.

For the purpose of facilitating a dialogue between interconnected actors, additional section should be included in the agenda of each group. The content of this "development needs and ideas" section should encourage participants to enter into a collaborative dialogue about the present and future initiatives and projects. Thereby, the position of the section and precise wordings of should be created in collaboration between the relevant actors.

It is shown in Figure 16 below how the implementation of proposed process and support components begins to feed the information about initiatives and projects into the ICT project portfolio management process through focal actors' observations and dialogues facilitated in relevant groups.

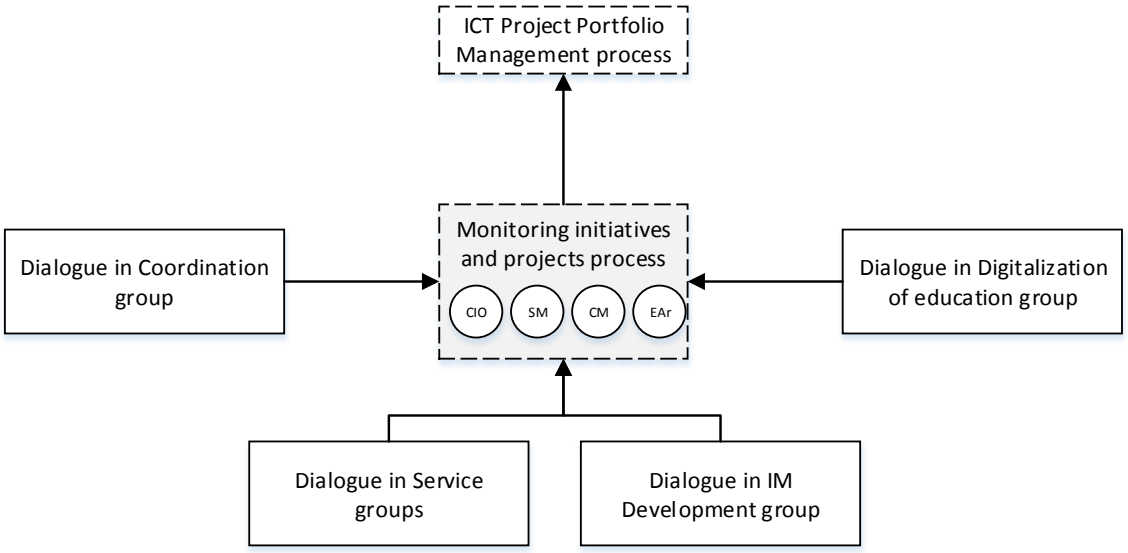

Figure 16 – Feeding information to ICT Project Portfolio management process

8.6.2 Process for resolving disagreements

A process for resolving disagreements (Appendix 5) can be used to guide the actors of the ITS ecosystem to select an appropriate decision making point for any emerging disagreement. This can be achieved by first, identifying the context of a disagreement and then, appointing the solving of the disagreement to an appropriate level of relevant decision making structure. The decision making structures which can be used for resolving disagreements are shown in Figure 17 below.

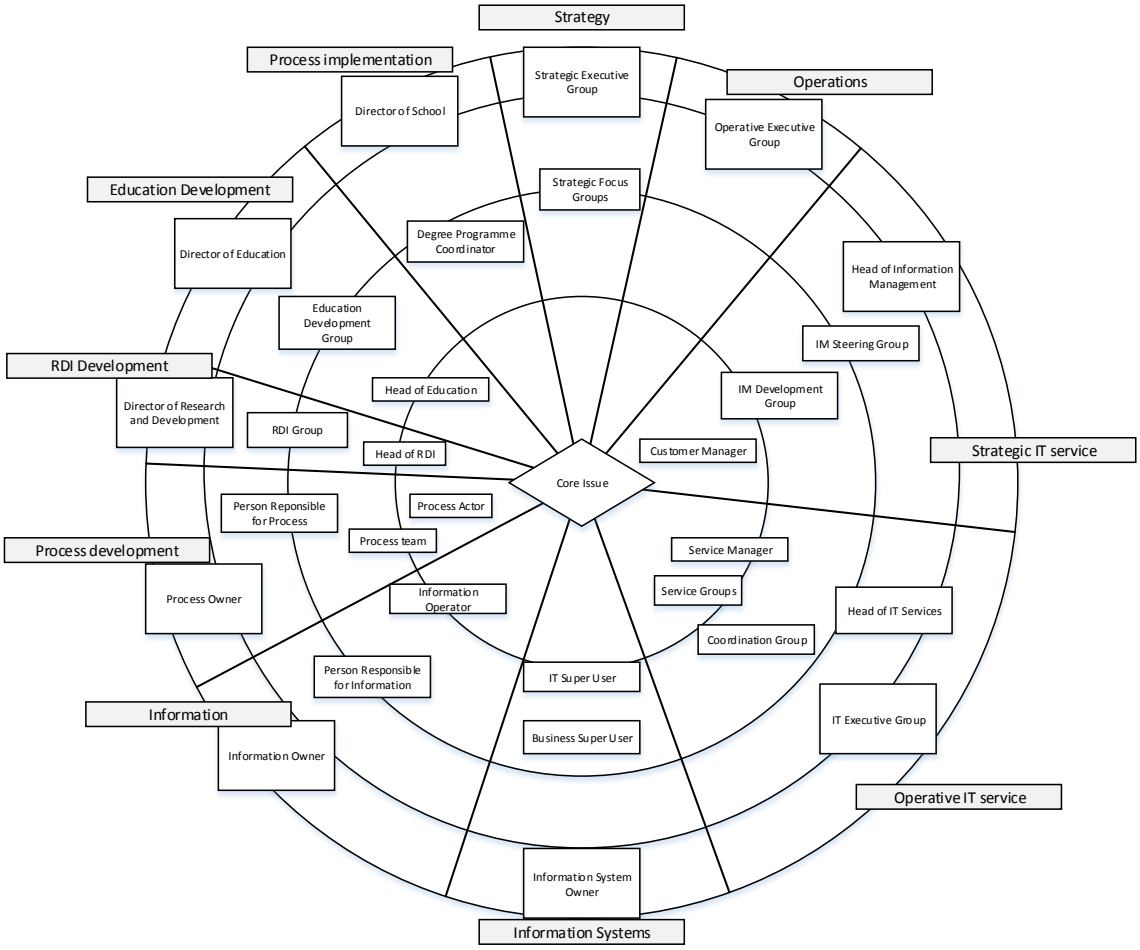

Figure 17 - Decision making structures for resolving disagreements at the ITS ecosystem

The purpose of this process is to enhance the development and the use of the IT resources of Lapland UAS through enhanced use of the present decision making structures. By this, the IM function's role as a collaboration partner is emphasized and the customers' commitment to relevant decisions may be enhanced. Moreover, efficient disagreement resolving capability facilitates the continuous development of education and RDI operations.

8.6.3 Process for analysing business processes

A process for analysing business processes (Appendix 6) facilitates the IM function to recognize what IT resources are required to support and to develop business processes. This process may increase the IM function's knowledge about

the customers' IT needs and enhance the capabilities to innovate and to develop the IT resource integrations at Lapland UAS. Moreover, collected information can be used to develop the IM function's operant resources in accordance with needs of the customers' business processes. The process is illustrated in Figure 18 below.

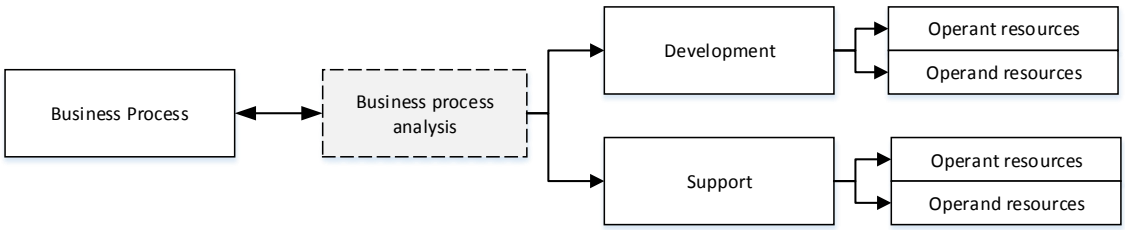

Figure 18 – Analysing business processes for information about required IT resources

The focal actors of this process are the process owner, the person responsible for the process, the process team, and the IT designer who analyses the business process in collaboration with other focal actors. Moreover, it may be required to collaborate with service groups of the LUC IT to identify IT resources which are not recognized by the actors involved in the initial analysis. For example, various network router and firewall configurations are rarely known by the customers even though they can be seen as critical process information.

In addition, this process can be used to detect the actual needs for operant and operand IT resources. From the aspect of BIA enhancement, it is important to recognize precisely what IT resources are used in the business process. For example, information about the amount of required computers and their performance and functionality requirements can be used to optimize the IT assets of Lapland UAS. Moreover, it is also important to understand why IT resources are used because this knowledge can be used to recognize opportunities for synergy benefits. For example, combining individual licenses to licence bundles or campus agreements may create quick savings for IT asset costs. Furthermore, the harmonization of technological solutions for a single goal may reduce the variety

of required operant IT resources and thereby, further reduce the cost of IT resources for Lapland UAS.

In this process, the business process is analysed and the collected information is stored into a database. At present, there is no information system which is used to store this kind of information. Therefore, this need should be forwarded to the project manager of the ongoing project for developing Customer Relationship Management process at Lapland UAS.

8.6.4 Process for monitoring and analysing trends

As was noted in Section 8.3, there is a need to enhance the IM function's absorptive and adaptive capabilities through the systematic and purposeful monitoring and analysis of internal and external trends. Therefore, a process for monitoring and analysing internal and external trends (Appendix 7) is required to facilitate the collaboration between the actors of the ITS ecosystem and to overcome present challenges.

When the IM function and the customers collaborate in this process, the influence of a trend can be analysed from all relevant aspects and thereby, a holistic view to the effects of the trend can be achieved. It is shown in Figure 19 below, how trend analysis collects information from internal and external fields and feeds knowledge to the development of the Operational Plan.

Outcomes of the process for analysing business processes are important for this process. The knowledge of operant and operand IT resources required in the ITS ecosystem and Lapland UAS is the basis for the analysis of trends. For example, when a disruptive trend emerges it is necessary to identify what business processes are influenced to facilitate required adjustments.

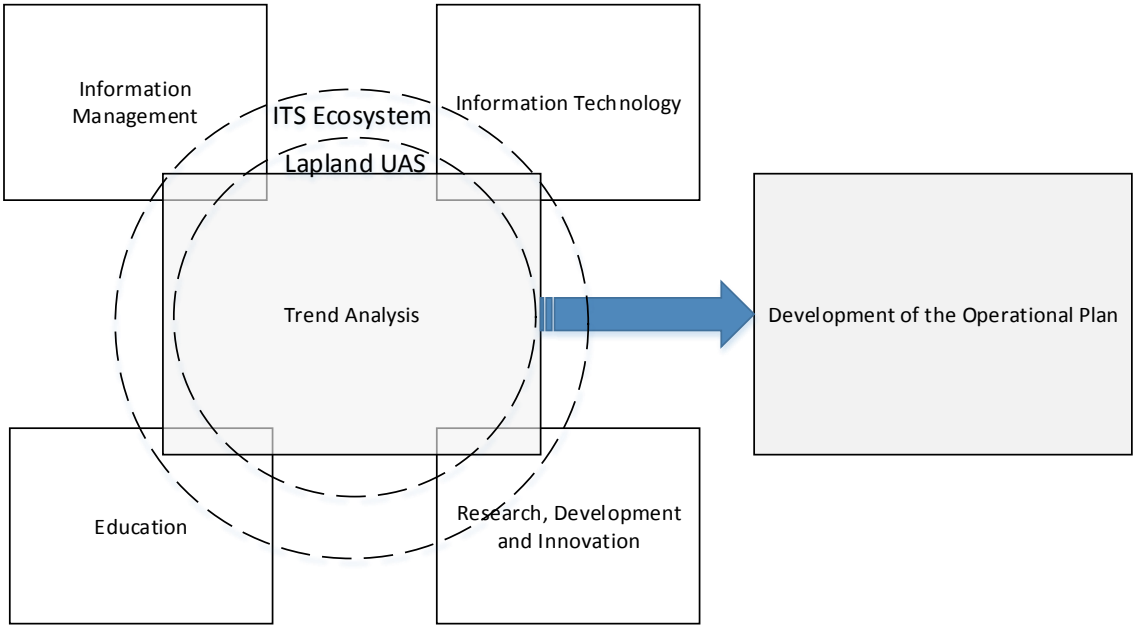

Figure 19 - Trend analysis and the development of Operational Plan

8.6.5 Sources of information

In addition to processes introduced in previous sections, the IM function can increase its knowledge about Lapland UAS by collecting information about Lapland UAS from available organizational documentation. Selected sources of information are listed in the Table 2 below to show how the analysis of documentation can enhance the IM functions value creation capabilities of the ITS ecosystem.

Table 2 – Sources of information

Source	**The IM function gains access to information about …**
National performance indicators	the performance indicators of Lapland UAS.
Lapland UAS strategy documentation	the strategic requirements for IT.
Lapland UAS strategy implementation plans	the goals for the development of IT.
Lapland UAS development and quality documentation	the management of the development and the quality of the operations of Lapland UAS operations.
Lapland UAS result agreements	the business goals of individual customer actors and the performance goals of individual customer units.
Lapland UAS result sighting reports	the performance of individual units during the last 6 months.
Lapland UAS process documentation	how the customers operates and utilize IT in their processes.
Lapland UAS Tulosinfo	the up-to-date status of individual unit's business goals in relation to agreed targets
ICT Project Portfolio	the goals and costs of the development initiatives and projects of Lapland UAS
Curriculums and course descriptions	the contexts of the students of Lapland UAS.

The above sources of information are selected based on their ability to provide information to support effective and abductive thinking in the development of the IT resources of Lapland UAS. Moreover, when combined, information acquired from these sources can be used to identify IT related bottlenecks and development opportunities.

Therefore, it is here possible to define organizational documentation as an essential operand resource for the IM function as they represent various perspectives to the development and implementation of Lapland UAS business processes. As was noted in Section 4.3, it should be kept in mind that operant resources are required to create value from operand resources. This means that in order to transform these potential resources to value creating resources, the IM function must have knowledge and skills to adopt the information from proposed sources. For example, specialized knowledge is required to interpret how the strategic decisions influence corresponding IT decisions.

8.6.6 Process for the co-production of IT service and configurations

As was noted in Section 8.4, IT service and configuration offerings should be co-produced between the IT functions, LUC IT and the customers of the ITS ecosystem. Therefore, a process for the co-production of IT service and configurations (Appendix 8) is proposed here. The purpose of this process is to increase the Customer's role in the development of IT service and configurations by determining what decisions and inputs from the Customer are required.

