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MANAGING KNOWLEDGE REQUIREMENTS FOR DEVELOPING PROCESSES IN SHARED SERVICE CENTRE ENVIRONMENT

Master's Thesis

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Tallinn 2015

I declare I have written the master's thesis independently.
All works and major viewpoints of the other authors, data from other sources of literature and elsewhere used for writing this paper have been referenced.

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TABLE OF CONTENTS

ABSTRACT

The title is: „Managing knowledge requirements for developing processes in shared service environment“.

Present research has been derived from the situation in Orkla, which is branded consumer goods and concept solutions company. To be competitive at every level of the value chain, Orkla established Shared Service Centre (SSC), which is considered as business network in this research.

The research topic is knowledge management due to the knowledge management tools, which have potential for developing processes in SSC environment. The need to manage knowledge requirements becomes a research problem and according to the need of the research new conceptual model is designed, which is emerging from existing data.

This research is intended to answer central research question: **How to develop knowledge intensive processes in shared service centre environment?**

Central research question of the thesis has been answered through qualitative case study research and empirical findings from SSC on managing requirements knowledge have been presented. Those finding are organized and conceptualized according to the knowledge requirements model, which is a spiral of Quality, Efficiency and Innovation Requirements of developing knowledge-intensive processes.

Keywords: knowledge management, knowledge requirements, knowledge intensity, business networks, social networks, quality, innovation, efficiency

INTRODUCTION

There is emerging consensus that the most important source of sustainable competitive advantage in an increasingly turbulent global business environment is knowledge (Nonaka, 1991; Knowledge … 2007). The organizational capability to create, recognize, disseminate widely, and embody knowledge in new products and technologies is critical when faced with shifting markets, rapid product obsolescence, hyper-competition, and financial upheavals (Nonaka, 1991). Internet and related technologies have become tools of both knowledge production and dissemination; this has hastened the recognition that actors outside the traditional boundaries of the firm possess unique knowledge that may be applicable within the firm (Benkler, 2006; Jeppesen and Lakhani, 2010; Chesbrough, 2003). An increasing number of Business Networks comprise firms and sometimes individuals not bound by authority based on employment relationships but characterized by a system-level goal. In certain phase of development, some fundamental issues occur for those business networks: 1) the question of how to create efficiencies through shared services; 2) and after some time how to bring different divisions together by sharing expertise among them. The issue of creating efficiencies increases the importance of the expertise sharing and according to Mentzas *et al* (2003) business networks address those issues by focusing on either products or processes.

Knowledge-based society has arrived (Rowley 1999; Chen, Huang 2011), despite all the excitement on the importance of knowledge and knowledge economy (Starbuck 1992; Drucker 1994; Rowley 1999; Akhavan *et al* 2005; Botha *et al* 2008) there is still limited understanding on the role of knowledge management tools in achieving business objectives. Organizations that will succeed in the global information society are those that can identify value, create and evolve their knowledge assets. (Rowley 1999; Kim *et al* 2012) At the individual level, people have been informally sharing, seeking, and using knowledge from others long before "Knowledge Management" (KM) ever became a key topic of discussion in the literature on management theory and practice. (Ford *et al* 2013) The process of knowledge reuse and creation needs to be balanced by integration of routine and structured information

processing, non-routine, and unstructured learning at collective level in the same business model, and according to Ford *et al* (2013) KM efforts represent attempts to formalize these processes.

According to McKinsey (Price, Turnbull 2007) the missing step for most companies is spending the time required to create a simple plan for how data, analytics, front-line tools, and people come together to create business value. In these early days of big-data and analytics planning, companies should address analogous issues: choosing the internal and external data, they will integrate; selecting, from a long list of potential analytic models and tools, the ones that will best support their business goals; and building the organizational capabilities needed to exploit this potential. (Biesdorf et al 2013)

A business network is owned by the business enterprise (Lundy 2002) and it needs to bring various units together for integration and centralization. The scope of the network is to support the informational and operational requirements of the business. (Lundy 2002). These networks are a critical resource in building teams and in transmitting and maintaining knowledge in an organization (Jones 2001) and theses "knowledge networks" can be defined as a special case of social networks in which the links of the network represent shared or related knowledge. (Groth 2003) Due to their distributed nature Business or Knowledge Networks make a good case study for testing KM approaches in real life situations and is the reason for concluding following central research question for this thesis.

CRQ: How to develop knowledge intensive processes in shared service centre environment?

Qualitative case study method applied in this study was selected in order to answer central research questions and it is particularly well-suited to information systems where the interest has shifted to organizational rather than technical issues. Qualitative research approach was employed that included semi-structured interviews and analysis of secondary data like internal and external reports, articles, presentation materials, process maps, detailed work instructions and additional internal documentation. Orkla as a case company for the thesis was chosen due to personal interest of the researcher, who has been employed in Orkla Accounting Centre from 2012 and holds a positions as Project and Knowledge Manager.

There are several ways of developing knowledge intensive processes, but beforehand specific requirements have to be gathered. Three types of requirement: quality, efficiency and innovation requirements are set for the research in knowledge requirements model, which is

derived from SECI process from Nonaka and will be described in third chapter. Knowledge management is purported to enhance organizational quality and organizational performance. (Shang et al 2008) and from this perspective, three types of requirements are studied to answer central research question, which is supported by following supplementary questions:

- How should the work be done consistently?
- How should the processes be accomplished in a consistent way?
- How should the process improvements be facilitated?

The case study of the thesis is based on Orkla ASA, which is a Norwegian conglomerate operating in the Nordic region, Eastern Europe, Asia and the US. In 2013 review of Orkla's accounting functions showed that the current structure was decentralized and Orkla had accounting functions in the majority of the companies that perform transactional work. Business case around establishment of new Shared Service Centre (SSC) in Tallinn showed in addition to savings in wages that Orkla would benefit from the synergies of centralizing the accounting functions across the Group. Beginning of 2015 it was decided to develop standardized digital framework for group collaboration, across companies and business areas, which is a major step forward in standardizing systems and processes within Orkla and it enables the establishment of "company best practice". Orkla has made several major changes in organizational structure to fit the new strategy and future goal, but there is still long way to go in order to develop the processes in context of establishing stronger collaboration through networking and better knowledge management.

First chapter provides an extensive literature review, which establishes the research problem through a number of tools, and approaches which need to be considered for developing knowledge intensive processes in shared service centre environment.

Second chapter provides methodology and justification of the research design process applied to answer research question of the thesis. The chapter first focuses on research approach and justification of decision to use qualitative case study approach and follows with explanation of data collection process and analysis.

Third chapter describes organized and conceptualize knowledge requirements model, which was derived from Nonaka SECI model. Chapter follows with case analysis divided by Quality, Efficiency and Innovation requirement as suggested by knowledge requirements module compound based on analysis.

I would like to acknowledge the people and organisation whose contribution and assistance have made this research possible. I wish to sincerely thank my co-supervisor Jörgen Jaanus, Orkla Accounting Centre and my supervisor Associate Professor Mike Franz Wahl.

THEORETHICAL FRAMEWORK

This chapter provides an extensive literature review, which establishes the research problem through a number of tools, and approaches which need to be considered for developing knowledge intensive processes in shared service centre environment.

1.1. Knowledge economy and commodification of knowledge

Knowledge-based society has arrived (Rowley 1999, Chen, Huang 2011) but despite all the excitement on the importance of knowledge and knowledge economy (Starbuck 1992;

Knowledge-based society has arrived (Rowley 1999, Chen, Huang 2011) but despite all the excitement on the importance of knowledge and knowledge economy (Starbuck 1992; Drucker 1994; Rowley 1999; Akhavan *et al* 2005; Botha *et al* 2008) there is still limited understanding on the role of knowledge management tools in achieving business objectives. This issue has been the key focus in this research. (An Educational...) An important point to understand is that knowledge management (KM) is not a technological discipline; it is more about managing people, culture, and organizational practices and structures. (An Educational...; Knowledge …2007) While there are KM tools which are mature and have become part of the mainstream management and organizational development agenda, KM as a business function has been embedded into other disciplines such as Information and Communication Technology, Organizational Learning, Content Management, Business Intelligence.

Organisations that will succeed in the global information society are those that can identify value, create and evolve their knowledge assets. (Rowley 1999; Carneiro 2006; Knowledge …2007; Holsapple Wu 2011) Knowledge has become a critical and potential strategic resource for contemporary firms as well as it is important to know how to effectively manage and integrate various kinds of knowledge resources in order to survive and keep competitive advantages. (Chen, Huang 2011) Effective KM initiatives place focus on

knowledge as an actual asset, rather than something intangible. (An Educational ...) The information society is not only affecting the way people interact but it is also requiring the traditional organisational structures to be more flexible, more participatory and more decentralised. (Abramson, Raboy 1999) Such a significant change in the environment makes it an imperative for business organizations to have a systematic approach on knowledge assets, however, the real deployment requires an understanding on how KM tools can be activated for achieving the business goals.