It was noted in Section 6.9 that in S-D logic, all actors are resources integrators and thereby, all stakeholders of IT service management are resource integrators. In other words, actors integrate their own resources with resources made available for them by other actors (Takeyama, Kahoru & Yoshitaka 2014, 346). Therefore, the focus of this co-production process is set on supporting the actor collaboration in the development of effective and novel resource integrations.

Outcomes define content and the structure of the user oriented service descriptions (Brocke et al. 2009, 5). Thus, the co-production of IT service and configuration offerings should begin with codetermining value propositions i.e., outcomes. As was noted in sections 5.7 and 7.2, value propositions should be done from the aspect of the customers. For example, this configuration enables the education of 3D design on chosen computers. Or, this IT service facilitates the repositioning of chosen education to another classroom.

Then, quality parameters should be defined from the aspect of the Customer (Brocke et al. 2009, 6). In this phase, the value proposition is concretized through more detailed elements. Thereby, appropriate quality parameters may vary between IT service and configurations. For example, in the design of a configuration, it is possible to determine the requirements to performance and functionality for a resource combination. While in IT service, it is possible to determine time limits for setup and provisioning of service. Here, it should be kept in mind that the actors of IM function may learn from the customers during dialogues in this phase and that this knowledge can be used in the development of the future IT resource integrations and service.

After involved actors have agreed on the value proposition and appropriate quality parameters, it is possible to turn the focus of the collaboration on IT resources and their integrations. This begins with the analysis of IT resources. First, it is required to recognize what IT resources are required to provision service or configuration and then, to match them with available IT resources. In this phase, it is possible to identify new needs for IT resources and their combinations from the aspect of the business operations of Lapland UAS. Moreover, this phase provides incremental information about the usability of the present IT resources. Outcomes of the business process analysis proposed in Section 8.6.3, can be used in this phase to support the identification of available resources as they provide a holistic view to the IT resources of Lapland UAS, their ownership and current utilization rates.

Determination of IT resource integrations follows the analysis of IT resources phase. In this phase, appropriate combination of operant and operand resources are developed to facilitate the realization of proposed value for the customers with maximal resource density. The focus of this phase should be set on enhancing the utilization of IT resources in a specific IT service or configuration of Lapland UAS. For example, to have maximum resource density, a new configuration for 3D design education should include only those elements which facilitate the desired outcome. Furthermore, it should be carefully considered how each element of the configuration draws from and contributes to the final bundle of selected IT resources.

In addition, in this phase, it is essential to analyse how new IT configurations or service interacts with other implemented and available IT configurations and services. This means that before the configuration is implemented, it should be clear how the configuration influences the functionality and the performance of the targeted environment. This applies also to new IT service, which enhances the means for actors to co-create value in Lapland UAS and the ITS ecosystem and therefore, changes current practices and resourcing.

In S-D logic, value is always co-created and can only be determined by the beneficiary. Thus, it is essential that it is determined in the process how actors cooperate and exchange information (Brocke et al. 2009, 7). Therefore, the final phase in the co-production of IT service and configurations process is the codetermination of roles and activities for involved actors. By this, the mutual understanding of how each actor contributes to a specific value co-creation process is generated. For example, it is possible here to agree what information is required and who are responsible for acquiring and providing this information. In other words, it could be agreed that the IM function is responsible for providing up-to-date information about changes in IT resources relevant to a specific IT configuration or service. Similarly, the customers are responsible for providing information about the changes in the ways IT configurations or service is utilized in value co-creation activities.

In conclusion, this process is the mechanism which facilitates the enhancement of BIA at Lapland UAS. This means that this process should be seen as the most influential mechanism for market design and reconfiguration activities of the IM function. Thereby, it is important that this process is effectively supported with information and knowledge acquired through other elements of the collaboration framework. It is also possible to suggest that the continuous learning from the customers and other actors of relevant service ecosystems will enhance the effectiveness of this process in the long-run.

8.7 Prerequisites for the implementation of the collaboration framework

As was noted in Section 8.6 the proposed collaboration framework has a modular structure and thereby, all elements can be implemented separately. The structure of the developed collaboration framework is depicted in Figure 20 to illustrate how the individual processes contribute to the collaborative advantage at Lapland UAS.

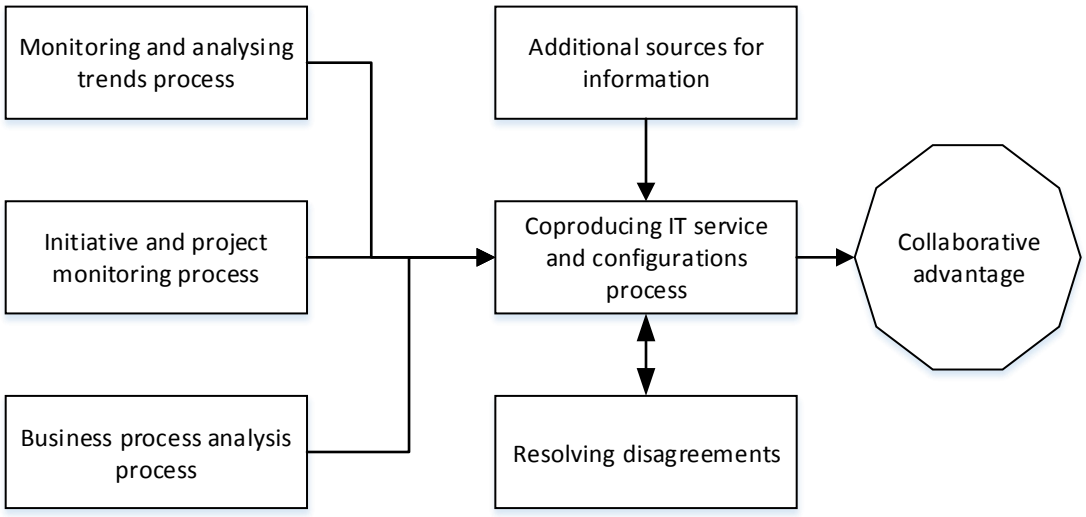

Figure 20 - The structure of the collaboration framework

The present IT management system at Lapland UAS was not designed for coordinating activities of the collaboration framework developed in previous sections. Therefore, the present system should be adjusted to facilitate the implementation

of the framework. Here, necessary adjustments for the present system are identified and solutions are proposed with the previously noted scarcity of resources in mind.

The implementation of the process for monitoring initiatives requires that the IM function appoints actors to monitor the selected fields of the operations of the ITS ecosystem. In order to minimize the resource cost of these new activities is important here to utilize the present interconnections and group memberships shown in Figure 11. In addition, as was noted in Section 7.4 the IM function should seek a membership in the education development and RDI groups to facilitate the monitoring their operations. This method can also be applied when the responsibilities are assigned for the process for monitoring and analysing of the trends.

Analyses of the business processes should be conducted by actors who have appropriate operant resources i.e., knowledge and skills about the particular field of business. It is possible to recognize operant resources through present information system management responsibilities. Furthermore, the actors responsible for the process analyses should collaborate to identify needs in the process integration activities. The intranet of Lapland UAS can be used to store collected information until a more suitable solution is developed.

As was noted in Section 8.6.3, also the analysis of information available from presented sources requires suitable knowledge and skills. In addition, the gap between business and IT should be kept in mind because of the differences in the used language. Thereby, it is important to consider which actors are able to analyse and to translate acquired information in a way that increases the shared knowledge of the IM function. It is plausible that in the beginning, this requires collaboration and additional coordination from the Head of Information Management.

The process for the co-production of IT service and configurations should not require the additional investments of the resources of the IM function as it is not

a new activity but a new and coordinated way for conducting present activities. This means that when other elements of the collaboration process are implemented and generate required information for this process, the total costs of developing new and/or enhanced IT service and configuration offerings are reduced.

However, there may be a need for an additional mechanism which facilitates the coordination of the development of IT service and configuration offerings. The coordination of the development activities is required to identify similarities in the needs and thereby, to reduce duplicate future solutions. This mechanism could be a new group which comprises the relevant actors of the IM function. A new group is preferred over existing groups as the dialogue required by the identification of similarities and the crafting of appropriate solutions is time consuming, and could reduce the efficiency of present groups.

Lastly, it should be pointed out that even though these new responsibilities and corresponding activities require resource investments from the IM function, they are all aimed to increase resource density and thereby, reduce the future need for resources. Moreover, the collaboration framework facilitates the systematic design and reconfiguration of markets at the ITS ecosystem which in turn, can be used to support BIA enhancement activities at Lapland UAS.

9 CONCLUSIONS

The general aim of this research was to find out how S-D logic can be applied to enhance the BIA and organizational IT utilization capabilities in Lapland UAS. Thus, it was necessary to determine the appropriateness of S-D logic to IT service management at the case organization. For this purpose, selected S-D logic literature was analysed and it was found out that the foundational premises of S-D logic epitomize the exchange in economic and social systems. These ten foundational premises were critically analysed and adapted to IT service management to facilitate the application of S-D logic perspective for the analysis of the ITS ecosystem. Furthermore, it was necessary to analyse the present actors, IT resources and business process to achieve holistic understanding about reasons for the present problems. Finally, the S-D logic approach was used to develop a collaboration framework to overcome identified problems.

This research suggests that S-D logic approach can be applied to IT service management at Lapland UAS. Thereby, new S-D logic solutions can be suggested for implementation to overcome the present problems of BIA and organizational IT utilization capabilities. This is important for Lapland UAS who is a new organization and whose business processes are currently being built. Here, it is important to point out that during this research, it became obvious that the management and employees of Lapland UAS acknowledge the need to develop the collaboration between IT and business functions. It was also pointed out by the interviewees that due to the scarcity of resources the focus of development activities has been on facilitating the basic operations of Lapland UAS.

One of the significant findings to emerge from this research is that the perspective of S-D logic exposes why and how the present actors integrate the available IT resources. This information can be used to explain how value is drawn from a particular resource. With this new knowledge of value co-creation, actors and resources, it is possible for the management of Lapland UAS to enhance present operations and to enhance the resource density in the long run.

In addition, during this research it was found out that the use of the service ecosystem approach of S-D logic facilitates the identification of the structures of the main service ecosystems within the context. Moreover, various connections with external service ecosystems were also discovered and it was found how and why they influence on BIA at Lapland UAS. These findings indicate that continuous resource integrations in other ecosystems will sooner or later influence resource integrations in the ITS ecosystem. Therefore, it is important that actors involved in the decision making processes have up-to-date and reliable information about changes in connected service ecosystems to support their decision making.

From the aspect of the systematic and purposeful collaboration within the ITS ecosystem, the major finding of this research was the identification of actor-to-actor interconnections through which actors exchange information, resources and service. When this knowledge was combined with the findings about individual actors, accessible resources and service ecosystems, the mechanisms capable of leveraging the BIA and the organizational IT utilization capabilities emerged. These mechanisms enabled the development of the collaboration framework in Chapter 8.

In addition, the prerequisites of the developed collaboration framework were identified in Section 8.7 and corresponding development proposals to the present IT service management system were made. It was found out during this analysis that the implementation of the framework does not require significant investments on resources of Lapland UAS.

The findings from this research suggest that optimized IT service offering can only be created in collaboration with IT functions and their customers. Therefore, it seems that it is more important to set the focus of future service development on activities which enhance the collaboration in the design of new service instead of the activities which enhance the performance of the present service provisioning. The decision of shifting the focus is a very important one as the present resources available for service development are scarce.

In addition, it was found out that customers have a commanding role in the determination of value for service. This indicates that the IM function's goal to advance from an organizational cost item to a value creating collaborator can only be achieved through continuous customer-oriented value determination dialogues. During these dialogues it is important to achieve mutual understanding of how IT service increases the well-being of the customers.

This research is the first time that S-D logic has been used to explore IT service management at Lapland UAS. Therefore, these findings extend Lapland UAS's knowledge of its IT service and the use of IT resources. Moreover, the use of S-D logic enhances Lapland UAS's knowledge of how value co-creation takes place in the ITS ecosystem.

The empirical findings of this research provide new understanding about the IM function's role in the development of BIA and organizational IT utilization capabilities at Lapland UAS. This facilitates the IM function to focus on resourcing activities which design and reconfigure the operations of the ITS ecosystem effectively. Furthermore, the IM function's capabilities to use and to develop the IT resources of Lapland UAS were enhanced by developing new means to recognize how business processes, actors and IT resources are interconnected.

It is possible to generalize the findings of this research to various IT service management environments. This means that evidence acquired through this research is sufficient to confirm the usability of the developed Foundational Premises of IT Service Management in dissimilar settings. For example, it was found out that the same rules apply in the collaboration between the IM function and the Profit Centres and Corporate Functions of Lapland UAS, and in the collaboration between the IM function and LUC IT.

Several collaboration enhancement proposals made in this research were implemented into practice during the time of the research. For example, the new agenda for the IMDG was implemented and found successful by the Head of

Information Management. Moreover, the information sources identified in this research were used in the development of IM functions operational plan for 2015 – 2017.

In addition, it was suggested in this research that the IM function should seek memberships in the groups which develop the education and RDI operations. The present author is now a member of the Education Development group and the Head of Information Management joined the RDI group. Moreover, the IM function is currently establishing a new group for the coordination of service co-production and the collaboration with LUC IT.

This research may serve as a basis for the future service management studies of Lapland UAS and thus, further enhance organizational knowledge. Moreover, the methods used in the analysis of the ITS ecosystem at Lapland UAS can be applied to other Finnish HE institutions. It is also possible to alter the methods of the analyses used in this research to include the profit margins and other elements required to evaluate the profitability of service and thereby, use this research as background for studies on IT service management firms.

The present research was limited by the extent of Master's Thesis. Therefore, the scope of this study was narrowed down to include mainly the collaboration between the IM function and the customers. However, the essential elements of the collaboration between the IM function and the IT Services, and the IT Services function and the customers were analysed to increase the validity of the findings. This limitation means that the current research was not designed to optimize the BIA and organizational IT utilization capabilities or to create an optimized IT service offering but to construct the structures for mechanisms which facilitate the optimization in the long-run.

There is a call for a study on how value and accuracy of the information transmitted through the interconnections could be enhanced. It would also be beneficial to assess, how continuous collaboration influences the customers' willingness to utilize available information in the development of business processes in Lapland

UAS. Additionally, further research is needed to identify the standards which customers are likely to utilize when they determine the value of a specific service.

Moreover, further research could assess the differences in the value-in-context of a specific IT service offering. For example, it would be intriguing to answer the question of how the perceived value of IT service differs between the actors of the Profit Centres of Lapland UAS. Another potential area of future research could be to investigate the long-term effects of S-D logic adaption by a particular department within the case organization. It would be interesting to understand how other departments recognize, absorb and adapt to the change in the dominant logic of one department.

REFERENCES

Akaka, M. A. & Vargo, S. L. 2013. Technology as an operant resource in service (eco)systems. Information Systems and E-Business Management.

Akaka, M. A., Vargo, S. L. & Lusch, R. F. 2013. The Complexity of Context: A Service Ecosystems Approach for International Marketing. Journal of International Marketing, 21(4), 1–20.

Bohm, D. 2004. On dialogue (Routlege classics ed.). London ; New York: Routledge.

Brocke, H., Hau, T., Vogedes, A., Schindlholzer, B., Uebernickel, F. & Brenner, W. 2009. Design Rules for User-Oriented IT Service Descriptions. 1–10. IEEE.

Butler, J. G. 1997. Information Technology History - Outline. Referenced 14.2. 2015.
http://www.tcf.ua.edu/AZ/ITHistoryOutline.htm

Day, G. S., Deighton, J., Narayandas, D., Gummesson, E., Hunt, S. D., Prahalad, C. K., Rust, R. T., Shugan, S. M. 2004. Invited Commentaries on "Evolving to a New Dominant Logic for Marketing." Journal of Marketing, 68(1), 18–27.

Easterby-Smith, M., Thorpe, R. & Jackson, P. 2008. Management research (3rd ed). Los Angeles ; London: SAGE.

Eisenhardt, K. M. & Graebner, M. E. (2007). THEORY BUILDING FROM CASES: OPPORTUNITIES AND CHALLENGES. Academy of Management Journal, 50(1), 25–32.

Galbraith, J. R. 2009. Designing matrix organizations that actually work: how IBM, Procter & Gamble, and others design for success (1st ed). San Francisco, CA: Jossey-Bass.

Grönroos, C. & Ravald, A. 2011. Service as business logic: implications for value creation and marketing. Journal of Service Management, 22(1), 5–22.

Gummesson, E., Lusch, R. F. & Vargo, S. L. 2010. Transitioning from service management to service-dominant logic: Observations and recommendations. International Journal of Quality and Service Sciences, 2(1), 8–22.

Gustafsson, A., Kristensson, P. & Witell, L. 2012. Customer co-creation in service innovation: a matter of communication? Journal of Service Management, 23(3), 311–327.

Heinonen, K., Strandvik, T., Mickelsson, K.-J., Edvardsson, B., Sundström, E. & Andersson, P. 2010. A customer-dominant logic of service. Journal of Service Management, 21(4), 531–548.

Hofstede, G. H. 2010. Cultures and organizations: software of the mind: intercultural cooperation and its importance for survival (3rd ed). New York: McGraw-Hill.

ICT Standard Forum 2012a. ICT Standard for Management (3rd ed.). ICT Standard Forum. Referenced 8.2.2015 https://www.ictstandard.org/files/ict2/digipaper_ict/index.html

ICT Standard Forum 2012b. Management Streams and Functions. Referenced 8.2.2015 https://www.ictstandard.org/streams

IT Governance Institute. 2003. Board briefing on IT governance. Rolling Meadows, Ill.: IT Governance Institute. Referenced 4.2.2014 http://www.isaca.org/Knowledge-Center/Research/ResearchDeliverables/Pages/Board-Briefing-on-IT-Governance-2nd-Edition.aspx

Kaner, S. 2007. Facilitator's guide to participatory decision-making (2nd ed). San Francisco: John Wiley & Sons/Jossey-Bass.

Karpen, I. O., Bove, L. L. & Lukas, B. A. 2012. Linking Service-Dominant Logic and Strategic Business Practice: A Conceptual Model of a Service-Dominant Orientation. Journal of Service Research, 15(1), 21–38.

Keränen, H. 2014 Lapland University of Applied Sciences. Quality Manager interview 28.5.2014.

Kim, H., Lee, J.-N. & Han, J. 2010. The role of IT in business ecosystems. Communications of the ACM, 53(5), 151.

Konu, A. 2014 Lapland University of Applied Sciences. Director of Administration interview 28.8.2014

Kuhn, T. S., Dewey, J. & Neurath, O. 1971. International encyclopedia of unified science Vol. 2 No. 2 Vol. 2 No. 2. Chicago, Ill: Chicago Univ. Press.

Lapland UAS. 2014a. Johtoryhmät. Referenced 18.8.2014 https://intra.lapinamk.fi/fi/lapin-amk/johtoryhmat

Lapland UAS. 2014b. Key figures - Lapland UAS. Referenced 15.11.2014 http://www.lapinamk.fi/en/Who-we-are/Key-figures

Lapland UAS. 2014c. Laatujärjestelmä. Referenced 12.10.2014 https://intra.lapinamk.fi/fi/lapin-amk/laatujarjestelma

Lapland UAS. 2014d. Talouspalvelut. Referenced 22.10.2014 https://intra.lapinamk.fi/fi/yhteiset-palvelut/talouspalvelut

Lapland UAS. 2014e. Who we are - Lapland UAS. Referenced 8.8.2014 http://www.lapinamk.fi/en/Who-we-are

Lapland UAS 2014f. Lapin ammattikorkeakoulun toimintasääntö. Referenced 10.11.2014 https://intra.lapinamk.fi/fi/lapin-amk/LapinAMK tiedostot/Lapin ammattikorkea-koulu toimintasääntö.pdf

Lapland UAS 2014g. Avattavat tehtävät 7.2.2014.

Lapland UAS 2014h. Tietohallinnon ohjausryhmän asettamiskirje. Referenced 8.11.2014 https://intra.lapinamk.fi/fi/lapin-amk/tyoryhmat/tietohallinnon-ohjausrymhmä/_layouts/15/WopiFrame.aspx?sourcedoc=/fi/lapin-amk/tyory-hmat/tietohallinnon-ohjausrymhm%C3%A4/Jaetut%20asiakirjat/Tietohallin-non%20ohjausryhm%C3%A4n%20asettamiskirje.pdf

Lapland UAS. 2014i. Prosessien kuvausohje. Referenced 1.6.2014 https://intra.lapinamk.fi/fi/lapin-amk/toiminnanohjaus/Sivut/Toimintapro-ses-sit.aspx

Lapland UAS. 2014j. Process definition: IT-Palvelut. Referenced 27.11.2014 https://intra.lapinamk.fi/fi/lapin-amk/laatujarjestelma/Prosessit/IT-palve-lut%20määrittely.docx

Lapland UAS. 2015a. Hankintapalvelut. Referenced 2.1.2015 https://intra.lapinamk.fi/fi/yhteiset-palvelut/hankintapalvelut/

Lapland UAS. 2015b. Tietohallintopalvelut, etusivu. Referenced 2.1.2015 https://intra.lapinamk.fi/fi/yhteiset-palvelut/tietohallintopalve-lut/Sivut/Etusivu.aspx

Lapland UAS & Lapland University Consortium. 2015. Service agreement of the Service Centre.

Löbler, H. 2013. Service-dominant networks: An evolution from the service-dominant logic perspective. Journal of Service Management, 24(4), 420–434.

Lovelock, C. & Gummesson, E. 2004. Whither Services Marketing?: In Search of a New Paradigm and Fresh Perspectives. Journal of Service Research, 7(1), 20–41.

Luftman, J. 2000. Assessing Business-IT alignment maturity. Communications of the Association for Information Systems, Vol 4 Article 14. Referenced 6.10.2014 http://aisel.aisnet.org/cais/vol4/iss1/14

Lusch, R. F. 2006. Service-dominant logic: reactions, reflections and refinements. Marketing Theory, 6(3), 281–288.

Lusch, R. F. & Vargo, S. L. 2014. Service-dominant logic. Premises, Perspectives, Possibilities. Cambridge: Cambridge University Press.

Lusch, R. F. Vargo, S. L. & O'Brien, M. 2007. Competing through service: Insights from service-dominant logic. Journal of Retailing, 83(1), 5–18.

Madhavaram, S. & Hunt, S. D. 2008. The service-dominant logic and a hierarchy of operant resources: developing masterful operant resources and implications for marketing strategy. Journal of the Academy of Marketing Science, 36(1), 67–82.

Maglio, P. P., Vargo, S. L., Caswell, N & Spohrer, J. 2009. The service system is the basic abstraction of service science. Information Systems and E-Business Management, 7(4), 395–406.

Mars, M. M., Bronstein, J. L. & Lusch, R. F. 2012. The value of a metaphor. Organizational Dynamics, 41(4), 271–280.

Meadows, D. H. & Wright, D. 2009. Thinking in systems: a primer. London: Earthscan.

Miles, C. 2014. Rhetoric and the foundation of the Service-Dominant Logic. Journal of Organizational Change Management, 27(5), 744–755.

Ministry of Education and Culture. 2011. Koulutuksen ja tutkimuksen kehittämissuunnitelma 2011-2016. Referenced 15.8.2014 http://www.minedu.fi/export/sites/default/OPM/Koulutus/koulutuspolitiikka/asiakirjat/Kesu_2011_2016_fi.pdf

Ministry of Education and Culture. 2013. Ammattikorkeakoulujen rahoitusta muutetaan tuloksiin perustuvaksi. Referenced 15.8.2014 http://www.minedu.fi/OPM/Tiedotteet/2013/11/amk_rahoitus.html?lang=fi&extra_locale=fi

Ministry of Education and Culture. 2014. OKM - Administration and finance. Referenced 6.8.2014 http://www.minedu.fi/OPM/Koulutus/ammattikorkeakoulutus/hallinto_ohjaus_ja_rahoitus/?lang=en

Mitchell, M. 2009. Complexity: a guided tour. Oxford [England] ; New York: Oxford University Press.

Naarmala, J., Kuosmanen, M., Pesonen, O. & Välimäki, K. 2014. Kokonaisarkkitehdin työnkuva.

Niemeläinen, J. 2013, November 21. Hallitus hyväksyi tuloksellisuutta painottavan amk-rahoitusmallin. Taloussanomat 21.11.2013. Referenced 6.8.2014 http://www.taloussanomat.fi/tyo-ja-koulutus/2013/11/21/ammattikorkeakouluilta-vaaditaan-nyt-tuloksia/201316240/139

Normann, R. 2001. Reframing business: when the map changes the landscape. Chichester ; New York: Wiley.

Pang, M.-S., Lee, G. & DeLone, W. H. 2014. IT resources, organizational capabilities, and value creation in public-sector organizations: a public-value management perspective. Journal of Information Technology, 29(3), 187–205.

Pekkarinen, E. 2014. Lapland University of Applied Sciences. Director of Research and Development interview 26.6.2014.

Prahalad, C. K. 1993. The role of core competencies in the corporation. Research Technology Management, 36(6), 40–47.

Ross, J. W. 2006. Enterprise architecture as strategy: creating a foundation for business execution. Boston, Mass: Harvard Business School Press.

Salminen, H. 2013. Ammattikorkeakoulut suuressa muutoksessa. Kuntalehti. Referenced 13.12.2014 http://www.kuntalehti.fi/Ajankohtaista/Kuntauutiset/2013/Sivut/Ammattikorkeakoulut-suuressa-muutoksessa.aspx

Schulz, M. & Gnoth, J. 2008. Understanding the service-dominant (S-D) logic from within the firm. Presented at the Otago Forum 2, University of Otago, Dunedin, New Zealand. Referenced 8.8.2014 http://www.business.otago.ac.nz/marketing/events/OtagoForum/Final%20forum%20papers/Otago%20Forum%20Paper%209_Schulz.pdf

Siggelkow, N. 2007. Persuasion with case studies. Academy of Management Journal, 50(1), 20–24.

Spoher, J., Anderson, L., Pass, N. & Ager, T. 2008. Service science and service-dominant logic. Presented at the Otago Forum 2, University of Otago, Dunedin, New Zealand. Referenced 8.8.2014 http://www.business.otago.ac.nz/marketing/events/OtagoForum/Final%20forum%20papers/Otago%20Forum%20Paper%202_Spohrer.pdf

Taipale, M. 2014 Lapland University of Applied Sciences. Head of Information Management interview 28.8.2014

Taipale, M. 2015 Tietohallinnon toimintasuunnitelma 2015-2017.

Takeyama, M., Kahoru, T. & Yoshitaka, S. 2014. Resource Oriented Service Ideation: Integrating SD Logic with Service Design Techniques. In Proceedings of the fourth Service Design and Service Innovation Conference (pp.

344–353). Lancaster University, United Kingdom: Linköping University Electronic Press; Linköpings universitet.

Tavallei, M. & Mansor, T. A. 2010. A General Perspective on Role of Theory in Qualitative Research. Journal of International Social Research, 3(11), 570–577.

Tronvoll, B., Brown, S. W., Gremler, D. D. & Edvardsson, B. 2011. Paradigms in service research. Journal of Service Management, 22(5), 560–585.

Tronvoll, B., Edvardsson, B. & Vargo, S. L. 2011. Alternative Ontological Foundations for Service System Conceptualization. In Proceedings of the 2011 Forum on Service, 2011. Capri, Italy. Referenced 26.11.2014 http://www.naplesforumonservice.it/uploads/files/Tronvoll,%20Edvardsson,%20Vargo%20Alternative%20Ontological%20Foundations%20for%20Service%20System%20Conceptualization.pdf

Vargo, S. L. 2008. Customer Integration and Value Creation: Paradigmatic Traps and Perspectives. Journal of Service Research, 11(2), 211–215.

Vargo, S. L. 2009. Toward a transcending conceptualization of relationship: a service-dominant logic perspective. Journal of Business & Industrial Marketing, 24(5/6), 373–379.

Vargo, S. L. & Lusch, R. F. 2004. Evolving to a New Dominant Logic for Marketing. Journal of Marketing, 68(1), 1–17.

Vargo, S. L. & Lusch, R. F. 2007a. Service-dominant logic: continuing the evolution. Journal of the Academy of Marketing Science, 36(1), 1–10.

Vargo, S. L. & Lusch, R. F. 2007b. Why “service”? Journal of the Academy of Marketing Science, 36(1), 25–38.

Vargo, S. L. & Lusch, R. F. 2011. It’s all B2B…and beyond: Toward a systems perspective of the market. Industrial Marketing Management, 40(2), 181–187.

Vuori, T. 2014. Lapland University of Applied Sciences. IT Designer/Customer Manager interview 26.4.2014.

Wieland, H., Polese, F., Vargo, S. L. & Lusch, R. F. 2012. Toward a Service (Eco)Systems Perspective on Value Creation: International Journal of Service Science, Management, Engineering, and Technology, 3(3), 12–25.

Yin, R. K. 2009. Case study research: design and methods (4th ed). Los Angeles: Sage Publications.

Yin, R. K. 2011. Qualitative research from start to finish. New York: Guilford Press.