Many researchers argue that knowledge has become the main competitive tool for many businesses (Rowley 1999; Chen, Huang 2011). Economists' are labelling firms as capital-intensive or labour-intensive. These labels describe the relative importance of capital and labour inputs to the company. In a capital-intensive firm, capital has more importance than labour and the other way around. By analogy, labelling a firm as knowledge-intensive implies that knowledge has more importance than other inputs. (Starbuck 1992) Drucker (1994) has described knowledge, rather than capital or labour as the only meaningful economic resource in the knowledge society. He said: „*The basic economic resource is no longer capital, nor natural resources, nor labour. It is and will be knowledge*". Knowledge has become the resource, rather than a resource (Drucker 1994) but at the same time Senge (1990) has warned that many organisations are unable to function as knowledge based organisations, because they suffer from learning disabilities. (Rowley 1999)

Companies must innovate or die, and their ability to learn, adapt and change becomes a core competency for survival. The forces of technology, globalisation and the emerging knowledge economy are creating a revolution that is forcing organisations to seek new ways to reinvent themselves. (Rowley 1999) Enabling organizations to capture, share, and apply the collective experience and know-how of their people is seen as fundamental to competing in the knowledge economy. According to Smith and Farquhar the primary goal of knowledge management is as follows: „Improve organizational performance by enabling individuals to capture, share, and apply their collective knowledge to make optimal decisions … in real time". (2000) And this is the reason why many organisations are currently in the process of implementing what have come to be known as knowledge management systems. (Smith, Farquhar 2000)

These computer-based systems are intended to enable the organisation to make full use of the various forms of knowledge found in the organisation. Knowledge management

systems therefore raise important questions about the nature of knowledge; they challenge our fundamental assumptions about the commodification of knowledge, which in turn raises important questions about the notion of control in organisations. These assumptions can be viewed from the perspectives of a number of different stakeholders in the knowledge management process. Management becomes interested in the commodification of knowledge because the benefits of the system may be limited if not all the knowledge required for the successful operation of the organisation can be stored in the system. (Whitley 2000) For example, ‘‘system’’ KM strategy requires IT tools that allow for explicit knowledge to be formalized and articulated in documents, and shared electronically through IT infrastructures such as intranets. Therefore, firms should invest in an extensive IT system to codify knowledge. (Chen, Huang 2011) The workforce, in contrast, may be concerned that all their skills are easily commodifiable and hence that their value to the organisation may be limited. (Whitley 2000) This view in contrast is seen as ‘‘human’’ KM strategy which draws upon interpersonal relationships to exchange and share tacit knowledge across organizations. Thus, a moderate investment in IT to connect experts in organizations is needed. (Chen, Huang 2011) Commodification of knowledge, is defined not through what it is, but through what it can do (Gilbert 2013) and it pursues to capture the transformation of knowledge embedded in working practices into abstract systems of knowledge. (Hellström, Raman, 2001).

1.2. Knowledge creation

While KM is not technological discipline, we need to consider the very significant impact of information and communication technology (ICT) on knowledge creation during the last decades.

Terms data, information and knowledge are conflated and there is confusion around them but the terms can be seen as existing on a single continuum, (Tsoukas, Vladimirou, 2001) and the differences between them are often a matter of degree (Davenport, Prusak 2000). Data is factual information (as measurements or statistics) used as a basis for reasoning, discussion or calculation or it is possible to identify data an ordered sequence of events or statistics in an ordered fashion. (Tsoukas, Vladimirou, 2001) According to Rowley (2006, 2007) data is seen as the symbolic representation of observable properties of the world.

Information at the same time is understood as relevant, or usable, or significant, or meaningful, or processed, data. (Rowley 2007) Information is defined as the communication or reception of knowledge or intelligence or information as context-based arrangement of items whereby relations between them are shown. (Tsoukas, Vladimirou, 2001) Information has meaning – news, events and data – when we can establish a content that shows relationships among these items and presents them as an organized topic. The idea is that of a human asking a question beginning with, ‘‘who’’, ‘‘what’’, ‘‘where’’, ‘‘when’’, or ‘‘how many’’; and the data is processed into an answer. When this happens, the data becomes ‘‘information’’. Data become interchangeable with information, information becomes equated with knowledge (Tsoukas, Vladimirou, 2001) and data itself is of no value until it is transformed into a relevant form. In consequence, the difference between data and information is functional, not structural. (Aven 2013)

There is considerable amount of literature on knowledge management, but the issue of defining what „knowledge“ actually is seem to be fundamental. (Miles et al 1995) Oxford Dictionary defines knowledge as facts, information, and skills acquired by a person through experience or education, the theoretical or practical understanding of a subject, awareness or familiarity gained by experience of a fact or situation. It is more helpful to see knowledge as an active process. It involves the ability to organise information, as well as the results of applying that ability. (Miles et al 1995) Knowledge is the judgment of the significance of events and items, which comes from a particular context and/or theory (Tsoukas, Vladimirou, 2001) and knowledge is dynamic, since it is created in social interactions amongst individuals and organisations (Nonaka et al 2000).

The distinction between “know-that (what)” and “know-how” was made by Gilbert Ryle in his book “The concept of Mind”. Know–how is what makes possible the transformation of information into instructions (Aven 2013) and it is the basis of differentiation tacit knowledge and explicit knowledge (Nonaka, Takeuchi 1991). Explicit knowledge is formal and systematic. It can be easily communicated and shared, in product specifications or a scientific formula or a computer program. It comes in a form of artifacts such as books, documents, white papers, databases and policy manuals. (Nonaka 1991) There is much evidence for the growing importance of formal knowledge in the economy, as indicated in rising educational requirements and expenditures, and growing levels of expenditure on Research and Development (R&D) and of patenting. Such evidence is cited in

support of the view that we are moving into more Knowledge-Based Economies. The focus of such claims, of course, particularly concerns instrumental knowledge related to science and technology, and the appropriation and application of such knowledge. Explicit knowledge will extend to such features of the environment of firms as industrial relations legislation, administrative rules, and market intelligence. (Miles et al 1995)

According to Nonaka (1991) tacit knowledge is highly personal. It is hard to formalize and, therefore, difficult to communicate to others. It is also deeply rooted in action and in an individual's commitment to a specific context. This idea is shared by Botha et al (2008) who includes that tacit knowledge can be found in the heads of employees, the experience of customers, the memories of stakeholders. It is hard to catalogue or document it and usually built on experience. Tacit knowledge is more difficult to identify than explicit - and in the context of innovation, it has several dimensions. It encompasses, for example, both those aspects of "know-how" which are hard to represent in books and reports, and are most often acquired through processes of learning-by-doing, and the so-called "routines" which firms pursue in their technological search activities (Miles et al 1995).

As described, distinction between tacit and explicit knowledge is commonly employed in the innovation literature (Miles et al 1995) but according to Botha et al (2008) a practical view of knowledge is that tacit and explicit knowledge are not absolute opposites, but that they form a spectrum. Understanding them is best archived at the extremes of the spectrum. In principle knowledge is essentially a pure human faculty, which is still far from being completely understood. (Botha et al 2008)

Modern day thinkers, artificial intelligence scientists, and business management experts' such as Peter Drucker and Ikujiro Nonaka have spent much time and energy in grasping the importance of knowledge, in creating awareness of its value and of the vital need for its management in modern organisations. (Botha et al 2008) The pre-existence of knowledge, whether explicit or tacit, somewhere in the organization is of little benefit; it becomes a valuable corporate asset only if it is accessible, and its value increases with the level of accessibility. Managers in large corporations know how common it is to reinvent the wheel, solving the same problems from scratch repeatedly, duplicating effort because knowledge of already developed solutions has not been shared within the company. If there is no system in place to locate the most appropriate knowledge resources, employees make do with what is most easily available. That knowledge may be reasonably good, but in today's

competitive environment reasonably good is not good enough and one thing what these definition immediately make clear is that knowledge is not neat or simple. It is a mixture of various elements; it is fluid as well as formally structured; it is intuitive and therefore hard to capture in words or understand completely in logical terms. (Davenport, Prusak 2000)

To comprehend the term knowledge, it is important to understand that knowledge derives from information as information derives from data and if information is to become knowledge, humans must do virtually all the work. Knowledge may be developed in a variety of ways - through learning by doing and by experimentation, communication, formal training etc. (Miles et al 1995) but transformation from data to information to knowledge happens through such C words as: (Davenport, Prusak 2000)

- Comparison: how does information about this situation compare to other situations we have known?
- Consequences: what implications does the information have for decisions and actions?
- Connections: how does this bit of knowledge relate to others?
- Conversation: what do other people think about this information?

Clearly, these knowledge-creating activities take place within and between humans. While we find data in records or transactions, and information in messages, we obtain knowledge from individuals or groups of knowers, or sometimes from organizational routines. (Davenport, Prusak 2000) Nonaka et al (2000) defines knowledge creation as: "A continuous, self-transcending process through which one transcends the boundary of the old self into a new self by acquiring a new context, a new view of the world, and new knowledge …one also transcends the boundary between self and other, as knowledge is created through the interactions amongst individuals or between individuals and their environment".

To understand how organisations create knowledge dynamically Nonaka, Toyama and Konno (2000) proposed a model of knowledge creation which is called as SECI process. (see Figure 1) The SECI process illustrates knowledge creation as a spiralling process of interactions between tacit and explicit knowledge and how these interactions lead to the creation of knowledge.

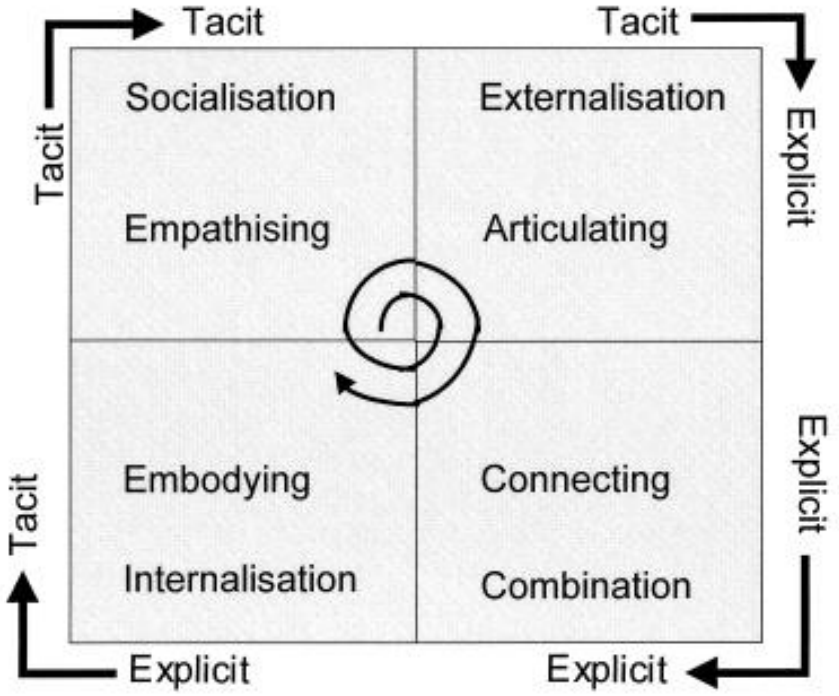

Figure 1. SECI process
Source: (Nonaka *et al* 2000)

Interaction between the two types of knowledge is called as `knowledge conversion'. Through the conversion process, tacit and explicit knowledge expands in both quality and quantity and there arefour modes of knowledge conversion. Tehy are: (Nonaka *et al* 2000)

- socialisation (from tacit knowledge to tacit knowledge);
- externalisation (from tacit knowledge to explicit knowledge);
- combination (from explicit knowledge to explicit knowledge);
- internalisation (from explicit knowledge to tacit knowledge).

Knowledge can or should be evaluated by decisions or actions to which it leads to. (Davenport, Prusak 2000) By formalization knowledge related practices benefits the organization primarily through lowering of costs (associated with loss of knowledge and the avoidance of replicated mistakes) the exploitation of knowledge gained through lessons learned and organizational learning (Ford et al 2013) and better knowledge can lead, for example, to measurable efficiencies in product development and production. (Davenport, Prusak 2000) However, learning also involves the decision to change future action, which is typically considered a (possible) outcome of knowledge management. (Jones 2001) It is correct to say that knowledge management and organizational learning are strongly related

and knowledge management can affect the bottom line by starting with quick fix solutions, rather than attempting to embed knowledge management in a holistic manner throughout the organisation. (Rowley 1999)

Knowledge Maturing can be described as goal-oriented learning on a collective level. Knowledge Maturing process consists of five consecutive stages: expressing ideas, distributing in communities, formalizing, ad-hoc learning and standardization . (Maier, Schmidt 2007) In the knowledge maturing model learning activities are embedded into, interwoven with, and even indistinguishable from everyday work processes and practices. Knowledge is continuously repackaged, enriched, shared, reconstructed, translated and integrated etc. across different interlinked individual learning processes. During this process knowledge becomes less contextualized, more explicitly linked, easier to communicate, shortly it matures. (Schmidt et al 2009)

To define knowledge management it is possible to say that it is 'any process or practice of creating, acquiring, capturing, sharing and using knowledge, wherever it resides, to enhance learning and performance in organizations' (Scarborough *et al*, 1999; Jennex, Smolnik 2011; Kim *et al* 2014). KM has turned out to be a more enduring development in organizations than many industry observers had predicted and it encompasses a broad range of tools, technologies, and managerial practices intended to produce bottomline benefits by making better use of an organization's intellectual capital. (Gray, Meister 2004)

However, success metrics have been difficult to find for KM interventions designed to improve employees' ad hoc access to internal knowledge. Organizations are undertaking such KM interventions like electronic communities of practice and knowledge repositories to augment traditional ways of accessing expertise such as speaking to co-located colleagues and reading printed publications. (Gray, Meister 2004) According to Jennex and Smolnik (2011), as stated earlier KM success can be delivered and measured using the dimensions of impact on business processes, strategy, leadership, efficiency and effectiveness of KM processes, efficiency and effectiveness of the KM system, organizational culture, and knowledge content.

1.3. Knowledge intensive business services

Knowledge intensity has diverse meanings, partly because people use different definitions of knowledge but the term knowledge-intensive imitates economists' labelling of firms as capital-intensive or labour-intensive. These labels describe the relative importance of capital and labour as production inputs. In a capital-intensive firm, capital has more importance than labour; in a labour-intensive firm, labour has the greater importance. By analogy, labelling a firm as knowledge-intensive implies that knowledge has more importance than other inputs. (Starbuck 1992)

Davenport recognizes the knowledge intensity by the diversity and uncertainty of process input and output. A process is knowledge intensive if its value can only be created through the fulfilment of the knowledge requirements of the process participants. Clues for a knowledge intensive process are apart from the above mentioned criteria: (Gronau, Weber 2004)

- Diversity of information sources and media types
- Variance and dynamic development of process organization
- Many process participants with different expert's reports
- Use of creativity
- High degree of innovation
- An available degree of decision scope.

Gronau et al (2005) brings out several additional properties which are typical for knowledge-intensive business processes and are introduced in the following list: (Gronau at al 2005)

- The event flow of knowledge-intensive business processes is not clear in advance, as it can evolve during the process.
- The participants in the process have different experiences and bring in knowledge from different domains at different levels of expertise.

Common business processes are characterized by a predefined process structure and repeated tasks that are fulfilled basing on the underlying process model, which contains information, tasks and user roles. Knowledge-intensive business processes are only partially mapped by the process model due to unpredictable decisions or tasks guided by creativity.

Typically knowledge flows and knowledge transfers between media and persons are necessary to achieve a successful process completion (Gronau, Weber 2004)

There is no doubt that the role of services has increased substantially in contemporary economies, in terms of their output, employment, and importance as inputs to other sectors. (Miles et al 1995) Many services rest upon knowledge of various specialised kinds. Traditional professional services such as accountancy and legal services, market research and personnel services, are of this kind. Such traditional professional services have been based upon specialised knowledge of administrative systems and social affairs, and of how to apply such intellectual techniques as logic and arithmetic, and skills that range from courtroom debating to statistical analysis. A typical purpose of traditional professional services is helping users navigate/negotiate complex systems. These complex systems are traditionally not so much technical systems as: Social systems, especially administrative rules and regulations, but also less formally organised material on social groups and interests. (Miles et al 1995)

Services that provide knowledge-intensive inputs to the business processes of other organisations are called knowledge-intensive business services (KIBS). Computer services, R&D services, legal, accountancy and management services, architecture, engineering and technical services, advertising and market research – are prominent features of the knowledge-based economy. (Miles 2005) KIBS growth reflects demands for knowledge inputs from organisations, to help them deal with changing technologies and social conditions. The growth also reflects organisational strategies and management thinking such as ‘‘outsourcing’’ and a focus on core competences, and increasing emphasis on service and intangible elements of production and products. (Miles 2005)

In many ways, what KIBS are doing is locating, developing, combining and applying various types of generic knowledge about technologies and applications to the local and specific problems, issues and contexts of their clients. As with many other service offers, they are involved in a process of fusing generic and local knowledge together. Sometimes this means that substantial negotiation with the client is required to reach a shared understanding of precisely what the problem is that they are meant to deal with. (Miles 2005)

While gathering requirements knowledge on accounting processes it becomes crucial to consider dynamic, even scruffy nature of knowledge at the age of big data and social media compared to the neat process maps and e-learning tools a decade ago. Knowledge is produced

and consumed simultaneously, making knowledge production and consumption interconnected and inseparable.

1.4. Requirements for knowledge intensity

According to Gronau and Weber (2004) process or service is knowledge-intensive if its value can only be created through the fulfilment of the knowledge requirements of the process participants. Some authors accentuate the ability to plan the knowledge requirement and determine the knowledge intensity based on variability and exceptional conditions. Other sources name processes as knowledge intensive if an improvement with conventional methods of business reengineering is not or only partially possible.

Requirements represent a verbalization of decision alternatives on the functionality and quality of a system (Managing requirements…2013), and requirements management (RM) requires maintenance of a large amount of information during a period when that information is rapidly changing. (Convergence of … 2010) Engineering, planning, and implementing requirements are collaborative, problem-solving activities, where stakeholders consume and produce considerable amounts of knowledge. Managing requirements knowledge is about efficiently identifying, accessing, externalizing, and sharing this knowledge by and to all stakeholders (Managing requirements…2013), and RM is even more complex when several organizations collaborate to develop the system. Collaboration, communication, and knowledge management problems result in subsystem interface errors and unrecognized interdependencies. (Convergence of … 2010)

Identifying requirements knowledge aims at externalizing tacit knowledge such as rationale or presuppositions (Managing requirements…2013) and is one of the limitations for the thesis in hand, where the main focus is on identifying the requirements for creating knowledge intensive business processes. To be able to create such processes it is important to ensure that an organization documents, verifies, and meets the needs and expectations of its customers and internal or external stakeholders. (Stellman, Greene 2005) Secondly it is about representing requirements knowledge targets an efficient information access and artefact reuse within and between projects. Third, sharing requirements knowledge improves stakeholders' collaboration and ensures that their experiences do not get lost. And fourth,

reasoning about requirements and their interdependencies aims at detect inconsistencies and deriving new knowledge. (Managing requirements…2013)

Adopting a KM perspective of requirement engineering (RE) brings new insights that can help to explain and understand issues that may occur when doing requirements. This perspective leads to several suggestions on how to deal with such issues when occurring in a given project. The goal of a RE effort is to understand the characteristics of the software or the system to be developed, so that its realization transforms the environment in a way that fulfils the requirements of the stakeholders. (Managing requirements…2013)

To provide a basis for understanding requirements management, the requirements process is described, including requirements elicitation, capture, and verification. Recommendations are made for eliciting and sharing knowledge, organizing perceptions concerning the problem the project is trying to solve, using language terms and structure to capture requirements, and modelling the requirements. The requirements process, as in knowledge management, consists of elicitation (knowledge pull), acquisition and capture, and the creation of information and documentation for other users and uses (knowledge push). Team members analyse requirements for consistency, completeness, and correctness (the right functionality, dependability, maintainability, integrity, and so on). The "right functionality" is the functionality that customers require. One should not build more or less. If more functionality is provided, the customers are paying for more than they need. Some practitioners call this "gold-plating." (Convergence of … 2010)

Requirements are normally identified as belonging to one of two types: functional and non-functional which are shown in Figure 2 below. Functional requirements express the need for capabilities, while non-functional requirements express how well these capabilities shall be performed (how fast, how reliable, how secure, and so on). (Convergence of... 2010)