APPENDICES

APPENDIX 1 Appendix 1

1(9)

Inter-viewer	Tuomo Lindholm (TL)
Inter-viewee	Markku Taipale (MT), The Head of Information Management at Lapland UAS
Date	22 September, 2014
TL	Alright, should we being?
MT	Let's begin.
TL	The operations of the information management are based on this international information management framework. This information management method is developed to be business oriented and it is founded on systematic and purposeful collaboration between actors. Lapland University of Applied Sciences is a rather young organization and the development of its operations is still in progress. Does this incompleteness affect to the communication which is an essential element of the collaboration? For example, regarding the common language and processes? If it does, how is it visible in the daily routines?
MT	The Lapland UAS information management model was founded in the last spring (spring of 2014). At the same time we built this current decision making organisation meaning the information management steering group etc. And the incompleteness can be seen in that it has not been fully implemented. But we're proceeding at good pace. Now, actually it should have been done in the initial phase, the Director of Education joins the information management steering group for the first time. Which is a very important issue and in the future, he/she is a permanent member of it. Similarly, the dialogue with the Managing Director and the Vice Rector has improved noticeably from the last spring. It takes place almost daily. When we go to the fields of experience and to the directors of the field of experience. So there, it came to my mind from that common language, they may not necessarily understand the role of the information management. I have once presented the information management operations model for the operative executive group and I will do it again next Monday. That steering group (the information management steering group) is appointed by the Managing Director and its duties have been illustrated on a quite specific level and they have gone them through in that operational executive group. So, it is quite common that those issues, which are submitted to the decision making in the steering group, are decided out there on the fields, they go past it, in a sense. Hence, it is not understood.
TL	What kind of effects does this field decision making have? Do essential issues go past the information management or?
MT	Yes. It has concrete effects on the information management for example, budgeting. Meaning that decisions concerning some ICT (information communications technology) project are made on the fields without discussions with the information management or even the IT-Services. And then at the coffee table or someplace else, this comes to my attention. And when I ask, where are you going to pay this from? They look surprised, and say that from the information management of course. We cannot budget something which we are not aware of.
TL	Yes, of course. Let's proceed with slightly more detail. In Lapland UAS, there are four fields of experience and ten shared service units. What is the present state of the collaboration between the management of these actors and the information management?
MT	Well, of course the formal collaboration takes place in the information management steering group. Then we have this information management development group into which operative actors have been gathered, also you belong to that group. That is an informal way to relay the information management's, or to try to improve the transparency of the information management. Meaning that what we do, what is going on at the moment, what is the budget and how we use it, and so on and so forth. Then the normal collaboration, which takes place in every work community, is like that the closer the room of a person is, the better the collaboration is. With these distances here, this is a concern as I sit here at Rovaniemi and then there is this Kemi-Tornio campus. Certainly, the collaboration there is more distant.

TL	If we take a shared service for example, the property services. Have there been any situations in which the information management would have taken part in the steering activities or the group of the property services?
MT	The Manager of Property is behind that wall, so we have daily discussions. But, at the moment, we have this procurement of alarm and information system going on. We have had meetings concerning that and I have been taking part in those because it involves the IT or IT Services quite a lot. It is like that for the part of the property services. Then, from the broader perspective, amongst others the Library has asked us to visit and also they have their own projects in which IT is involved. We are involved in the project steering group of their RFID (Radio Frequency Identification) project. Actually, there are also these blurred and foggy areas, meaning that we don't really know what is going on and where. But it is also dependent on your own activity.
TL	So, there is no practice like this? Meaning that the agendas of the administrative bodies of the shared services would facilitate the information management to take the floor?
MT	Practically no. I have agreed with Reijo Tolppi, who is the Vice Rector and thereby, in charge of the operations of the education, that I can take part in the operative executive group whenever I want. We have also agreed that Reijo will invite me if that kind of an issue comes up. And in fact, I am going there.
TL	It is good to proceed from here. In addition to the administrative responsibilities of the fields of experience and the shared services, the focal actors of the management system of Lapland UAS are strategic, operative and extended executive groups. The information management has no direct representation in these executive groups, how does the collaboration between the information management and these groups take place? You already noted that it is possible to take part in the operative group, but how about the strategic?
MT	I could probably ask to get in that too. But there isn't this kind of continuous representation. Probably this is because of the quite a hectic situation in last spring. I was the Head of IT services and the then Head of Information Management left the house just when these groups were being formed. During that time, this information management as a unit, had no visibility in our intranet, it has now because there is now a page for that, but it did not exist then. This is a part of the administration service and that representativeness got left a bit weak. But now, we have been working on it through discussions and then the Head of Information Management is now directly under the Rector/Managing Director, and through that he/she can affect to all of these if he/she wants. Then the representativeness may suffer when there are issues being handled of which the information management is not aware, then the information management cannot ask to get involved.
TL	Did I get this right if I say that the change in the information management organisation or the change of the Head of Information Management took place just when these groups were being appointed or their memberships were developed and this affected to that the information management is not currently represented in all the places where it will be in the future?
MT	It is probably like this, you can say that. Well, I am not exactly aware of when those groups were formed but I am quite sure that the representativeness suffered a bit there.
TL	But then, the management's and executive groups' ability to perceive and interpret the impact of information and information technology solutions have on business process and through them to the holistic business operations can be seen as a significant factor in the collaboration between information management and its customers. How about now, when we acknowledge the bit defective representation, how do you see this capability in Lapland UAS? If I may specify a bit, are you aware of processes or methods which can be used to perceive or assess the impact of some solution to for example, process outputs.
MT	This is a difficult question.
TL	The background of this question is that there are two schools, the other relies only on objective indicators but the other thinks that the interpretations of the management is an extremely good indicator. Meaning that when the management perceives that the information management has brought additional value for a specific process, it will be seen in the profits of the company and in the development of the operations, after a certain delay.

MT	Ok. As it was pointed out before, the channels we use to influence the operations are the information management steering group, the development group, and additionally, of course, these personal discussions with the administration. With the Managing Director, we have this established or agreed practice where we meet to review information management and to discuss at least once in a month. The next one is probably at next week and there for example, this information management's plan of action 2015-2017 is an extremely focal issue. You have also been involved in formulating this. And there these choices are discussed. The most important choice could be whether we densify our collaboration with the consortium IT-services or do we take it to that extreme in which we would fully embrace the AAPA (the network of the information management directors of the Finnish University of Applied Sciences sector) development initiative. And now, how I see this capability in Lapland UAS. I see that the IT background of the Managing Director makes it reasonable good. But then, when you referred to that objectiveness, it is very difficult to find numerical indicators for these kinds of choices. These issues are based on opinions and intuition. Meaning that what happens if, this kind of. Did I answer to your question?
TL	I understood that the executive groups' and the administration's capabilities to perceive and to interpret is being supported with the development and steering group activities and in addition, with personal dialogue and participation. And in this phase, where the organization is rather new, this concern of how the administration experiences it, is a quite focal and remarkable issue.
MT	Yes.
TL	Then it should be possible to sometimes use indicators to look what happened.
MT	And of course, the information management must be, or should be more active in delivering messages. This is conveying opinions to the national University of Applied Sciences network. And on the other hand, the top level administration will also obtain thoughts also directly from this AAPA-network, because they are usually taken to the ARENE (the council of the rectors of Universities of Applied Sciences) and from there they go to the Rector/Managing Director.
TL	Yes. Now that we're referring to that plan of action. If there is a choice question being handled for example, how do we prepare for the new kinds of information technology needs of future students and how this affects to the business operations or to the education implementation processes, so the information management has a rather explanatory position there?
MT	Yes, it is like that and I have delivered the rough draft of the plan of action to the top administration and as a matter of fact, only got comments from the Managing Director, these were very supportive. In relation to this, the administration's commitment to this kind of choice regarding the roles or the position on the axis of the information management and IT services. Whether these are inevitable cost items or in the other end, they are very important competition factors. Good IT services, good information management. Making that choice on this axis meaning that where do we go and what do we emphasize. I think that from the aspect of the students, the good IT services and information management are factors which enhance all essential competitive factors. When attractiveness, pass through and retention rates are taken into consideration. The clarification of this kind of thinking is under work with the substance administration.
TL	Exactly. Well, here is this substance administration. My experiences from the academic environment are, I have noticed that various actors have different abilities to perceive and/or innovate new information technology solutions to enhance their operations. And these abilities vary a lot because of actors' different information technology competences and abilities to utilize offered service. How would you describe the role the information management has in solving these operational problems or in the development of operational processes of University of Applied Sciences?
MT	Based on my half of a year experience of this post, what comes first into my mind is that those new ICT initiatives, they emerge from the customer. This means that that they have noticed something. For example, Library has noticed the RFID (Radio-frequency identification) and during this half a year, customers have spoken a lot about getting to use this Office 365 and then there is this VETUMA (national identification and payment service). There have also been these initiatives which have emerged from the information management or from the consortium IT services. As a matter of fact, if we think about KTAMK (Kemi-Tornio University of Applied Sciences) and RAMK (Rovaniemi University of Applied Sciences), these former Universities of Applied Sciences which were merged to give a birth for Lapland UAS. So, I don't know KTAMK so well, but I have years of experience from RAMK. But this kind of proper information management, it didn't exist in RAMK and probably, this was also the case with KTAMK. I have understood it this way.
TL	There was not.

MT	So in that sense, when you asked about this incompleteness earlier, these matters are still under work. We are building the information management and during that we have established this group which comprises the representation of enterprise architecture, you, the customers, Timo Vuori and then there are these system specialists Jouni and Pietari, and in addition, the person responsible for IT services, Tuomo Sarajärvi. Actually, this group has just began to build this information management. And through this group and the involved actors we are supposed to get so close to the customers that we can suggest different information technology and process solutions. This is when we could solve some specific problems or enhance the operations generally. We still have a long way to go with this.
TL	It is like that. If I sum this up, currently, these operation development initiatives, which lead into information system solutions or various process developments, so they emerge mostly from the customer and based on that it is possible to assume that they are capable of perceiving these new opportunities.
MT	They are and they are not.
TL	Exactly, and then the information management is currently developing its organisation so that it could get involved in this.
MT	Yes, that is the exact goal in this. Meaning that on this particular axis of inevitable cost item which repairs faults, we would get into a position in which we would provide additional value for the business of University of Applied Sciences. We are trying to advance on this axis. Now we have a better chance for that as our University of Applied Sciences has separated from two municipal federations and we are now able to focus the IT staff on one University of Applied Sciences. There is no more, how would I put it, the mass of the municipal federations which comprises variety of different actors and from which this common nominator is hard to find. No we have it. We have our IT support and IT designer sides in a good condition. We have a chance for that and that is what we have been attempting to do now.
TL	Now we are able to focus on Lapland University of Applied Sciences which I have been studying here. And in Lapland UAS, it is possible to see two higher level organisation entities or organising methods. The other is this development organisation of core and support processes and then there is this production organisation which implements these agreed processes. In the time before this information management was formed, the organisation which then went by the name of information management was mostly focused on supporting this production organisation which takes care of the daily routines. How is this now when Lapland UAS has built this kind of development organisation? How has this affected to the ongoing development of the information management?
MT	Actually, I refer a bit to my previous answer. You mean the operation model of the information management, don't you? Maybe the most essential issue is that we have managed to connect this architecture work with the quality function of Lapland UAS. I understand that it has succeeded well, you know it better.
TL	Yes, it works.
MT	It is probably the most essential issue and how would I put it, a tool which we can use to get a hold of and to influence the customer's processes.
TL	Apparently, the incompleteness is also clearly visible in here. If we think about actors who own and are responsible for processes. Have they approached the information management with different information requests concerning their own processes or with their support needs? We have discussed a bit of these within the enterprise architecture process, but have they appeared from other sources?
MT	No, very little. Mostly during the coffee table discussions. And I have to admit that I am not aware of all process owners so there's something we need to learn in the information management.
TL	Ok, I have noticed that because we have been operating in different way these process ownership, process responsibility and process development method are rather new issues and operating bodies in our environment. Therefore, we rarely collaborate with them that is, process owners, but rather with a person. Have you had similar experiences?
MT	I have to admit that I am rather away from that quality work which you are closer of. I don't yet have the holistic view to how the responsibilities are allocated in processes. I need to learn about that.

TL	Ok. Then we have to improve my communications so I can inform you about these situations in a better way. Well then, about this production organisation and development. These fields of experience have different objectives and as a result, their information and information technology service needs usually vary a lot. How do you manage these service needs of the customers? We have already discussed that there is the information management development group which takes these customer issues into account and then there is this steering group and then it is also possible to collect messages from the operative executive group and directly from the Rector/Managing Director. Are there other kind of activities?
MT	These are the forums and additionally, it is the responsibility of the person responsible for customer relations to actively deal with customers and pick these issues up when he/she hears them. He/she does this. Then on the completely concrete level, we have this IT services operation management system in which we have succeeded pretty well. This means that the person responsible for IT services analyses these service requests and from time to time we find a problem which causes recurring service requests. We had this kind of situation yesterday, and we try to solve them in a way that no one should need to send another related service request. Of course this is on a very concrete level, but yes, we analyse them in that way. If we then go into the fields of experience, mostly into the implementation of education. There are quite a lot of decisions which are related to the information technology solutions. They make a lot of them within the field of experience. Procurements of educational software and other issues like this and from those we are being approached through technical support or the installations and so on and so forth. How do we manage the customers' service needs? We manage or try to manage service needs through the Service Desk in a way that from there they are escalated to the proper IT employee no matter what the service request involves. Then the development needs, the implementation of ICT project portfolio management model is relevant to this. Now, the persons responsible for enterprise architecture and customer relations have a very important role in that.
TL	Is it now possible to think that this organization is being divided here? The production organization which implements these processes, so these service needs which support the implementation of the processes are managed through Service Desk. And there, the person responsible for IT services analyses these support requests with the aim of identifying larger entities? And then when we go to this development side, there is this collaboration between these various groups and direct collaboration with the Rector/Managing Director.
MT	Yes.
TL	These different service mechanisms or systems are clearly visible here.
MT	Yes, they are there, but there is room for their development, for sure. For example, the customers' commitment to the use of service desk is currently rather good, at least in Lapland UAS. There might quite a lot of development on the upper secondary education level, we share the service desk. When it comes to Lapland UAS, it is my understanding that IT support persons and others can make a ticket by themselves if a customer pulls his/her sleeve so we get the document about the service we have provisioned.
TL	How about the management of the ICT project portfolio, the implementation of it and getting commitment to it? What kind of challenges you see in that? After all, it is rather influential operation.
MT	I have presented it for the operative executive group which comprises directors of the fields of experience and I see that it is their task to implement it. They felt that it is good and they understood why the method is how it is. This means that the aim is not to increase bureaucracy but that they (ICT projects) must be handled side-by-side and transparently in accordance with a particular template because it is about the use of common funds. But after that fine event, few ICT projects have emerged out there on the field and they are handled in a way which makes me feel like I would have never discussed about that management model. I don't there is anything else I could do but to work. It seems now that this CRM (Customer relationship management) project proceeds like it should. You took the possession of it.
TL	Yes. It could be that these big and different functions, what I mean is RDI (research, development and innovation) actors and education actors. RDI is a smaller mass and thereby, their internal communications may have been different. This might be seen in here.
MT	Yes.