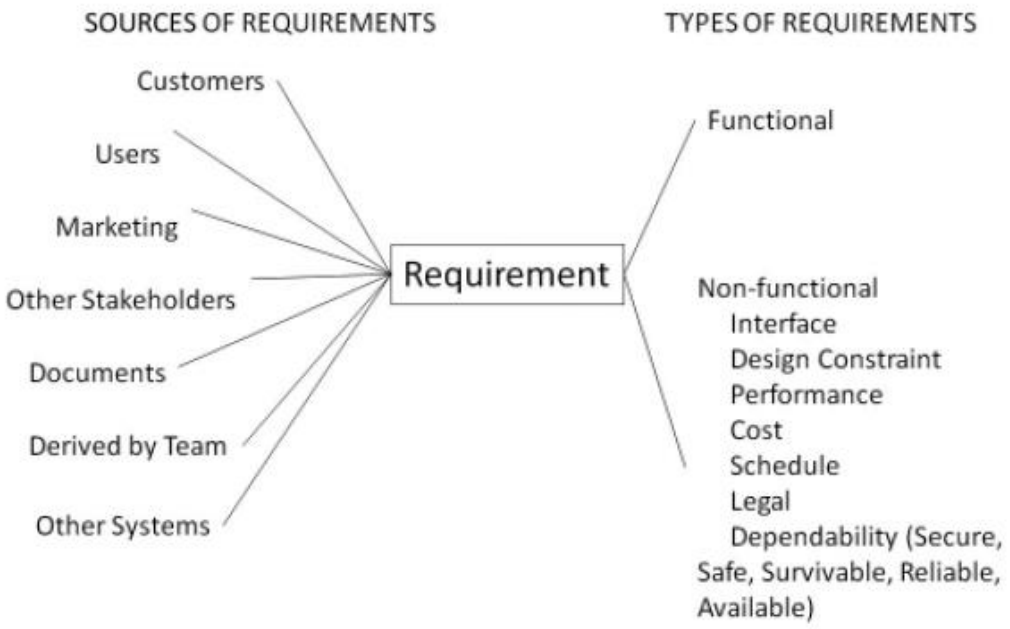

Figure 2. Requirement sources and types
Source: (Convergence of... 2010)

Types of non-functional requirements are listed in figure 2. Non-functional requirements include performance, dependability, maintainability, usability, and operational requirements. They also include documentation, legal, and cost and schedule requirements and constraints on the interface and on design (for example, requiring a specific software programming language). Requirements analysts must consult many sources to obtain these requirements. A number of requirements sources are shown in figure 3. (Convergence of … 2010)

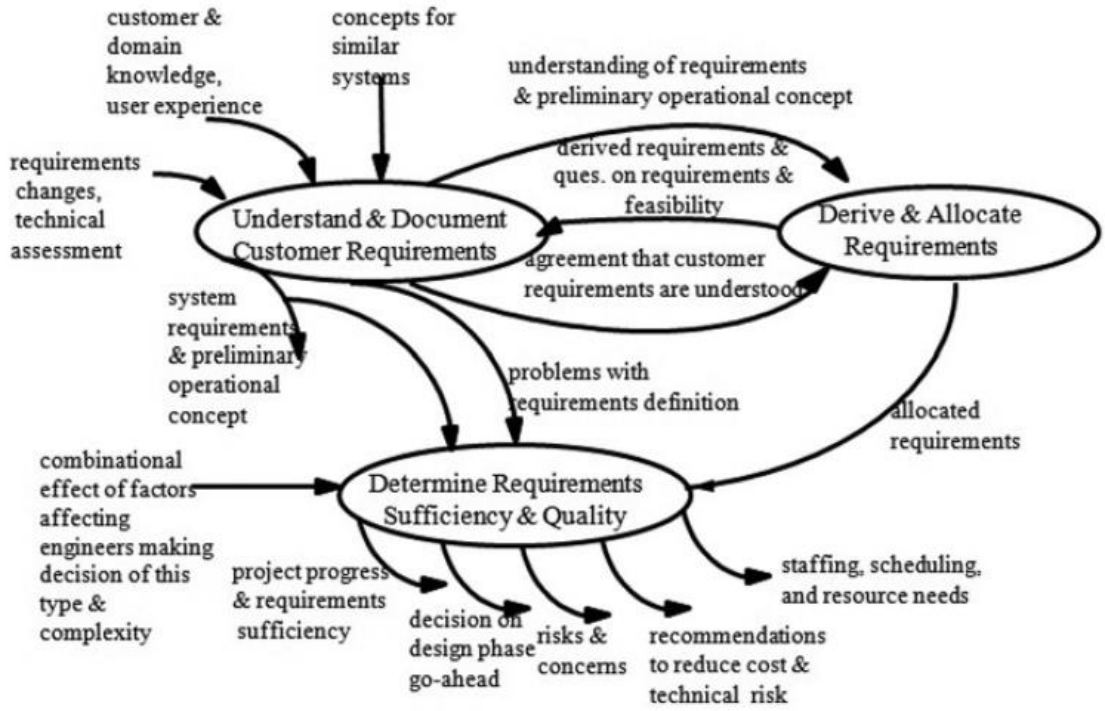

Figure 3. The role of knowledge management in requirements management
Source: (Convergence of... 2010)

Requirements are sometimes discovered and sometimes created. That depends on the project. Requirements can come from marketing, from a customer, from users, from a higher-level specification (software requirements are derived from a system specification), or be created by a visionary manager or team of engineers/developers. (Convergence of … 2010)

If requirements come from users, the first major task is to elicit and define requirements. Figure 3. provides an overview of major tasks when eliciting and defining requirements and associated information flows. Requirements knowledge is elicited through interviews with managers, users, customers, maintainers, developers, and others; facilitated brainstorming sessions with groups of these stakeholders; feedback on prototypes; surveys; document review; and examination of input forms and reports. The project should review corporate knowledge related to the system the corporation is planning to build. (Convergence of … 2010)

1.5. Knowledge management as technique and its approaches

Three major components of knowledge management strategy are people, process/culture and technology. The mantra in the knowledge management field is that 80 per cent of knowledge management is people and process/culture, and the other 20 per cent is technology. Technology is mainly used for interaction and communication as well as for knowledge sharing between employees. People are the producers and users of that knowledge and right culture and processes are keeping it all together to be able to manage the whole routine as a part of daily working routine. (Liebowitz 2005)

Adopters of this discipline have followed different approaches with varying emphasis on components and it is easy to notice that two main perspectives for knowledge management are usually employed – the „product“ and the „process“ approaches. (Mentzas et al 2003) The process-oriented knowledge management as integration of business process management and knowledge management has been established in the scientific and practical field (Gronau et al 2005) and this approach is mainly used in current thesis.

The „product“ approach implies that knowledge is a thing that can be located and manipulated as an independent object. Proponents of this approach claim that it is possible to capture, distribute, measure and manage knowledge. This approach mainly focuses on products and artefacts containing and representing knowledge: usually, this means managing documents, their creation, storage and reuse in computer-based corporate memories. Examples include best practice databases and lessons-learned archives, case-bases which preserve older business-case experiences, knowledge taxonomies and formal knowledge structures. This approach is also referred to as „content-centred“ or „codification” approach. (Mentzas *et al* 2003)

The „process“ approach puts emphasis on ways to promote, motivate, encourage, nurture or guide the process of knowing, and abolishes the idea of trying to capture and distribute knowledge. This view mainly understands knowledge management as a social communication process, which can be improved by collaborations and cooperation support tools. (Mentzas et al 2003) To assist the transfer of knowledge it is essential for organisations to realise the need and importance of an explicit knowledge management communication infrastructure. Infrastructural technologies such as intranets, interactive multimedia, human-centred interfaces, intelligent agents and collaboration tools should be integrated together in a

seamless fashion. (Botha et al 2008) Firms adopting a „process-centric“ approach in their KM initiatives focus on the creation of communities of interests or practice (well-organized groups that „naturally“ communicate with one another because they have common work practices, interests or aims), to address knowledge generation and sharing. The emphasis in this case is on providing access to knowledge or facilitating its transfer among individuals. (Mentzas et al 2003)

Knowledge transfer is somewhat difficult to distinguish from learning, and knowledge personalization is distinguished from the knowledge codification by its focus on dialogue between people instead of knowledge objects in a database. It is based on the assumption that unique expertise or knowledge cannot be codified, but can be transferred in brainstorming sessions and in one-to-one conversations; codification is a reuse strategy, while personalization is a development strategy. (Baskerville, Dulipovici 2006)

On the other hand, knowledge reuse is theoretically linked to knowledge objects and repositories, (Baskerville, Dulipovici 2006) which enable knowledge workers to access the knowledge they require. Various knowledge representation schemas and techniques are used to represent knowledge in the knowledge bases. (Botha *et al* 2008) Reuse through repositories may involve knowledge and sharing between knowledge producers, reuse through shared work practices, reuse by expertise seeking novices, and reuse by secondary knowledge miners. Knowledge transfer is also related to the firm’s absorptive capacity which in a first place was defined by Cohen and Levinthal (1990). Baskerville and Dulipovici (2006) define absorptive capacity as the „ability to identify, assimilate and exploit knowledge“ and its absence can convert the knowledge to be transferred into knowledge whose transfer is problematic.

While organizations pursue benchmarking their knowledge and replication of their superior practices within their boundaries, such transfer of knowledge may be inhibited by contingency factors such as similarity of context, motivational dispositions, strength of relationships and absorptive capacity (Szulanski 1996). All those factors need to be considered while managing knowledge requirements.

1.5.1. Knowledge management through social and semantic technologies

It is important for organisations to establish a culture of building the organisational knowledge collection and of recycling experiences for the benefit of the staff and the whole organisation. Harvesting previous experiences and best practices gained in engagement and with real business situations are beneficial to reduce time, effort and expenses in similar future situations. (Botha *et al* 2008) This process can be supported by using social methods like communities of practice, storytelling and knowledge cafe´s as well as technical tools and systems like records management, content management and intranets. (Stock *et al* 2010)

An important subtask is the creation and maintenance of a corporate memory. Corporate memory consists of the sum total of the information and knowledge resources within an organization. Such resources are typically distributed and are characterized by multiplicity and diversity: company databases, machine-readable texts, documentation resources and reports, product requirements, design rationale etc. (Stock *et al* 2010) This idea is supported by the term "Enterprise 2.0" which was coined by Andrew McAfee. He explains the term as the use of emergent social software platforms within companies, or between companies and their partners or customers. It is the concept of using tools and services that employ Web 2.0 techniques such as tagging, ratings, networking and sharing in the context of the enterprise. His idea of Enterprise 2.0 makes use of Web 2.0 technologies such as wikis and blogs inside the corporate intranet. In addition to this, many other organizations and corporations are also publishing corporate blogs on their Web sites and inviting their customers and clients to openly comment and discuss their content as part of Enterprise 2.0. Similarly, many companies are creating enterprise wikis that can be viewed and edited by anyone in the world. (Andrew McAfee's blog) This brings us to next term called Social Web. The Social Web is an ecosystem of participation, where value is created by the aggregation of many individual user contributions. The Semantic Web is an ecosystem of data, where value is created by the integration of structured data from many sources. What applications can best synthesize the strengths of these two approaches, to create a new level of value that is both rich with human participation and powered by well-structured information is the question. (Gruber 2007)

Tim Berners-Lee, the inventor of the World Wide Web, describes his vision of the Semantic Web in these terms: "*The Semantic Web is not a separate Web but an extension of*

the current one, in which information is given well-defined meaning, 'better enabling computers and people to work in cooperation". (Berners-Lee, *et al* 2001)

Some progress has been made in allowing machines to learn from people and data. Artificial intelligence technology allows people to build "expert systems" that act competently as individual experts, by embodying their problem solving knowledge in models and data. (Gruber 2007) These systems are called Knowledge Organization Systems (KOS) and they form a backbone of organizing knowledge and are referred to as levels of semantics (Cardoso 2007), maturity of knowledge organization (Brun *et al* 2009), spectrum of knowledge representation (Davis 2008) or just ontology spectrum (Lassila, McGuinness 2002). KOS consistently handles (names) and labels that can be assigned to content assets in order to locate, reuse, integrate, and recombine them. Terminology is needed to describe those processes and the related products, services, organizational designations, roles and types of information. In corporate world of today, it is very important that knowledge is shared with employees as well as with the outside world. The improper transfer of knowledge can put a company in a position of disadvantage. Digital libraries are a very powerful tool to enable knowledge management in organizations. (Stock *et al* 2010)

However, the knowledge acquisition bottleneck has limited the reach of these systems, because it takes a lot of work to get the knowledge into a form that machines can use to solve problems. Machine learning and text mining techniques can find structures and patterns in large data sets, and thereby help us make better use of our collected data. (Gruber 2007)

The increasing need for reusing and sharing information across peers in global value networks demands information systems to become Web-enabled and semantically interoperable. Semantic interoperability is defined as "the ability of two or more autonomously developed and maintained information systems or their computerized components to communicate data and to interpret the information in the data that has been communicated in a meaningful manner." Most legacy information systems were developed in a time when these requirements were non-existing. The lack of interoperability is basically due to the different underlying formal semantics. (Debruyne, Leenheer 2013)

Enterprise Application Software forming a framework for work processes and practices has ubiquitous presence of KOS (shared folders' structure, product categories, customer segments, staff positions etc.) To make a system interoperable it is of extreme importance to formally capture and incorporate the semantics of concepts. According to a

survey almost 70% of total costs of interoperability projects is spent on solving issues of semantic mismatches. (Usman *et al* 2011)

In order for systems to semantically interoperate, one has to have a shared understanding about this formal semantics. This is usually known as ontology. Ontologies constitute the key resources for realizing a Semantic Web. While theoretically ontologies should be perfect renderings of a real world, in practice they evolve as successive approximations of it. The problem is not so much what ontologies in computer science are, but how they come to be. Ontology engineering is an advanced form of conceptual modelling. It requires the involvement of many parties, and they should be defined such that they are useful but also reusable and rooted in knowledge management process. (Debruyne, Leenheer 2013)

Social media is changing the ways information moves around the world. Speed and transparency of information have increased, the roles of traditional and new media are changing, and social networking tools allow collaboration as never seen before. (Mayfield 2011) Billions of people create trillions of connections through social media each day, but few of us consider how each click and key press builds relationships that, in aggregate, form a vast social network. (Hansen *et al* 2011) The concept of social networks origins from the area of network analysis, a descriptive and analytical discipline, (Groth 2003) which focuses on mathematical models of dynamic networks in which the nodes of the networks represent people and the links between them represent some kind of relationship (e.g., friendship, advice, supervisor/subordinate). (Jones 2001) A network is generally defined as a specific type of relation linking a defined set of persons, objects, or events. The definition does not include only persons but also objects and events, or anything that can be included in a relationship. (Groth 2003) Network analysis is a useful method for identifying choke points and positions of leverage, locating expertise, and enhancing innovation. (Hansen *et al* 2011)

Each individual participates in a number of social networks simultaneously (Jones 2001) and devoted social networkers create and share digital media and rate or recommend resources to pool their experiences, provide help for colleagues and express their creativity. The results are vast, complex networks of connections that link people to other people, documents, locations, concepts, and other objects. Social media have emerged as a widespread platform for human interaction; the invisible ties that link each of us to others have become more visible and machine-readable. (Hansen *et al* 2011) Social networks are a

critical resource in building teams and in transmitting and maintaining knowledge in an organization. (Jones 2001) The result is an opportunity to map social networks in detail and scale never before seen. (Hansen *et al* 2011)

As enterprises adopt tools like email, message boards, blogs, wikis, document sharing, and activity streams, they generate a number of social network data structures. These networks contain information that has significant business value by exposing participants in business network who play critical and unique roles. (Hansen *et al* 2011) Business networking or business partnering is the development of successful, long term, strategic relationships between customers and suppliers, based on achieving best practice and sustainable competitive advantage. (Lendrum 1997) Some employees of the organisation act as bridges or brokers between otherwise separated segments of the company. Others have patterns of connection that indicate that they serve as sources of information for many others. (Hansen *et al* 2011)

Technology consulting firms have recently started to highlight the value of analysing patterns of connections within an organisation. The Gartner Group reported that social network analysis would prove to be a strategic advantage for a corporation, calling it "untapped information asset." (Hansen *et al* 2011)

Information technologies can facilitate organizational learning by making processes, artifacts, and knowledge more explicit and sharable. Information technologies can also facilitate the creation and maintenance of social networks. Another way to think about the role of information technology in organizational learning is as a way to connect people together to leverage their individual intellectual capital. Social networks are a well-defined research area in organizational behaviour, psychology, and communication. "Knowledge networks" can be defined as a special case of social networks in which the links of the network represent shared or related knowledge. Using social networks to support knowledge management and collaboration in an organisation is an interesting approach (Groth 2003) and if social networks represent "who knows who", then knowledge networks represent "who knows what" (Jones 2001)

Knowledge management is inherently collaborative; thus, a variety of collaboration technologies can be used to support knowledge management practices. Collaborative knowledge management tools that allow people to share documents, make comments, engage in discussion, create schematic diagrams, and so on can be valuable aids to support

organizational learning. Furthermore, the policies and ways in which collaborative knowledge management tools are used can facilitate or impede organizational learning; the use of tools changes organizational practice, and an explicit awareness of how tool use can best bring about the desired effects is critical. Indeed, the management of technology and the practices of using technological artefacts are always critical issues. (Jones 2001)

In summary, information technology can support effective organizational learning by providing persistent and well-indexed tools for collaborative knowledge management and social and knowledge network analysis. However, tools are not enough: an organization needs to have some kind of systematic practice that will use the tools appropriately to monitor performance, anticipate and attend to feedback and outcome measures, design avenues for change, and then take action effectively. (Jones 2001)

While groupware products provide an informal environment for collaboration, other products have been used to create more formal collaborative applications. Workflow and document management systems have brought greater control to processes that require many people to work on a set of documents. (Mentzas *et al* 2003)

The challenge of aligning knowledge development between innovation-driven context and knowledge organization systems by introducing social semantic technologies requires the shift from creation centred to addition centred approach in dealing with new concepts. For any organizational context there is something existent with applied classification logic which has to be considered while creating new knowledge.

2. METHODOLOGICAL APPROACH

This chapter provides a description of the research approach and strategy applied in this study, which was selected in order to answer central research question presented in introduction.

2.1. Research approach

Schultze and Stabell (2004) noted that "Defining knowledge management research is challenging because a complete and agreed-upon definition of knowledge remains elusive". Kane, Ragsdell, and Oppenheim (2006) echoed this concern and quoted a number of prominent, sometimes overlapping, sometimes conflicting definitions of knowledge in the knowledge management context. (Wallace *et al* 2010)

Alavi and Leidner (2001) provided an extensive knowledge management research agenda centred around five essential research questions:

1. What conditions facilitate knowledge creation in organizations?
2. What incentives are effective in encouraging knowledge contribution and sharing in organizations?
3. How can knowledge be effectively transferred among organizational units?
4. How can an organization encourage application of knowledge that is made available?
5. What are the consequences of increasing the breadth and depth of available knowledge, via information technology, on organizational performance?

The present research approach has been derived from the situation in Orkla, which is considered as business network. The research topic is knowledge management due to the knowledge management tools, which have potential for developing processes in SSC environment. The need to manage requirements knowledge becomes research problem. According to the research need, the plan has been to design new conceptual model, which is emerging from existing data.