TL	Then, this effective and cost-efficient information management service. When that is being planned there is a need for technical and administrative IT skills. Currently, there are no UAS level processes for managing and developing competences. But the effective management of the information management requires some kind of a structure for this. What is your view on this? How should these for example, technical skills be managed?
MT	It is our intention that in September, we will begin to map the current and skills of the IT staff of Lapland UAS. Additionally, we will map the skill requirements. And that is a focal tool for that.
TL	Then, if we think about these ICT project management, service design or these general administrative competences concerning the management of a service and the service production. For example, person responsible for IT service desk. How could you manage this kind of administrative competence?
MT	This is a bit complex issue. Does this administrative mean for example, project competence?
TL	Yes, for example, project management competence and additionally, competences relevant to the coordination of the activities of several actors. For example, the person in charge of the IT Service Desk coordinates the operations of the near support, those personal relationship knots cannot be handled with mere technical skills.
MT	We have had these LUC level work community trainings and issues. We have also had project training, but took place years ago. So, what comes to my mind is mostly training. I have been managing ICT projects in a firm for seven years. And in those projects, there were more than one actor, at least there was a customer and probably a third party as a supplier. In that rigmarole I have learnt that administrative ICT competences are mostly a question of personality. It is mostly customer service, what I mean is that even though one studies customer service for five years one may not be competent for that and then the other way around. Some are born to it. I don't belittle education at all, but it seems that it is personality oriented. And the answer to your question about my view to the management of competences. We cannot recruit, but if we could then it would be successful recruitments. And another way to influence is the roles of persons. Personal tasks or assigning persons to specific tasks. In other words, to have the right person in the right place. That is what I have tried to accomplish when I have had a chance to influence. For example, I have tried to use this method in this choice of person responsible for IT services. This means that I've tried to get the right person to the right job.
TL	Did I understand this correctly? Because we cannot recruit, we try to combine a person with a role in which the competences of the person are best utilized.
MT	Yes, it is like that.
TL	Then the third competence. The clientele of the information management is very heterogeneous. There are these developers and teachers and there are heaps of degree programmes. It seems that there are 34 degrees. How relevant it is to have knowledge of the content? One must have the basic understanding of course, but is deeper understanding required and how it could be managed?
MT	Like you said, we have a very heterogeneous field. 16 IT actors whose total labour comprises of maybe 80 percent of routines or 70 percent and the rest is left for the different development activities. That amount of work won't get us too deep into the specific field of experience, unless the IT person has corresponding educational background. In general we seem to have this educational background from information technology which doesn't quite suit for example, health care. I think we should try to gain the substance competences on a generic level. This means to gain competences to serve the education on the implementation level not in the level of educational content. We cannot go too deep in there, and we shouldn't go because then we get the wrong idea about what we do. The eLearning services may have this education support more on the substance level and our support is on the technical level. This is how I see it.
TL	Then how about, this is a bit different issue. In the operation environment of Lapland UAS, two providers are responsible for the information technology solutions and service. The information management of Lapland UAS and the IT Services of the Lapland University Consortium. Could you describe the roles of these actors in relation to the needs of the operational environment of Lapland UAS?

MT	Yes, the background of this is kind of a customer-provider operations model. Meaning that we have defined and documented that the management of the Information Management is the customer of the IT services of the University consortium. However, this is quite a foggy issue. When I was the Head of IT Services it sort of worked. But it has changed a bit now that I have moved into the information management of Lapland UAS, to the customer position. Currently, the General Manager of the service centre (LUC) handles that Head of IT Services position as a part-time. And in practice this means that the staff of IT service area is now being managed by the IT executives of the different partners. This current Head of IT Services is an administrative manager. He/she allows holidays and signs travel expense reports and development discussions and so on and so forth. But when the roles of actors are described in relation to the operational environment of Lapland UAS, these are essentially important for us, these consortium IT services. We receive a lot of support from there. For example, our own network knowledge barely exist and we get that from the shared IT service. As for our part, we also give something to there and the expertise lies on noticeably broader shoulders when it is shared. When we find a certain issue for which Lapland UAS has no expertise, we can ask it from the University or the RKK or vice versa. I am not quite sure if I replied to the question, but this is how I feel.
TL	Yes, is it like a resource bank? Meaning that there is a lot more than we can afford as Lapland UAS?
MT	Yes, it is like that.
TL	I would like to specify that how is the border between the information management and the IT Services visible? Is the IT service more focused on this production organisation and the information management on the development organisation? Is it like this?
MT	It is possible to say like that. Now, our development takes place in the group (the unnamed information management development group which includes IT staff) to which you also belong. However, you belong to the LUC IT services at the present time. This is what we have considered. This means that should we do as the University has done, meaning that they have this kind of application services, or the name may have now changed, which has four persons who are directly under the Chief Information Officer and they do not belong to the IT Service area. I have thought about a bit similar solution for us. This means to establish this information management organisation, which would specifically be a development organisation when the IT services are mostly focused on continuous production. Of course, they also conduct technical development but like you asked, this distribution of duties has clearly shaped.
TL	We have already discussed about this change which has occurred in this LUC IT. So the Director of Administration of Lapland UAS owns the IT-Service process and the General Manager of the Lapland University Consortium is responsible for this process. The role of the information management is to order IT-services which meet the needs of Lapland UAS. How does this current arrangement work?
MT	Like I noted a bit earlier, if I need to do something I will phone to the person who can put this issue into practice.
TL	I was thinking about the role of the Director of Administration, or the process owner during the making of the service agreement?
MT	Originally the service agreement was supposed to follow the JHS (Public Administration Recommendations) template. But in practice, this service agreement turned out to be an essay type expression of intent. For example, regarding the University, when I was the Head of IT Services, the service offering was described as we will produce those IT services which the University's own IT unit has previously produced. Full stop. On that level it is an expression of intent and what the services are, they are not that individualized. And this next question of yours, how are the needs and the service offerings communicated between the owner of the process, the person responsible for the process and the information management? Currently, they are not communicated at all.
TL	So, is this very defective?
MT	Not necessarily, because it works. I am not sure of how we could currently develop the service by discussing with the Director of Administration or the General Manager of the Consortium. This is, what new would emerge from that?
TL	Okay. There is that Lapland UAS has defined in this process development responsibilities that process owner defines the process development objectives and commissions the development of processes and allocates resources for that. From this, I get this picture that at the moment, in the IT services, this does not …
MT	The person in charge of the process takes care of the development?

TL	Yes, and he/she is a focal actor in that process.
MT	It's not like this when it comes to the IT service area, at least at the moment.
TL	Could it be that the implementation of the process is external in practice?
MT	Yes, the development goes like that. If we think about the processes of the services (IT), the focal process is the Service Desk, when its operations are understood broadly. That process was described in 2011 and we go by that. When there are exceptional situations, development situations or these issues which have emerged from this merger (the merging of KTAMK and RAMK which gave birth to Lapland UAS), for example, transferring the computers of Kemi-Tornio within the AD. When that did not proceed so well and in fact, it was supposed to be finished already, Timo as the person responsible for the customer relations got involved and then I summoned all relevant actors into a meeting and there we drew up a road map for how do we proceed from here. Tomorrow we have a next meeting. Actually the process owner and the person responsible for the process have had very little, they do not intervene this issue at all.
TL	Basically you have the roles of the process owner and person responsible for the process.
MT	In practice, it is partly like this at the present time. However, we must acknowledge that the person responsible for the process summons the coordination group and takes part in the LUC IT executive group and handles these issues there, also he/she comes to our weekly meetings. This means that he/she is involved quite a lot and myopic thinking, like that in the beginning, should be avoided.
TL	It seems that the administrative role of the person responsible for the process is emphasized here and your operative role when you and the person responsible for the customer relations represent the customer.
MT	Additionally, it is good to point out that I was the Head of IT services for nearly three years. During that time the IT staff of the University (University of Lapland), RKK, RAMK which later become Lapland UAS, were my subordinates. Currently, this person responsible for the process is in a quite schizophrenic situation when the processes of these partners the University, RKK and Lapland UAS are slightly different. It is very difficult to suddenly go in there for example, to RKK or to the University and tell them to do like this. I had the RAMK background so it was easier to operate here, but that organizing the service area creates additional challenges to the person responsible for the process position. Of course, we are talking about the perspective of Lapland UAS here.
TL	Yes, it is good to understand that background. Now that you began to elaborate that this IT service area comprises also the University of Lapland and the Rovaniemi Municipal Federation of Education. You were the Head of the IT Services and at that time, you were involved in the development of the decision making processes of the service area. How are decisions made at the IT service area?
MT	When I was the Head of IT Services, I established these service groups there. There is IT Service Desk and near support service group, then there is workstation service group, procurements service group and then information security. And into these, we gathered the focal IT persons from each organization. They (groups) are still operating. And these groups, they have internal meetings and from time to time the coordinators of these service groups meet. The next one takes place on next Tuesday. This kind of decision proposals come from that line level and they are then given to the Head of IT Services who brings them to this LUC ITJR (Executive group of the consortium IT services) which comprises the of IT heads of the partners and the Head of IT Services, who introduces the issues. There, the decision is then made for example, is it okay to do this trick to AD (Active Directory) and it is being considered how it affects to different partners. If the nature of the decision there is such that some Head of Information Management can't make the decision. This particular Head of Information Management will take the decision to the top executives of his/her own organization. Lately, there have been very few of these, the decisions have been made there in the ITJR. Now that the post of the Head of IT Services is part-time, this has changed somehow. We circulate the chair between the University, RKK and Lapland UAS. In a way, the agendas come from the Heads of Information Management. When there's a need a specialist will be invited to share his/her views concerning the issue at hand.
TL	This seems to be a clear whole.
MT	This is a working system.
TL	How about that coordination group, how do they operate in the coordination group?

APPENDIX 1 Appendix 1

MT	In the coordination group they go through, if we take a case from the next Tuesday's meeting. We are starting to prepare the separation plan with Lappia (Lappia is leaving the LUC IT service area). We take this issue to the coordination group whose task it is to prepare the plan. And there, each service group coordinator will present his/her views. For example, IT services may bring in some nuances which are related to the separation and then procurements and the AD planning. Then we go to the workstation and quite a lot of issues will come from there. Then there are many issues with servers and the network. Probably it is these three groups, the information security won't probably well, and it is possible that they have some nuances. Probably the plan will be centred to these. Meaning that what must be done, in which order and when. And of course, the specialists from Lappia are also involved. So in a sense they operate over the service groups' boundaries. Meaning that how does this affect to you if the network group makes this decision?
TL	Ok and then, the focal actors of every customer organisation are in these service groups?
MT	Focal to that service.
TL	Then that coordination group has a view which goes beyond service and organization borders. This means that it is a wholeness.
MT	Those service groups, they particularly have the cross-organizational view concerning that specific service. For example, the network group comprises every organization. It was difficult to sort out but when it was completed, it worked.
TL	If we take the information management of Lapland UAS, what are its means to influence and what chances does it have to get its needs through to the features and qualities of the service produced by the IT Service area?
MT	If we take the quality first. If there is some kind of a defect, I will go and talk directly to the persons who are in a way, responsible for that, this has been done several times. Then if this quality, here we speak about quality but I view it as defect in quality, if it originates from the University, as they perform several jobs for us, then naturally, I will talk to their Chief Information Officer. It is like that, or why not to Tarvainen (Markku Tarvainen, the General Manager of the Lapland University Consortium and the present Head of IT Services) who is also a manager and then there is also the ITJR which is one. About the features of the service, with them it is quite the same. If the issues are related to the features which are exclusively for Lapland UAS, I talk with these IT actors if they could do this and so on and so forth. But then, if it is related to the whole LUC service area, then we must formally cover it in the JR or then in phone with other heads of information management and managers.
TL	If I sum these up the means to influence is the direct communication with the service providers, the heads of information management of the other customers and with the management of the Consortium. So the clear communication channels exists …
MT	Yes, and those contacts are very spontaneous.
TL	… And the chances to influence vary between the service provisioned exclusively for Lapland UAS and a shared service. Then, when one wants to change some service wholeness one goes through the IT executive groups. That decision making process we went through earlier.
MT	As a matter of fact, the feature of the service which we want to influence, That is what defines whether it concerns exclusively Lapland UAS or the Consortium.
TL	These were all the issues I had planned in advance. If there is nothing you would like to add, then thank you.
MT	There is nothing, You're welcome.

APPENDIX 2 Appendix 2

1(3)

Inter-viewer	Tuomo Lindholm
Inter-viewee	Timo Vuori, IT Designer responsible for Customer Relations at Lapland UAS
Date	4 June, 2014
TL	It's rolling, okay, From the perspective of the person in charge of the customer relations, could you describe how the communication takes place with the customers on an organization level
TV	From the aspect of the organisation, there are actually two levels present at the moment. Mostly, we go according the traditional model, in which the questions are made to the IT at the point where the own know-how within the organization is not sufficient. This doesn't always occur, and it goes also the other way round, we recognize events in the organization. The person in charge of the customer relations recognizes that there is something going on now and it is linked to information technology solutions. And then we go and ask the customer directly, how you have acknowledged these technical issues? And currently, because we don't have, we're supposedly talking about the processes later, we don't yet have clear process models of how this works. So it works mostly through the way of knowing each other. And now, the new challenge is this new Lapland University Of Applied Sciences, where many new customers have emerged, who I don't personally know yet.
TL	How does the lack of personal acquaintances and defective operating model affect your work?
TV	It affects to our IT-service organization, the operations of the information management. So, there where we operate like, it could be said, good old brothers, issues are taken care of more smoothly and there are less conflicts between the organization, information system initiatives and IT-services and the information management. And, since there is no process which would guide the customer to act, the organization to act on a certain way with IT, mutually agreed operating model. So I feel that our organization is quite alone. We don't have, unless you know the ropes so it could be said that we have this method which is stuck on the walls. Some have it, others don't.
TL	Is this bound on location? Is this like that it is easier to get service on other locations than it is on others?
TV	Not necessarily geographically, this issue isn't necessarily like this. Maybe it is that we have not published clear common ways to operate. We have built operating models for IT-services and the information management which have not yet been implemented.
TL	Ok. How about, I discussed with the Quality Manager and the theme was this process development organization at the University Of Applied Sciences. And we compared it with this process implementation organisation, and I've got this picture that this process implementation organization is currently the main customer of the information management. What kind of communication there is with this process development organization? What is the present state of it?
TV	The present state has quite a lot of shortcomings. So, the development of processes, it could be said like this, it is still siloed within each function. For example, finance function, communications, marketing, and the operations of educations develop their own operating models, processes, as well as the IT develops its own operating models, processes without discussing about them together. This is the present state. Which leads into that the operations, as a whole, cannot be harmonized and the interfaces, practically the interfaces do not exists. They may then go around the executive groups, whom are higher level actors, and from there it continues to proceed to between processes which are on the lower level than the highest administration and executive group, so on the field level, the collaboration and discussion between processes on that level, it doesn't work on that level.
TL	Clear, in communications it is apparently possible to, have I understood correctly if I say that there are a bit of shortcomings in the communications? That there is no systematic communication with all customers?
TV	Yes, that's correct. And it should be analysed a bit, from where and, or as a matter of fact, it is more like we are also afraid to communicate. We have quite a lot, each actor here has so much work that we must communicate efficiently. This means that we're afraid of inefficient communications and we avoid useless meetings. There has been this culture of useless meetings in these federations of municipalities. Many people have experiences of meetings which do not necessarily lead to anything. The communication itself is not the solution but how communication is done, how efficient it is, how precise and how it answers to the real needs.