The inductive approach is characterised to condense extensive and varied raw text data into a brief, summary format. It is consistent with the general patterns of qualitative data analysis described. (Thomas, 2006) In this approach, the observations are the starting point for the researcher, and patterns are looked for in the data. In this approach, there is no framework that initially informs the data collection and the research focus can thus be formed after the data has been collected. Although this may be seen as the point at which new theories are generated, it is also true that as the data is analysed that it may be found to fit into an existing theory. (Explanation Of…)

There are two types of research studies, which are widely used, qualitative and quantitative. (Explanation of…) Qualitative methods is an umbrella term to cover the methods and techniques which haven't been able to be quantitative (Toloie-Eshlaghy *et al*, 2011) In combination with inductive approach, qualitative research is commonly used, where the absence of a theory informing the research process may be of benefit by reducing the potential for researcher bias in the data collection stage. Interviews are carried out concerning specific phenomena and then the data may be examined for patterns between respondents. (Explanation Of…)

The main purpose of qualitative research is to gain better understanding of subject in depth instead of measuring and to describe a situation in detail about the problem area of research and relies on small number of respondents'. In qualitative method, several variables should be investigated in detail among a few numbers of entities. Quantitative methods are based on representative sample of population, large enough to make results general for the entire population, within estimated level of accuracy. The method is used to measure things. (Hague, Jackson 1996)

Applied qualitative research can, and often does, generate new knowledge and contribute to theory, but its primary focus is on collecting and generating data to further our understanding of real-world problems (Qualitative research: Defining …), which is applicable for the thesis in hand.

2.2. Research strategy

The research strategy is about how the researcher intends to carry out the work and it can include a number of different approaches, such as experimental research, action research, case study research, interviews, surveys, or a systematic literature review. (Explanation Of…)

In the thesis, in hand qualitative case study research is used, since it ensures that the issue is not explored through one lens, but rather a variety of lenses, which allows for multiple facets of the phenomenon to be revealed and understood. (Baxter, Jack 2008) According to Yin (2003) a case study design should be considered when the focus of the study is to answer "how" question, which is in accordance with research question of this study. It is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not evident. (Yin 2003) The selection of a specific type of case study design will guide the overall study purpose, and different terms are used to describe a variety of case studies types (Baxter, Jack 2008).

The main case study approach used for this research is exploratory type of single case study. A single case represents the critical test of a significant theory and the goal is to do a "generalizing" and not a "particularizing" analysis. Single-case should be decided when investigator has access to a situation previously inaccessible to scientific observation. The case study is therefore worth conducting because the descriptive information alone will be revelatory. (Yin, 2003) One key factor in deciding for exploratory type of case study was the relevance of different data sources (Yin, 2003) and the second one was the need to gain deeper understanding of the research problem. Exploratory research will not provide evidence or a specific course of action for the company but with the help of conclusions, it is possible to point out actions that are suitable for the specific case and company. (Yin, 2003)

2.3. Data collection and analysis

A hallmark of case study research is the use of multiple data sources, a strategy that also enhances data credibility (Yin, 2003). Potential data sources may include, but are not limited to; documentation, archival records, interviews, physical artefacts, direct-observation, and participant-observation. In case study, data from these multiple sources are then converged in the analysis process rather than handled individually. Each data source is one

piece of the "puzzle," with each piece contributing to the researcher's understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together to promote a greater understanding of the case. (Baxter, Jack 2008)

To find requirements for knowledge intensity within processes it requires deep analysis of different data sources like, process maps and supporting documentation, detailed work instructions, company specific cheat sheets, notes from internal meetings, hierarchy of the organization and the Group, video conference calls with consultants, customers and informants.

Document analysis or analysis of secondary materials was the main source of data for the research. The secondary materials included internal and external reports, articles in Group Intranet, presentation materials, process maps, detailed work instructions composed per process map and additional internal documentation. These documents provided important contextual information of the company's current situation in knowledge management process as well as gave insight to quality management procedures and daily practices within SSC.

After thorough documentation analysis, three interviews were conducted to get an increased understanding about perspectives from the side of Orkla Group and which allowed comparison with information within OAC. The obtained evidence was very rich and with informative content but when presenting this case study researcher has been restricted in delivering in-depth examples due to the confidentiality requirements.

A key feature of one-to-one interaction such as qualitative interviews is their depth of focus on the individual and they provide an opportunity for detailed investigation of each person's individual perspective, (Qualitative research… 2014) which is the reason for conducting several interviews to get a in depth understanding and different opinions from representatives from various department of the organization. Different approaches and visions will allow researcher to analyse the problem from various angles and in an interviews the risk of misunderstanding the informant is not as great as with distant methods like, for example, with survey or user observation. The interviewer and informant can freely discuss the questions as normally an interview is conducted by one person interviewing one informant at a time, (UsabilityNet 2008), which allows repeating questions if the answer was not clear enough or digging into higher level of details if needed.

3. CASE ANALYSIS

3.1. Knowledge requirements model

In Nonaka's et al (2000) SECI process Socialisation Model is a process of converting new tacit knowledge through shared experiences. Since tacit knowledge is difficult to formalise and often time- and space-specific, tacit knowledge can be acquired only through shared experience. To explain this idea with other words it is relevant to say that through communication and experience new innovative ideas can arise as well as develop. Socialisation may also occur in informal social meetings outside of the workplace, where tacit knowledge such as world views, mental models and mutual trust can be created and shared so it also occurs beyond organisational boundaries. (Nonaka et al 2000)

Next step in the process is Externalisation Model of articulating tacit knowledge into explicit knowledge. When tacit knowledge is made explicit, knowledge is crystallised, thus allowing it to be shared by others, and it becomes the basis of new knowledge. Concept creation in new product development is an example of this conversion process. Another example is a quality control circle, which allows employees to make improvements on the manufacturing process by articulating the tacit knowledge accumulated on the shop floor over years on the job. (Nonaka et al 2000) If tacit knowledge of one employee is made available for other members of the organisation, experiences are shared; company has higher availability of raising the quality of internal processes or products. Based on this assumption Quality Requirement of this thesis was set.

In addition to Externalisation Model Quality Requirement is tied to Nonaka's Combination model, which is a process of converting explicit knowledge into more complex and systematic sets of explicit knowledge. This conversion brings knowledge within an organisation to a new level by combining organisational explicit knowledge with explicit knowledge collected from outside the organisation. Having a broader understanding of the situation and best practice analysis from the market combined with creative use of

computerised communication networks and large-scale databases (Nonaka et al 2000) company has built a ground for increases in efficiency. As said by Davenport and Prusak (2000), shared knowledge increases efficiency in processes since there is no need to „reinvent the wheel“. Based on previous assumption Efficiency Requirement of this thesis was set.

Process of embodying explicit knowledge into tacit knowledge is explained as Internalisation. Through internalisation, explicit knowledge created is shared throughout an organisation and converted into tacit knowledge by individuals. Internalisation is closely related to `learning by doing'. By having deeper understanding of processes in combination with experience from outside the organisation employees are practicing new and more efficient ways of working to embody knew knowledge. For example, training programmes can help trainees to understand an organisation and themselves. Explicit knowledge can be also embodied through simulations or experiments that trigger learning by doing (Nonaka et al 2000) and it brings us to next thought from Sanders and Linderman (2014), who believe that in order to effectively compete over time, organizations have to perform efficiently and invest into innovation process.

Innovation is usually described as a knowledge-intensive activity, involving the discovery, experimentation, and development of new technologies, services, production processes and organizational structures (Jennex, Smolnik 2011). To combine definition of innovation by Jennex and Smolnik (2011) with Nonaka’s SECI process it is reasonable to say that the start of building a basis for Innovation Requirement starts in Socialisation Model. Knowledge will grow through Externalisation, Combination and after explicit knowledge is embodied through Internalisation Model, new ideas are generated and have to be verified through Socialisation model, where the circle starts again. This is a spiral of Quality, Efficiency and Innovation Requirements of developing knowledge-intensive processes.

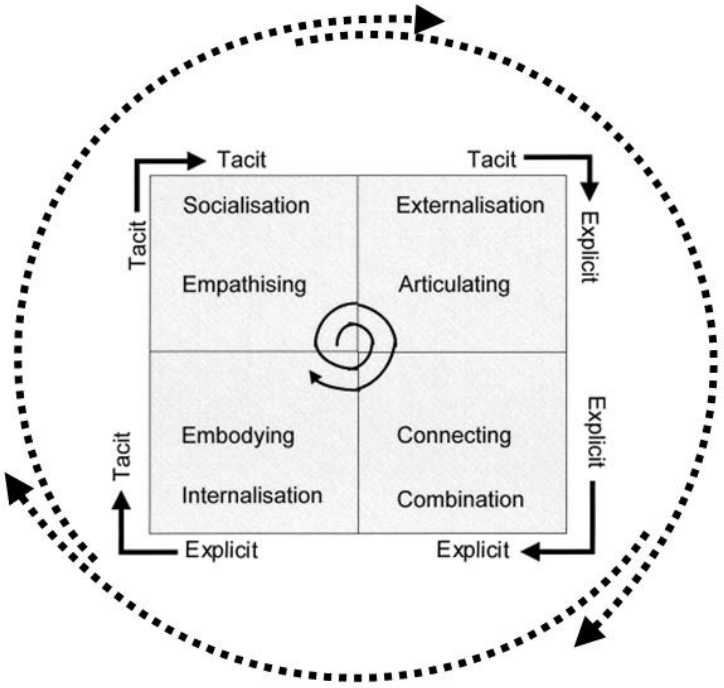

Figure 2. Knowledge requirement model
Source: Author's own elaboration based on: (Nonaka *et al* 2000)

3.2. Case company background: Orkla Accounting Centre

Orkla is one of Norway's oldest business conglomerates and the company's history dates back over 350 years and reflects both good times and bad. Orkla started out as purely a mining company extracting the rich ore deposits at Løkken Verk in Sør-Trøndelag County (Orkla Homepage) and now Orkla ASA is listed on the Oslo Stock Exchange and headquartered in Oslo, Norway (Annual Report 2013). Strategy of the company has changed several times over the years from being mainly holding company for different stand-alone businesses, where the focus was on mergers and acquisitions, towards more centralized business module with focus on efficiency gains, centralisation and standardization.