APPENDIX 2 Appendix 2

TL	All right, from that we can then proceed to this so called demand management. So, if we think about how the needs of the customer are acknowledged, then what the present state is?
TV	There it could be noted that it is the, communication and, actually the problems of communication which are the focal part of understanding the needs. Meaning that the role of how communication takes place and through that to recognize, we get to recognize those needs with a larger group, so the shortcomings are there. So, the needs are in each silo and it can be hard to get them out. Even in that own silo to take them upward, not to mention that they would spread to the knowledge of the whole organization, those needs.
TL	How do you interpret efficient communication of needs?
TV	First, the analysis of issues, there should be some matrix for categorizing the issues. There are small needs, big, the way we categorize them. How do we respond to the strategy, what is our development path? We could then categorize those issues in those silos against these, and after that it would be presented with the same matrix, that we have this going on, we have that going on. Regarding a need, one should then be able to categorize the context and the level of an issue. What level is it on regarding the organization, from the field level to the administrative level, so that each level gets their own understanding about that making. And it is very typical that at the coffee table, we discuss issues from the micro level to the national level. Then the red line which should be, we have not parsed it.
TL	Yes. Well, then, how does the information management communicate its own development ideas? New potential technology solutions which could be utilized and maybe to support core and these support processes or their implementation more efficiently. How's the present state of that?
TV	The information management has recently formed at Lapland University Of Applied Sciences. And it is now taking its first steps, so these new structures have now been formed and I am not able to answer that question in another way than, these new structures facilitate this, but it has not yet been realized. Here it must be pointed out that information management is a shared concern for all actors at Lapland University Of Applied Sciences. It is no longer concern owned by IT, but information management is organizational concern, which is a new operating culture in Lapland University Of Applied Sciences.
TL	Ok. If we then proceed, when, on a way or another the needs of a customer come to knowledge of the information management. Then, how are those issues dealt with and analysed? Acknowledging the perspectives of the information management and also the customer means that different types of knowledge are required. So how is this knowledge managed, how can you find the particular knowledge required to draw on in a certain situation? Let's say, for example, from the aspect of the technological implementation of some educational solution of TELU (School of Industry And Natural Resources).
TV	The LUC service centre (The provider of IT services for Lapland UAS) has organized according the technology aspect. There are these technical service groups, which are competent for some technical sector. There are specialist groups and actually I, as the person in charge of the customer relations, form the holistic picture of the customer's problem after which I divide it for these specialist groups and define the interfaces between them and then gather a specific team from there or make a commission for these different groups. The typical situation is one where we need workstation management competences, telecommunication competences, server competences for that and then, on which level each group should be burdened, actually I analyse that.
TL	How do you see, if this group needs also knowledge about the substance, how can it be found?
TV	Knowledge about substance can be found finely, yes. The organizational structure on the educational side at University Of Applied Sciences is pretty clear and there the management model is rather flat. So it can be found very easily, it could be said like this.
TL	Then how about after this kind of group has been formed, then how do you plan new service to correspond these new needs? Either this kind of a technological solution or for example, when education develops a new teaching method emerges or new needs from Finance management. From the aspect of the information management, how does the design of new services occur?
TV	That's a good question, those methods are different and depend on the actor. For that, it could be put short in this way that the design occurs with different means, different methods and different criteria. Then the quality is as variable as the number of actors.

TL	Ok. If we go back a bit. I have discussed with the Quality Manager about the issue in which the processes of University of Applied Sciences are alike, but the process implementation organization may vary between schools. Have you seen this issue in your work? Have you noticed its effect in any way?
TV	Yes, there must be decisions concerning processes. And we have done, together with the IT service area, practical work instruction level decisions for procurements, among others. And this same work must be done on all levels of University Of Applied Sciences. Pure process description is not yet the implementation of the process, monitoring, watching over, measuring but it must be brought down here, to the floor level. And it has been visible and it will be visible in my work, yes. And, there is also lot to learn for the whole organisation. And as a matter of fact, the way Lapland University Of Applied Sciences will develop from here. If keeping track of these processes, from their development to their publishing will be done well, it is going to increase our operational quality.
TL	Now, is there something else you would like to bring into this discussion?
TV	Well, actually the focal concerns are that the decisions are actually made for processes. And one goes through the process interfaces towards other processes also the interconnections to other actors. A distinct process is practically inconceivable, we always have an influence to other issues. The dialogue between processes should be opened or an operating model should be developed for handling them. And when there is a decision concerning a process then the change management of the process. Meaning that when we need to develop the process. We find that there is something in the process and we want to improve it, so we implement the change in a controlled way.
TL	Yes.
TV	This includes the information management, as well as the operations of the whole organisation. Information management is the one part of a process, especially this concerns the information management, IT-Services and that interface. So we can respond to that need when a process changes.
TL	Yes, alright then, thank you.
TV	Thank you.

APPENDIX 3 Appendix 3

Inter-viewer	Tuomo Lindholm
Inter-viewee	Ari Konu, the Director of Administration at Lapland UAS
Date	22 September, 2014
TL	You are the Director of Administration in Lapland UAS, additionally you own the processes of Human Resources, Facility services, procurements and IT services. Could you describe how the differences between duties and the responsibilities of the Director of Administration and the process owner.
AK	Yes, I don't think, I don't like the term process owner. They are more like tools to me, those processes, with which I respond to the duty or duties assigned to me. Then they are very closely aligned with each other, if the ownership issue is left out. The processes are means to convey my will and objectives in those matters and they are my daily tools. However, the director of administration has certainly, without my persona, always a position that he is some kind of a support person for managing supervisors, for self-management. I think that it is great. That doesn't really connect with the my own or my tool processes that I sit in this table and telephone a lot with degree programme coordinators and even with heads of RDI and think "how can this issue be solved". So there is this management support element, which is not visible in these processes, it doesn't have to be visible, and a shared shoulder for seeking change. For example, "There, they suggested or did this, is it correct or can I have any influence on that" this occurs a lot. They don't show in my assignment or in these processes, but they take a lot of time, time resource, but they are as well an important function in my duty. Everything does not canalize through my deeds, or through the processes I own. There are quite a lot of these easy chair and change-seeking functions in my duty.
TL	Could it be said that in principle these processes are a part of a larger holistic system, which you use to implement and which also comprises these external or?
AK	Yeah, yes, these discussions with both supervisor, other directors and employees alike, belong. When they seek for confirmation or is this the line and is this executed similarly in our field than it is in others. These issues go back to process development through me. If I see that the instruction has been left bad. And when I see that a person has been treated differently that is when I can get a hold and can confirm or try to enhance the process which has created it, tried to take a control. That it is not a separate but it is more like a development element which provides me with information for development. But it is not all in those processes, maybe it is the development that surrounds them all. And it is quite burdensome and large part, I do not think that it is bad, but it is excellent if I can support and develop with that unregistered process.
TL	Yeah, so the information needs are not organized only according to the process but they are whole
AK	Yes. This is how I would conceive it. You capture it well. Yes, they are the arteries there but there is additional muscle which makes it a whole so it can function and move. Ridiculous analogy, but quite alike.
TL	It is very important to recognize here how wholeness is perceived. Then, how about these tools that you have in use. How do they support the operations of Lapland UAS and what objectives have you given to them? For example, human resources, facility services, procurements? Where do they aim?

AK	Well this human resources management processes, in plural, is from my aspect, the function which creates the legal foundation for working in Lapland UAS. There are issues related to contract of employment, which is the basis of juridical layers. Then there are the issues related to hiring. Salary payments, transaction processes. Without them working is not possible. We would not have employees, and they would not be motivated to do it. It is rather clear, it is the juridical foundation for working. Concerns on the side of that like this guidance, I think that it creates rules for the activities between an employee and employer. We have several persons who in their own positions representatives of employer. If that would not be harmonized, if it would not be a goal to have one employer practice, one and only operating model. Then we would soon have four of them, we would have even more within the profit centres. And from that it is possible to look for my objectives. If there is one thing that I pursue very hard, then it is the equality in the treatment of employees despite their unit or locality. Whether it be a teacher of KauKu (Business and Culture) or a teacher of LuoVa (Natural Resources) here, they should be treated similarly. They must have same rights, they must have same benefits, and they must have same responsibilities. And this is maybe the most demanding, difficult issue, because it seems that mere instructions do not seem to be enough. We have so strong long-term directors, whose old habits are extremely rigid. People around them feed these habits, like “This is how it went in the past, you wouldn’t go along that new line, wouldn’t you” and that creates resistance. Resistance itself is ok, resisting powers are always required also in the development of administration, so it wouldn’t be done with too light grounds and fail because of that. There must be criticism, constructive criticism. But in some phase, it must change to a loyalism for made decisions. During this year, there has been quite a lot of watching over and herding in my role. So those discussions with supervisors and directors, to which I referred in previous section, luckily give opportunities to it. And I see that we are an organization capable of development in a sense that there are none of those who turn their backs to the decisions of the management and the human resources. Some may have turned a bit once in a while and tried if it is possible to turn their backs and revert to old habits. But I see that no one wants to do it anymore and we have gotten past it. But this equality in human resources management, equality despite the unit and the geographical working point is the leading thought. And I fight and feel that it is a duty assigned to me. The duty of the facility function is to create the physical conditions for core processes, good physical conditions to implement our education, research and local development task and administration which supports those processes. The objectives emerge partly from finance, cost-effectiveness but on the other hand from operations. Rather proactive development of premises which acknowledges changes in operations. In other words, proactive operations which are cost-effective and recognize the future needs of operations. This is how I see this. Procurements, a process I own. With that we support core processes and even relieve them to focus on the essentials. This world of procurement, which is fairly demanding, if one is directly led into it, will tie quite a lot of energy and time if you begin from zero. On the other hand, one can make mistakes which tie quite a lot of different resources afterwards. That is, to make mistakes, incomplete procurements, biddings, documentation does not work. Trying to create freedom, if I’d say so, for focal actors to their focal duties. And there, I do not know if it is an objective or an operating model, a whiteboard but careful preparation of procurements and implementation will surely reduce the costs of after work. Investments to preparation, documentation, taking exemplary care of bidding will reduce the time spent in the market court. In a condensed way.
TL	That’s right and procurements are nationally always under a magnifying glass.
AK	Exactly, yes. We are, despite of our limited company form, a public procurement division and we operate under the act on procurements. We receive the majority of our funds, operational funds from the budget. That is enough for that.
TL	Alright now, we have no gone through of objectives and elaborated on them. And then. Critical Success Factors are issues which are indispensable for achieving these objectives. If we take the perspective of information solutions and information technology solutions, what do you think are the critical success factors for these processes?

AK	This, I was thinking about your structure before and though the answers in advance. I'll try to be clear and precise so that there wouldn't be long answers like in those previous ones. Regarding human resources function, I wrote down, functional electric human resource information systems. Specifically electric, here I refer to an information system based structure for managing staff issues. Returning to the older, more manual time is totally impossible. But there are several sub processes in front of us in which the support from the information management can be increased and current already digitized processes can be enhanced. We will probably later return to these challenges which are related to the development of our current processes, the development of scattered digitized processes. In short, in human resource management, functional electric information systems. Regarding the property management, I see that the critical success factor with our property mass is skilful active person in charge instead of any other information system or some property management service or some other solutions. Head of property management must understand his duties, know focal property/facility concerns and be active, accommodating towards units and these core processes. There is, I wrote down to myself, room for enhancing the utilization of information systems. We utilize them rather little, if we are not talking about invoicing which occurs electrically through Alusta. But for movable assets and equipment. There is lot to do. The library is in the leading group, they are implementing this RFID. They are in the middle of tendering with procurements function. They will take the material and probably equipment and others to this system which facilitates this kind of modern management. Also there is indent for this in other units. There is a weight on information management and information system competence and dialogue. Juha has been strongly interested and spoken about this RFID. When we have time and resources allow it, we will surely take control of it.
TL	That is a pretty good way for making an inventory.
AK	Yes it is, after all it is easily updatable. At the moment the lists, made with whatever software version, making them is more or less manual. We will get at least little help through RFID Procurements, there the critical success factor is active and competent person in charge. And there the person in question is on the road, which I see as the other. That is, digitization of procurement practices. Digitization of procurement processes on every procurement level. Not only on those which go to Hilma. There must be these phases that you are forced to check the issues at the specific gates. So that you cannot go to the next before you have made these documentations. We need that let's say in a more flexible form in the lower, let's say small-scale procurements. We have this Petri lead project which takes this concern forward. I don't know how strong the support from information management in it has been and dialogue. Do you, for example, know about it?
TL	I have followed it a bit as I share my office with a person who makes procurements. There we are really interested in these issues and that it can be developed. There are as many practices as there are people with needs.
AK	Yes. Merely that one goes to procurements without confirming a cost account. It is not known, or no one has asked from a person who knows it and fist is banged in the table "now we must have this". Must get it even though there is no one to receive the costs. This kind of certainties, we may probably get rid of them with the gates of information system. Like, "Sorry, this issue won't proceed in the process if you do not feed the figure in there, plausible one that is cost account identifier.
TL	Maybe it doesn't put the guilt on the guy who receives?
AK	Exactly. That is a correct observation. There, well they weren't so precise.
TL	But the content is the most important. Well, then in addition to these ownerships, you are in charge of Knowledge development process, which is one of the sub processes of the strategic management processes of Lapland UAS. What is the purpose of this process and what objectives has been set for it?
AK	The process in question is the staff competence development process. The process is to ensure that Lapland UAS has the required competences in accordance with its objectives either through the competences of own staff, through the modification of own competences and/or through their increase. Or through the combination of these and external competences. Thus, our primary task in this process is now to primarily look into this internal. Belongs to human resources management and which has a strong connection to the goals set by the organization. Strategic, and maybe a little with operative goals we aim to.

AK	So we can initiate the generation of additional competences which we see are needed in near future. Through the development discussions we set the development target for some persons to acquire the competence we lack or update to present and future level the competence that we need. And to resource it. This means that the question is about competence development which For example, to consolidate the competences of the field of mining, which we need so that we can credibly operate as a national higher education providing locus and centre in the field of mining. We need to modify the competences of some of our teachers or to acquire more competences for them. It is also related with the capacity, if something leaves will something new arrive instead. This is what the question is about. The development of the needed competences.
TL	For example, during this autumn, this kind of competence and competence needs surveys are being initiated in the information management and this whole LUC IT service area. The integration of these will become a current issue in some phase?
AK	This is extremely important and it is very good to hear that one has not stayed laid down because this process does not exist to the end. We have some specifications about how we are going to do. The development discussion of new form and high quality, which must be executed during the autumn, is a part of it. But it is not all. There we have a danger that in this autumn, the focus of other staff is too much on determining salary levels and checking salaries. We forget the development of competences. I will try with the support group that begins next week, through the work of support group to ensure that nothing essential will be left out. Despite of the fact that the focus and the shine is in the holistic review which determines the salary.
TL	That is an issue which will surely raise discussion, I hope there will be energy for that also. What are the critical success factors of this process? Or what has been recognized now when it is still in progress.
AK	Functional, partly new kind of development discussion practice. Of course, it requires resources for the development of competences, so that persons can be allowed, guided and on the other hand produce the training and support to get this competence. That is, resources, process and yes, I see that immediately when we have time, we have the courage to begin the next information system development process which takes a lot of the attention from the staff we will do it. And here, the “it” is specifically the digitalization of development discussion process. These issues exist. We have already been pushed examples from here and there that “take this now, we have this kind and in that organization they operate through this system”. But only for the reason that during this year and likely during the next year we have so much new to take over, so if we also implement something like this, we make the people to invest quite a lot of time into how, where do I go and where do I see and what do I do. “Also this takes our time” can soon be heard and now we advance the way that we ensure this process and then we will in collaboration with you take the support for this. We will take it into digitized form. The marching order is really this, we have delayed this to relieve people to the take possession of the core processes. I know and it would be very tempting to make this autumns round through that information system, but we know that the training for and setting up and training of the system and completing the first round will take lot of resources.
TL	It could also be that the development activities identified from this autumn’s round are less expensive to implement at this stage.
AK	That is true and then we know better what we must support with that information system.
TL	Ok. And partially originating from that is that the operation model of Lapland UAS information management is based on international Information Management Model framework. It has been established by ICT standard.org. This framework has been designed to be business oriented, or operations oriented and is based on systematic and purposeful collaboration between actors. It could be said that Lapland UAS is a very young organization whose operations are still under development. From the aspect of your own work and the processes/tools you own, have you experienced that this incompleteness impedes collaboration with information management for example, for the parts of common language or communication processes? I am now talking about collaboration with Information management function.
AK	I don’t think that the problems are in the language or communication. Let’s say, thanks to you, you already speak exactly the same language as we do. That is the premise why we do not have this. The problems are in this phase of our of life-cycle and they are because we don’t have time to extract enough time for development and looking forward and think about the solutions of development. Instead the time is being spent on survival that we can get this basic level arranged for this service and in that process. And so on and so forth.

AK	So, at the moment the view raises too little from the feet to forward. It is no that we wouldn't find conversation partner or common language. From my own aspect, I see that we have got this salary payment system working after making the contracts during the spring and after three changes We were on Kuntapalkat, then we went to PYTes for a while and soon a new contract of employment. This is not an explanation, but we have all our resources fully committed to this survival. Everyone has eventually been paid and corrective movements, have luckily had to be made only few. Thanks goes to the team, which partly renewed during this. But there has been enough professionalism for us to survive. This situation cannot remain. I will, staff measurements regarding my own service, fight against the idea that now that we've survived this, let's see our staff measurements again now that we've entered the stabile phase. But we have the development spearheads there for which we have to be able to assign staff. We cannot go in a way that we barely survive with the workload. And when we get certain issues working the view will begin to raise towards development and development needs. Those we have already continuously listed in different rooms and in different context and different issues that we must bring into discussion, what we must change etc. as soon as we get to them. It is not holistic waiting, we're fine tuning our processes and develop them and we continuously receive and take along the support from information management. But those big issues to which I referred such as the equipment management, development discussions. We don't have resources for them yet, and the time windows is not suitable.
TL	I understood the situation as that there is a common language for collaboration and there are means to get in touch with information management and exchange ideas, but there is no time.
AK	That's right. This change has tied and will tie our capacity for a sometime and there doesn't seem to be capacity for this development which we're coming to and which we need.
TL	In IT, we've sometimes experienced that we'd be able to procure systems but we don't have time to set them up.
AK	That sounds very similar, when seen from your perspective.
TL	The management and executive groups' ability to perceive and interpret the impact that information and information technology solutions have on business process and through them to the holistic business operations can be seen as a significant factor in the collaboration between information management and its customers. As a Director of Administration you are a member of the Strategic Executive Group and you operate in several process roles. Do you feel that you have access to enough information to perceive and interpret the effects of this kind of solutions? So that you can perceive and interpret how this solution improved our business.
AK	Maybe there are abilities, competence and tools for that after the process has been developed. The information systems have been embedded and the process has been digitized. For that even my competence and capacity is enough. I can compare how this worked and served earlier with the present state. But the competence and maybe tools for thinking, which would simulate the future from this point, so that if we would do that way, is it worth the effort. This kind of scenario to see to the future operating model compared with the present one. For this, the basic tools of administration sciences are not the best. However, there is always something of course. But I feel that there are not enough competences and tools for this. The time is one issue, but I won't repeat it again. It is more about if I understand that it must be evaluated, it must be recognized and think about the options. It is more like that than there would not be time. In addition, if there are some assisting tools, your competences, which would assist in perceiving that this kind of solution could be used here and it would mean these issues and compared to the present state it is like this. We go either to the profit or loss and where do we profit or lose. So, I welcome these intercepting interventions aimed to the future, which can be used exactly for this. I understand and sign this part that introduction about the effects that the information technology solutions have on operations and business. On a general level we acknowledge and even recognize these interactions, but when we talk about details, i.e., should we choose this or that we are in a much more difficult position. It is clearly visible that some lose their courage to even take a stand there and it is being said that "that specialist there must do this, it is not our job, isn't it". It must been brought to us there and to force us to it in a way. I understand that but then do we have the suitable tools?
TL	Here, it is common that the information management function can see too many times what this means for information management, but we must achieve dialogue that we can determine the future value in collaboration.

AK	Exactly like this. I remember that at my previous employer University of Lapland, also there I sat in the executive group. The head of information management was seated next to me, on the same side of the table. I mean the previous one, not the current one. And the ATK keskus (ADP Centre), it was the name at the university those days, it was blamed for exactly that. Meaning that they make the decision and there it is solved. So that is the correct way to go, if others do not decide then this lead is being followed. And for example, if we pull back when the question at hand concerns the procurement if or considering the information system affecting our process. If we say that "No, this makes me feel uncomfortable, I can't take a stand on this." Someone has to take it forward and then the responsibility shifts to the information management. There they have their own views of optimization or even setting the goals and evaluating the effects, which may differs from ours. In that case, it is futile from here to say "Hey, why did you do that?" I gave you the room, the table.
TL	In this situation, the technical performance of a system is on the other end of axis and on the other end there is the user related performance. The information management can maintain the technical performance of the system, but what happens to the user related performance?
AK	It is exactly like that but the guilty ones are somewhere else than in the information management in these issues, towards which the blaming finger commonly points. It is costly and it makes choices, we at the fields of experience are not allowed to, they gave them to us. This part about interaction, mutual selection and determination of objectives and corresponding activities can be condensed like this. The management of information management, the information management, and maybe even a bit more operative group in the implementation phase. There we have enormous journey, it is the lack of understanding, and it is the lack of courage. Several explanations will be given, time management and so on and so forth. But those must be overcome. There must be tables from which we cannot leave before we decide together. That look at this, sign your name there.
TL	This was a good discussion. I have been quite a long time in higher education and other IT roles. And based on my experience, various actors' ability to perceive and/or innovate new information or information technology solutions to enhance their relevant operations varies because of actors' different information technology competences and abilities to utilize offered service. It is possible that the collaboration with the information management enhances these competences and will also produce new solutions to old problems. How would you describe the role of the information management in the solving of the operational problems of your own unit and in the development of the processes you own? Or how would you see that role in the future of your own areas of responsibility?
AK	If we take a look at the area of responsibility which ties me the most, the operations of the human resources management. Which is already heavily based on information systems or supported by information systems. There it is significant, very significant. In general, the role of the information management is extensive. But that our systems are external, provided by external supplier, which is rather common these days, no matter what function. So, here, this situation is somewhat specifically emphasized that we interact with an external provider of a service or a system. Or interact with system provider or we depend on them, it could be said. CGI who is the key service provider is a critically important partner for us. Especially for the reason that during this transfer of business, the persons of the information management or the IT services who were the persons responsible for our key systems were left in the federations of municipalities. We had time to successfully co-operate with them during last year, and we will certainly continue that. They are being consulted, they will support us. But you have to understand that they have their own duties now and these duties don't include the support for human resources and financial management of University of Applied Sciences. Maybe they do it based on their old memories or their good will. We still have agreements, specifically with RKK who are partners in our future LUC collaboration thereby, we can say that this end is secured. On the other hand, I would like to see that in our own information management group, let's say ones on our payroll, would either have will or competence to come and support us with this. At the same time, they could bring new kind of thinking and new eyes to the development of our processes either for the digitization or the holistic process. There would be new perspectives, new findings, new observations and new development ideas.

AK	With this background, welcome, but then we also need specialist knowledge towards CGI when we operate, contact, and demand or hope that CGI would produce development modules. For this, we don't have sufficient information management/IT competences in the human resources team. We cannot enter the discussion in that role. We have common knowledge related to these kinds of contracts and we have sufficient knowledge for the development of general information system projects, we have managed so far. But this would be the development direction. Then in the crisis situations, in which the connection with RKK would break off and all kind of playing with Lappia would cease. We wouldn't be left hanging in the air. This was the starting point, I kept this on the agenda that we must at least get a transition period during which we can get the support from these old system specialists and use their knowledge in this. Okay, we succeeded in this for the time of implementation and until today we have received, but I keep thinking this maintenance support performance. Meaning that how would it go with these systems when we wouldn't have this network? Here we come to this that if there would be in the information management, maybe even a spontaneous will to come along with an active development attitude. We have a triad consisting of me, Tiina Huhtalo and Päivi Keskimölö who are responsible for the development of these systems. I am responsible for the process ownership, but the practical implementation for example, Tiina Huhtalo is in charge of the development of webtallennus system. And she would surely sit down with information management specialist and think if this is in our hands or should we go to the other side. And if we go, should we suggest the change together and how we can gather and get the true costs to match up etc.
TL	For sure, there are concerns in which the information management can assist. We met with this Tiina during the early summer and went through this staff employment contract or hiring process because we felt that there is too long a delay between when a person comes to work and when her tools are provided. We went through the process and drifted into the recruitment process and noticed that as a matter of fact, the recruitment process produces quite a lot information which is required in the procurement of a computer. This means that when the person comes, the computer has already been provided. This was the first kind of collaboration in Lapland UAS in which we went through a whole process together. Even though we met through Lync, it was a good experience and will certainly not be the last.
AK	Excellent. Yes. Suddenly it came in to my mind that it is not if you have, but it is if we can turn around and come to say to you that we need more shoulders and knowledge. And do not try to take care of the issue by ourselves and phone to CGI. But that we are as guilty in this. But that I don't know in details what the phase of the internal renewal of the service provisioning in the information management is. Are the responsibilities of particular systems of specific functions being divided between staff or what is the way? Is it that we don't have to know it and that us only let service desk now that send us the best knowledge for support.
TL	At the present time, the roles are defined in the Service Desk.
AK	Also in this kind of development or process development issues?
TL	Actually, these are not there because these are completely different processes which the information management executes. And these are not, as they say, productized or constructed as services. For that part, the information management has a long way to go so that we are able to organize internally. And of course, there is that the staff of the information management, the 16 persons, are assigned to LUC service area.
AK	Yes, but we have already agreed on our side that I will discuss with Markku, the head of information management and that we will think how we can make a correct solution in it. About how we can get that support. The two main options for a common Joe is that there is a person who is assigned as the contact person for us or the human resources management or as contact person for CGI systems. So there are actually these two options and the other option is that there is only a service request and the person can change. It would not be bad for us, if we know that the history is relayed between persons, then it is okay. We don't want that we would now agree through you and shake hands that you are coming to support our processes whenever we meet a challenge. Or that we contact you and ask you to come over or come to you, if it is against the vision of the service development there. That it is not the way how you operate. I know that there are additional systems and the staff will soon run out when we begin to allocate them. This is the model we got used in to during the era of municipal federations. That the human resources management team here, there was Jukka Heikkilä, and it was always Jukka. Over there it was Juha Uljua, in the transition phase it was fixed on the name. It does not need to be, it can be another kind of a solution. I thought to approach this with Markku (Taipale, the Head of Information Management at Lapland UAS) in some other way than storming in like a bull in a china shop and say that we need this, solve your own problems in some other way.