Year 2011 was spent on refining and sharpening the focus of company's strategic direction. It was indicated in early 2010 that Orkla Group had become too broad-based to be able to fully support the development of all current business areas. (Annual Report 2011) Decision of Board of Directors' in the autumn of 2011 was to focus on Orkla's branded consumer goods business, work on creating a more pure-play, competitive company. Orkla's

new logo and visual identity, which was presented in the autumn of 2013, was a visible expression of Orkla's new direction. Company had undertaken a comprehensive restructuring of the Group to create a more logical, simpler organisation. (Annual Report 2013) and through new strategy Orkla is viewed as being a leading supplier of branded consumer goods and concept solutions to the grocery and out-of-home sectors in the Nordic and Baltic regions.

In the second quarter of 2013 Orkla's acquisition of Rieber & Søn (R&S) was approved by Norwegian competition authorities, which was the basis of developing Orkla Accounting Centre (OAC) since R&S already had accounting centre in Tallinn. (Orkla to establish… 2013) Decision was based on external consultants' assessment of accounting functions in Orkla and was conducted to come up with a recommendation for a new organisation and road map for accounting functions supported by best practice. (Assessment of … 2013) High level review of Orkla's accounting functions showed that the current structure was decentralised and Orkla had accounting functions in the majority of the companies that perform transactional work. Business case showed in addition to savings in wages that additional cost benefits would occur. Additional drivers for change towards a shared service centre (SSC) are mainly efficiency benefits and cost reductions through: (Assessment of … 2013)

- Scale of economy and standardisation – Orkla`s size and decentralised finance function would benefit from scale of economies through centralisation.
- Synergies – Orkla would benefit from the synergies of centralising the accounting functions across the Group. Standardising systems and processes enables Orkla to establish a "company best practice".

In September 2013 Orkla President and CEO Åge Korsvold said: "*It is important that Orkla is competitive at every level of the value chain. We see that we can realize clear efficiency gains by establishing a shared accounting centre for the Group. This will also enable the companies' finance functions to focus more attention on supporting the commercial operations.*" (Orkla to establish…2013) The decision was made and the first company's accounting function was transferred to Tallinn in February 2014. The next step of the plan was to transfer other companies in the course of an implementation phase expected to run from 2014 to 2016. (Orkla to establish…2013)

In 2015 Executive Board announce becoming changes within the Group based on extensive research and analysis. It was decided to develop standardized digital framework for

group collaboration, across companies and business areas, which is a major step forward in standardizing systems and processes within Orkla and it enables the establishment of "company best practice". Due to previous strategy on Group level, Orkla currently has approximately 90 different Intranets for separate legal entities and business areas. This fact gives a good insight into understanding a major need for one integrated collaborations site for all the companies within the Group.

3.3. Quality requirements

3.3.1. Centralize then standardise

Decision to move transactional accounting tasks from companies internal Finance departments to shared service centre allowed consideration of many approaches. After thorough analysis, external consultants recommend Orkla to use "Centralise then Standardise" approach, which was already tested by R&S and it was possible to re-use transition process, which was proven to be successful, after tight follow-up of key performance indicators (KPI) in the end of R&S transition project. "Centralise then Standardise" approach implicates to move processes from the companies as they are, and then standardize them to processes in SSC. The same approach gave an opportunity to use standardized templates and tollgates for knowledge management, which are important tools for a successful transition. A detailed set of templates for knowledge capturing and transfer were developed in initial R&S project and it was possible to re-use them for the transfer of companies within Orkla Group.

To use approach, which was already tested and gave companies deeper understanding of their internal processes and raise the level of awareness regarding improvement opportunities within accounting processes was wise on one hand but challenging on the other. It was a good way for Orkla to change from the existing Finance setup to the new operation model. Specially taking into consideration cost reduction gains, timeframe and risk of the project. Followed discipline throughout the process transfer period was: "You only have one chance to get this right". This was the way for company at this point of time.

According to first interview cost benefits and synergies from moving transactional tasks from high cost country, Norway, to low cost country, Estonia, would have been faster and bigger, if the project plan would have maybe been shorten. The plan was to transfer

companies only using enterprise resource planning (ERP) system called SAP and within three-year scope. The risk according to interviewee for shorter project would have been maybe higher in terms of people leaving the company and tight project schedule, but the benefits from it would have come faster as well.

Another point the interviewee brought up was the scope regarding different ERP systems, which was see as limitation according to external consultants. Initial project proposal suggested transferring only companies using SAP but according to him, this should have not been seen as limitation. "*There are many companies in the world, that have done such project within shorter timeframe and larger scope and being successful, and probably Orkla would have been as well."* By 2015 mandate for project scope has broadened within ERP systems and SSC has started looking into companies within different ERP systems since benefits from having all accounting processes in one location can be gained irrespective of the system in use.

3.3.2. Process mapping as requirements engineering

It was critical for the success of the new accounting centre that the first move was supported by the management of the companies involved and perceived as an improvement activity for the processes in scope. Consultants worked closely with companies to describe company specific processes in minor detailes which were called AS-IS processes in internal finance departments. Several similar projects in various companies all over the world gave consultants the opportunity to come up with suggested TO-BE processes for future daily operation in SSC.

Finance transformation is a complex process and there are no silver bullets to successful transformation, and no one-size-fits-all roadmaps to follow. Each journey is unique and every organisation's ultimate destination is different. (Assessment of…2013) In the end of 2014 SSC started process standardization project where the amount of different company specific processes was reduced as part of documentary analysis. Four full day kick off meetings of the project took place in Oslo in December 2014. Participants of the meetings were: several external consultants, who were a part of AS-IS and TO-BE workshops with companies; knowledge manager for OAC giving an insight about current processes in OAC and SSC project manager to understand the situation and to give input from perspective of

project goals. In December 2014 SSC offered services to 8 companies and had documentation for their accounting process maps drawn in Microsoft Office Visio program. These companies' accounting processes viewed together gave critical mass for comparison and gave an opportunity of finding "OAC best practice". Another important factor which allowed process standardization in documentation level was that in TO-BE phase all processes were compared with best practice and set up in external consultants taxonomy. After two months of documentary analysis and several internal meetings, discussions with served companies and testing, project was completed with approximately 90 workflows compared to initial 210. These 90 workflows were divided to 3 groups: OAC standard processes, OAC standard processes with minor differences and company specific processes. Such breakdown provides an opportunity of comparing companies against OAC standard as well as between each other. Overview of all accounting processes company by company drew a picture, which was an eye opener for companies management teams.

To be able to understand the level of decentralization in accounting processes Table 1 was compound by the author of this these and SSC project manager.

Table 1. Level on standardization within SSC (percentage)

Description		Number of processes in %										
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
AREA 1	Standard Process	32%	22%	32%	27%	32%	22%	24%	27%	24%	22%	22%
	Minor differences	10%	15%	7%	7%	7%	7%	10%	7%	7%	7%	7%
	Separate Process	5%	29%	5%	2%	5%	12%	7%	2%	5%	5%	5%
	Not in use	54%	34%	56%	63%	56%	59%	59%	63%	63%	66%	66%
AREA 2	Standard Process	48%	N/A	48%	43%	48%	33%	24%	29%	24%	10%	10%
	Minor differences	5%	N/A	0%	0%	0%	5%	5%	5%	5%	0%	0%
	Separate	5%	N/A	5%	0%	5%	0%	19%	0%	0%	0%	0%

	Process											
	Not in use	43%	N/A	48%	57%	48%	62%	52%	67%	71%	90%	62%
AREA 3	Standard Process	70%	N/A	70%	65%	65%	30%	25%	65%	60%	55%	55%
	Minor differences	20%	N/A	15%	15%	15%	15%	20%	20%	15%	20%	30%
	Separate Process	0%	N/A	0%	0%	0%	0%	15%	0%	0%	0%	0%
	Not in use	10%	N/A	15%	20%	20%	55%	40%	15%	25%	25%	25%

Source: (Compiled by the author on the basis of data provided in Appendix 4.)

Table 1 is set up company by company and processes are divided by three key areas in accounting. Table provides a comprehensive overview of the situation and a position where each company currently stands. As seen from the table in Area 1 the highest level of standard processes is 32% and according to interviews, it should be at least up to 70%. To be able to present this table and use it as communication and working tool, process definitions has to be in place.

First, to be able to say that process is a standard it needs to be compared with best practice or companies following same processes. Otherwise, it is relevant to ask, what is the basis of this assumption? Processes within SSC are named as "OAC standard" which refers to a point, that these might not be standard in comparison with other companies performing similar tasks. However, it is relevant that the basis for TO-BE processes was external consultants experience and knowledge from previous projects as well as widely used taxonomy within the area of accounting. At the same time all process maps within the companies where described somewhat differently depending on a consultant responsible and allowed knowledge manager to make her modifications, which mean that in principle processes might be standard and according to best practice but they might as well not be. It is certain that process maps are not described according to standard.

In conclusion, it is fair to say that processes described as OAC standard should be compared against best practice once more. Changes made in internal standardization project were not based on best practice since this knowledge was not available within organisation.

Second group of processes, are described as “OAC standard processes with minor differences”. There is no available definition for it, since these differences within processes may vary in large scope. They might depend on:

- way of doing business within different countries or sectors
- different ERP systems and platforms in use, which does not allow changes or are expensive to make
- organisational culture and historical decisions.

While the first two should be considered as deviations, which are not in scope for OAC current internal standardization project the last one has to be communicated back to companies and change management process should be started.