APPENDIX 3 Appendix 3

TL	That is a tight situation, of course, I was on the Lappia's end and I noticed that Juha was suddenly assigned for full time and the knowledge was not passed on within the organization. Then the risk realized that in the end it was everything computer related in the human resources management. Juha's (Head of Property at Lapland UAS) competences were on the systems, but he was used in many places.
AK	That is why I had time to discuss quite a lot with Kauko (the former Head of Information Management at Lapland UAS) and he had a strong desire to break away from this kind of operating model. This kind of allocating knowledge to these systems of that function, you and no one else in our organization. Based on his old background and experiences he felt that this arrangement ties resources heavily and therefore, is a difficult way for our sizing and risk setting. And in the end, our team is not so large that we could afford to fix someone for each key system. Where do we draw the line that you are the main responsible person that others won't touch and where it ends, where is the free field? He reasserted my common Joe thinking here, and I don't want to block the modern approach with my message here. But there is a concern. We need your knowledge in this issue but it is still open how we can get that knowledge in use. The customer of the information management and the management of service provider, LUC management need to check what the way is. They certainly have own laws and thinking for producing services, how to get organized, operating model. But Markku is interesting, as he has just arrived from there to this role in here.
TL	Yes.
AK	It is dangerous that we know and are aware of. Thereby, it is hard to get involved in the sizing because it has been going on for so long. Is it the correct? Did we lose working hours on that? It may be inefficient, but it may be that in case of Juha, we don't need to talk about this. But it goes easily so that the limits come from the task, from that targeted system of human resources/finance and in the end the working day, week and year is not defined by the working hours in the contract of employment but it is defined based on several differed issues. From the perspective of employer it is like this, but there is something else, for sure. For example, the knowledge is not transferred, if this person is away and we need the specialist for human resources then I don't have any idea about what Juha has been doing there.
TL	That we discussed earlier with Markku. We came into a conclusion that LUC is mainly serving the operations, the implementation of normal processes, if something breaks because of a computer problem or else then the LUC assists in it. And the information management of Lapland UAS assist in the development, process development. And this is where this resource allocation must be considered that how the information management can provide the assistance for development, consulting. These are probably more information management services than LUC which is mainly an IT service. Our steering group will soon begin, but if we still manage to go through now that we're talking about IT services, which you own. So, the person responsible for the process is the General Manager of LUC and his duty is part time. And the Head of Information Management at Lapland UAS orders IT services from that LUC. How does this collaboration work?
AK	Well, let's say based on the shared path of the General Manager of the LUC and I, the background of the LUC development partners should be acknowledged. We have collaborated with Markku for several years, and for this part our collaboration is smooth and business-like. But the routine interaction occurs through the Head of Information Management. If and when it occurs, and without a doubt there is more interaction than it is between me and Tarvainen. But there are no problems in that maybe it is the role and the background of Markku as the general manager which reduces the making of agreements with him. The earlier head was a service manager and specifically in that position and of course in some occasional situations one step was missed. And now with Tarvainen, issues which would have gone directly before are now brought to me. Markku Taipale would have taken those issues to himself or directed them directly to someone. We will keep this way at least August 2015 and during that we will observe the problems and challenges. And to the practical communication between the process owner and person in charge of the process and partly between the information management. Oh it was there, I and the process owner. So, I and Markku Taipale discuss about service level and its fulfilment, is it what we have acquired and bought from the LUC. And then we size and consider human resources, what our possibilities are and how the budget makes us to work. This is continuous interaction between us.

AK	There is less interaction between me and the service centre, which means that it goes through the agreement negotiations. We make this service order, and also in that Markku Taipale is in a very focal role. Well, there are these two levels and to an extent I operate as a regular Joe towards the information management or IT service and LUC service centre. Through a person I trust 100 percent. Well, it is like this.
TL	Then, how about when it is commonly said that IT only has an eye for IT. As you said, you have this common Joe perspective and it is plausible that it would help this that the common language improves. That the language in use would always be the real language of operations and Markku has brought this up also.
AK	Yes. As I noted earlier, there is no problem in that. Not towards LUC service production or any other way. It is more the structure of LUC and the challenges of real commitment of its three partners. To mix the competences of the staff for being freely used to optimize the service production in the best way that is must be the challenge by far. I may not see everything, I have this dual role that here I am making orders but I have been affecting to and giving birth to LUC service centre when I was the Director of the Development of the consortium. During the mean time I have not, I am not talking about the present time now, the situation may be different, but a year ago the partners watched over their own play fields way too much, considering the ideal status which was our aim when we created the service centre and more specifically IT services. We guessed that we would face challenges in the use and integration of some of the systems of the initiative management. But we believed that in the case of IT, it is possible to let go of the employer organization in a way that it could be genuinely developed and made to serve. Without thinking about that this one needs to serve his own employer and that one can be in that shared thing, but that one over there we must have as own. The challenges are related to the service optimization between LUC and we are more related to that issue than they are in any person interactions. It is more like that we have this, let's say, too tight an approach to this if these are on our payroll. I don't know if we are, or if we represent the worst. But I guess that we not the number one. I won't say which one I see as the number one in watching over, but I see that those are the biggest challenges related to execution of the ideal model.
TL	I used to work there as the manager of a project and negotiating resources for that project was difficult between three organisations. You said that you utilize the Head of Information Management to use IT services, so what kind of information you need that you can conduct your tasks and set development request? Is that information easily available? Is this issue in order or have you felt that it would be nice to know more about this?
AK	Sometimes it happens, but if we think about these service objective level issues that is how our IT service production should serve our core processes, then it is the continuous interaction between highest administration, heads of fields of expertise and below them the managers and supervisors which creates the knowledge concerning the development and change needs. It comes from all around when you are present there, whether it is the strategic executives group or in operative executives group which he have on Monday, and in the hallways and in the cafeteria. One receives feedback without requesting it and the feedback then leads to the development. On the other hand, the General Manager may summon and say that this issue must be taken care of and this is how. There is probably a sufficient amount of that and I see that from the aspect of service levels that how it works with us and do we need adjustments and what those adjustments could be. Then the more detailed background information concerning how the service processes and the service capabilities of IT services can be improved towards the units. Here it is again our Head of Information Management, in whose sensors and antennas I rely on. When he moves around and interacts with units, he collects that all the time. I am sure that he has other more formal ways to measure weak spots in service levels and processes. But that is a position in which I am not. I am somewhere here that do we get sufficient support from LUC IT Services. Maybe it is the level from which I try to gather information and to understand what it means that is it the problem of an individual person or is there a hidden more holistic message behind. So, the information is available. But there could be more means and systematic approach, but this continuous interaction with various stakeholders, who we try to serve with our IT service order, is the mechanism. And on the more detailed level there is the Head of Information Management who operates to gathers the needs directly.
TL	Thank you, this was a very interesting discussion.
AK	Thank you, this was a pleasant session and very important issues were discussed.

APPENDIX 4 Appendix 4

DESCRIPTION OF THE PROCESS FOR MONITORING INITIATIVES

PROCESS NAME	**Initiative and project monitoring**	IDENTIFIER
PROCESS OWNER	Head of Information Management	DATE
PROCESS MANAGER		DATE
PROCESS TEAM	IM Development Group	

THE PURPOSE AND THE AIM OF THE PROCESS	The purpose of this process is to facilitate the management of all ICT related development activities in accordance with the ICT project portfolio management practices. The aim of this process is to coordinate systematic monitoring of Lapland UAS business environment to ensure that all ICT related initiatives and projects are included in the ICT project portfolio.
PROCESS SCOPE (what are the actions from which process begins and ends)	This process begins when an actor observes his related environment and recognizes a new initiative or project. This process ends when information about newly identified initiative or project is included in the ICT Project Portfolio.
PROCESS CUSTOMERS (who benefit)	This process benefits the IT steering group whose enhanced view to current development activities benefits the whole Lapland UAS.
FOCAL ACTORS OF THE PROCESS (max 5)	CIO, Customer Manager, Service Manager, Enterprise Architect, Initiative/Project Manager
MAIN PHASES OF THE PROCESS	1. Monitoring: Actor recognizes an initiative or a project which is not in the ICT project portfolio. 2. Analysis: Actor collects and analyses information about the initiative or the project. 3. Communication: Actor feeds the information to the ICT Project Portfolio
PROCESS INDICATORS	
PROCESS RELATED DOCUMENTATION	1. Definitions of environments which actors monitor 2. The information requirements of the ICT Project Portfolio
PROCESS RELATED RISKS	Initiatives and projects are not recognized. Information about the project may be misinterpreted.
CONNECTIONS WITH OTHER PROCESSES	This projects outputs to ICT Project Portfolio Management
NOTIFICATIONS	

APPENDIX 5 Appendix 5

DESCRIPTION OF THE PROCESS FOR RESOLVING DISAGREEMENTS

PROCESS NAME	**Resolving Disagreements**	**IDENTIFIER**
PROCESS OWNER	Head of Information Management	**DATE**
PROCESS MANAGER		**DATE**
PROCESS TEAM	IM Steering Group	

THE PURPOSE AND THE AIM OF THE PROCESS	The purpose of this process is to facilitate the efficient resolving of emerging IT disagreements. The aim of this process is enable the uninterrupted development at Lapland UAS from the aspect of IT.
PROCESS SCOPE (what are the actions from which process begins and ends)	This process begins when actors fail to agree on an IT decision. This process ends when an agreement is achieved.
PROCESS CUSTOMERS (who benefit)	This process benefits actors whose work is interrupted by a disagreement.
FOCAL ACTORS OF THE PROCESS (max 5)	Actors with disagreement, Appropriate stakeholders
MAIN PHASES OF THE PROCESS	1. Actors identify the context of the disagreement 2. Actors appoint the decision making for suitable stakeholders 3. Stakeholders make the decision
PROCESS INDICATORS	The amount of resolved disagreements, The amount of redirections, The amount of escalations, The amount of requests for additional information,
PROCESS RELATED DOCUMENTATION	1. Map of decision making structures
PROCESS RELATED RISKS	Actors may misinterpret the context of the disagreement and forward the decision making to wrong authorities. This may reduce the quality of decisions. Actors fail to support the decision making with sufficient information about the disagreement.
CONNECTIONS WITH OTHER PROCESSES	This process is used in the Co-producing IT service and configurations. In addition, this process can be used in ICT projects
NOTIFICATIONS	

APPENDIX 6 Appendix 6

DESCRIPTION OF THE PROCESS FOR ANALYSING BUSINESS PROCESSES

PROCESS NAME	**Business process analysis**	IDENTIFIER
PROCESS OWNER	Head of Information Management	DATE
PROCESS MANAGER		DATE
PROCESS TEAM	IM Development Group	

THE PURPOSE AND THE AIM OF THE PROCESS	The purpose of this process is to facilitate the management and development of Lapland UAS's IT resources in accordance, with the needs of business processes. The aim of this process is identify the resource requirements (knowledge, skills, systems, technology) of the observed business process.
PROCESS SCOPE (what are the actions from which process begins and ends)	This process begins when actors meet to analyse the process. This process ends when information about resources is include in the database.
PROCESS CUSTOMERS (who benefit)	This process benefits actors who execute, develop and support the specific process. Moreover, with this information it is possible to identify which actors are required to collaborate in solving problems
FOCAL ACTORS OF THE PROCESS (max 5)	Process Owner, Person responsible for the process, Process Team, IT Designer responsible for the process
MAIN PHASES OF THE PROCESS	1. Actor analyses a selected process in collaboration with relevant actors 2. Actor feeds the information to database
PROCESS INDICATORS	Analysed / Unanalysed processes Assistance requests
PROCESS RELATED DOCUMENTATION	1. Process documentation 2. Information Systems documentation
PROCESS RELATED RISKS	If required resources are not identified or are misinterpreted, it is possible that resources available for the development and the execution of the business process are not sufficient or that they are misconfigured.
CONNECTIONS WITH OTHER PROCESSES	This outputs of this process can be used in the knowledge management and quality management process of Lapland UAS
NOTIFICATIONS	

APPENDIX 7 Appendix 7

DESCRIPTION OF THE PROCESS FOR MONITORING AND ANALYSING TRENDS

PROCESS NAME	**Trend Monitoring and Analysis**	IDENTIFIER
PROCESS OWNER	Head of Information Management	DATE
PROCESS MANAGER		DATE
PROCESS TEAM	IM Development Group	

THE PURPOSE AND THE AIM OF THE PROCESS	The purpose of this process is to facilitate the management and development of Lapland UAS's IT resources in accordance, with internal and external trends. The aim of this process is to create knowledge of what influence trends have to the use of IT resources in Lapland UAS.
PROCESS SCOPE (what are the actions from which process begins and ends)	This process is an initial part of the IM function's Operational Plan development process. This process ends when the making of Operational Plan proceeds to making choices based on recognized trends.
PROCESS CUSTOMERS (who benefit)	This process benefits the administration, profit centres and corporate functions of Lapland UAS by facilitating the optimization of IT resources in accordance with internal and external trends.
FOCAL ACTORS OF THE PROCESS (max 5)	Head of Information Management, IT Designers and other members of the IM steering and development groups.
MAIN PHASES OF THE PROCESS	1. Identification: Actors gather trends from their relevant fields of speciality and service ecosystems. 2. Analysis: Actors relate trends to the Lapland UAS environment to understand how trends influence the use of IT resources. 3. Communication: Outcomes of the analysis are communicated in a way that they can be used to make decisions.
PROCESS INDICATORS	The effectiveness of the trend analysis can be analysed based on the success of the decisions in previous operational plans.
PROCESS RELATED DOCUMENTATION	1. Process documentation 2. Information Systems documentation
PROCESS RELATED RISKS	Failure to recognize and to react to influential trends reduces Lapland UAS' ability to absorb and to adapt to changes in internal and external environments. Misinterpreting a trend may lead into decrease in the IT utilization capabilities of Lapland UAS.
CONNECTIONS WITH OTHER PROCESSES	This process feeds to development of the Operational Plan. This process draws from outcomes of business process analyses.
NOTIFICATIONS	Involved actors should continuously monitor for relevant emerging trends and take this information to the IM development group.

APPENDIX 7 Appendix 7

DESCRIPTION OF THE PROCESS FOR THE CO-PRODUCTION OF IT SERVICE AND CONFIGURATION OFFERINGS

PROCESS NAME	**Co-production of IT service and configurations**	IDENTIFIER
PROCESS OWNER	Head of Information Management	DATE
PROCESS MANAGER		DATE
PROCESS TEAM		

THE PURPOSE AND THE AIM OF THE PROCESS	The purpose of this process is to facilitate the collaboration between the IT and business in the development of IT service and configurations. The aim of this process is to enhance the BIA by enabling the optimization of IT service and configuration offerings.
PROCESS SCOPE (what are the actions from which process begins and ends)	This process begins when a decision is made to enhance an existing offering or to develop a new offering. This process ends when the implementation of the new or enhanced offering begins.
PROCESS CUSTOMERS (who benefit)	This process benefits whole Lapland UAS through the enhanced Business-IT alignment and IT utilization capabilities.
FOCAL ACTORS OF THE PROCESS (max 5)	The Head of Information Management, IT Designer responsible for the offering, Representatives of beneficiaries of the offering
MAIN PHASES OF THE PROCESS	1. Codetermine a desired outcome. 2. Codetermine the quality parameters for the outcome. 3. Analyse relevant IT resources. 4. Codetermine how IT resources are integrated. 5. Codetermine roles and activities for involved actors.
PROCESS INDICATORS	The effectiveness of the trend analysis can be analysed based on the success of the decisions in previous operational plans.
PROCESS RELATED DOCUMENTATION	1. Business process documentation 2. Relevant IT resource information 3. Information about current trends, initiatives and projects 4. Strategy of Lapland UAS
PROCESS RELATED RISKS	It is possible that information required is not available for the process.
CONNECTIONS WITH OTHER PROCESSES	This process uses pre-determined process for resolving disagreements This process draws from the outcomes of Initiative and project monitoring process, Business process analysis process, and Monitoring and analysing trends process. The outcomes of this process are inputs for appropriate implementation processes at LUC IT.
NOTIFICATIONS	