Last group of processes is described as “Company specific”, which says everything about the process. Process in company specific and SSC does not perform same process for other customers. There are two ways of looking at these processes:

- process is company specific since there need to perform additional tasks due to historical reasons or higher level of controls are in place;
- process is company specific since OAC project scope was larger and customer uses SSC in a larger extent.

SSC should evaluate processes, which are specific due to historical reasons, and processes where higher level of controls are in place, since these might not be sufficient and are not in accordance with audit requirements.

One conclusion from meetings with CFOs of the companies was that there is strong need for companywide standardization of accounting processes within Orkla and there are several goals for the project but one of them is raising the quality, which can be divided into smaller goals of the project, which are described below.

Lower failure rate - If all companies are using standard processes it is easier to teach employees to perform their tasks accurately and set-up of the process does not give an opportunity of making wrong decisions or forgetting to add relevant information. Every exception or company specific process will rise the opportunity of human error. All accounting systems have predefined controls but these should be more sufficient then they currently are, is one of the issues which came out from meetings. To be able to gain from setting up additional controls in accounting system, these have to be beneficial for all

companies to cover the expenses. This can be considered applicable only if following requirements are fulfilled.

- One chart of accounts for all companies - Currently at least 12 different charts of accounts are is use in Orkla for different companies and countries. (Interview 1)
- One accounting system - Different programs like Movex, Oracle Finance, M3, Jeeves, MFG/PRO, iScala, Microsoft Dynamics and several different SAP platforms are currently used within Orkla.
- Central vendor master data handling - Currently most of the companies handle their vendor agreements separately from rest of the group, which results in having several different agreements within the group with one vendor. Combining all these agreements into one, gives huge savings in administrative costs as well as higher purchasing power in discussions with vendors.

Less time spent per process – With standardization it is possible to raise the percentage of automatic processing of invoices, since manual processing is one of the most time consuming activities within the area of accounting. This was one of the points discussed in a meeting with Stein Eriksen , where he pointed it being an important discussion point between OAC and purchasing department.

Less vulnerability – OAC has set up back-up system for every process and employee within the organization. In case of sickness or holiday there are at least two other employees able to take over the responsibility which is seen as raise in quality as well as it was one of the goals of the project. Internal finance department could not have the capacity to cover each other in full scope in case of absence.

Greater professionalism – Every transition process will raise competence level in OAC, since there is always something new to learn and share internally. Expertise in different fields of accounting and Orklas' business will give an opportunity to analyze processes from different and broader perspective. The possibility of having all accounting information in one place gives OAC a unique position of being able to give valuable and knowledge intensive inputs to different departments.

As mentioned above detailed set of templates for knowledge capturing and transfer were developed and these tools played an important role in successful transition processes. Same tools are still in use for ongoing knowledge transfer projects with minor adjustments

from initial set up. In Mai 2015 OAC was employing 27 employees and have started facing internal communication and knowledge sharing issues.

3.3.3. Internal quality assurance tool "Review Board"

Knowledge sharing is a key factor after take-over of new company's accounting processes. Knowledge capturing and transfer from internal finance departments to the project has proven to work well based on input from companies whose accounting tasks have already been moved over to SSC was a conclusion from one of the interviews. After TO-BE processes are described OAC project team starts working closely with employees in initial finance departments. Team is travelling to the office location of the company and starts work-shadowing already mapped processes while their responsibility is to capturing all the details of the processes. After work-shadow in company's office detailed work instructions will be created. Every mapped process has written description explaining background, reasons, input and output of the process as well as gives step-by-step instructions how to perform tasks accurately. Before Go-Live in SSC all work instructions has to be approved by employees from initial accounting department to assure that all the details are covered, as well as to share responsibility between OAC and the company.

Beside needed approval from the company, SSC has set up a quality assurance tool, internally called as Review Board. It is set up in a principal that all changes in work instruction documents has to be approved by several people before this knowledge can be shared internally.

All employees of the company have responsibility to perform tasks only this way as it has been described in work instruction. If something is done differently or is going to change, documentation has to be updated. To makes sure that all process changes are documented Review Board is set up three layers:

- Team Members – responsible for input initiatives, since these have to come from employees actually performing daily operation;
- Process Owners - responsible for the content of the document since it has to be set up according to OAC standard template for work instruction. Process owner is the only person within organisation having a possibility to make changes within master document. Since all the process maps have to be up to date as

well process owner has to make user that all changes in a process map level are communicated back to knowledge manager.

- Review Board - The board consists of representatives from all teams; accounts payable, accounts receivable and general accounting representatives plus OAC manager, SSC project manager as well as all the meetings are facilitated by knowledge manager. The Board takes responsibility in a higher level than Team Members and Process Owners. Their responsibility is to read through all work instructions and to find logical errors, bad language, and missing information as well as to comment the whole set up of the documents to makes sure that all the documents are in a same level of details.

3.4. Efficiency requirements

The efficiency requirements for developing accounting processes can be divided into internal and external requirements from the OAC point of view. The knowledge on internal requirements in small organization with 27 employees can be more implicit, the common vocabulary can be developed faster and external communities such as accountants' network and SAP communities facilitate learning and knowledge sharing. The external requirements emerge from the entire business network and due to the nature of business network the focus on entire KM process is needed.

As described above collected knowledge from initial accounting departments has been written into detailed and structured work instructions, which should be used by employees outside project scope and updated according to changes in daily operations. These documents include major amount of knowledge about companies and their businesses, accounting regulations, process inputs and outputs as well as how to use different systems.

Employees, who have not been a part of knowledge transfer project does not have an overview of the whole business and are missing understanding of correct inputs and outputs of the processes. Since most of the processes are transactional and very structured, employees have a feeling that they do not need to understand why they are doing something and what is the consequence, if they are doing something wrong. Employees get their knowledge mainly from colleagues, who have been a part of knowledge transfer projects and this small project

team holds a lot of information and most of it is already written in work instructions but currently it is easier to ask than to read.

OAC is constantly working on informing and communicating the importance of these documents internally because employees still get their knowledge mainly from colleagues who have been part of knowledge transfer project, though most of it is documented. It is good to have well established communication in the office but it would save a lot of time to find answers from documentation, not to ask from somebody who needs to spend extra time for explanation.

Sufficient document handling, sharing, commenting and developing could raise efficiency within SSC environment by spending less time on repeated processes and tasks. This is seen as one of the goals of establishing SSC in general and was as well for Orkla. SSC environment is highly customer focused and through internal processes, stronger commitment and higher level of collaboration between OAC and customer is created. Communication in a process level with customer companies enables SSC to perform on service level agreed upon but is not sufficient to develop these processes.

Currently only OAC employees have access to all work-instructions, which are stored in a local share drive in PDF format. These documents should be shared with finance departments in different companies as well as with departments, which will give or receive input from OAC internal processes. If all the documents are accessible for all parties and collaboration tool will give an opportunity of open discussions, feedback and comments, it would be easier for employees to find information and share knowledge internally within SSC as well as gross company and improvement opportunities will rise.

The earlier development and growth of Orkla has been based on non-strategic investments, which do not facilitate creating mutual efficiencies through establishing shared services. During the recent years there has been strategic change leading to complete business value chain. Consequently, there are needs and initiatives, which have been identified for establishing knowledge intensive business processes. Lot of opportunities exist to harmonize data, create new sources of information that in turn leads to acquiring substantial new knowledge.

Diverse data sources result in the need to capture and incorporate the semantics of concepts, which are identified as data definitions in Orkla. In order to exploit the key benefits

of knowledge management, information assets need to be managed and knowledge organization systems as common language for business processes, needs to be in place.

As part of documentary analysis, the existing glossaries and taxonomies were studied. OAC has the consolidated word list with 70 concepts based on accounting terminology. As part of the research project 20 work-instruction with consistent vocabulary were analysed. Organizations need ways to manage information assets in order to reduce rework and prevent duplication of effort, speed business processes, create new efficiencies and improve accuracy in decision-making. We were looking for systems based classification logic with consistent handles (names) and labels that can be assigned to content assets in order to locate, reuse, integrate, and recombine them. While those documents facilitate knowledge sharing and development internally in OAC it is not sufficient for gathering requirements knowledge across the entire business network.

The central theme in one of the interviews was the progress of establishing glossary with data definitions. The present situation is that very clear road map has been developed but it is still work in process. This work has broader focus and goes much beyond the needs of OAC. While developing the requirements knowledge collaboration synergies emerges and business intelligence (BI) agenda creates requirements as well as tools for developing knowledge intensive accounting processes. Business wise it becomes an enabler for additional services across different platforms and functions. Technically, it is a solution, which considers the existing party (suppliers and customers) metadata, extracting data definitions for metadata and corporate glossary with thesaurus function and data definitions as well as business rules. In data terms, it enables the data lineage and impact analysis functionality.

The effect on efficiency is twofold: first, glossary as metadata solution has the capacity to connect various processes, and the related products, services, organizational designations, roles and types of information thus becoming precursor for accounting intelligence and by that facilitating efficiency at the business network level. At the same time consistent metadata leads to the elimination of duplicated effort, which is partly embedded into current processes.

3.5. Innovation requirements

One positive effect of having processes centralized to SSC is that people within this organisation have an opportunity to perform tasks while deviations and insufficiencies between customer organisations can be recognized and eliminated. OAC holds information and understanding about process changes needed in purchasing, controlling, reporting and customer service departments but currently Orkla is missing sufficient link between these departments of the Group. As already explained above is it important to establish better communication opportunities for business collaboration. Having right skills and experience of finance staff to help business to understand the financial implications of operational decisions and operational decisions required to improve the business' financial position. Enhanced Business Partnering can help to deliver the following benefits:

- Closer alignment to service lines, leading to closer cooperation and more effective Business Partnering at all levels of management;
- Significantly, more time spent on collaboration with the business will lead to better risk management, better management decisions and eventually better business results.

In order to facilitate internal communication and specifically to gather and mature ideas on business process improvement the project for developing a new shared intranet and new collaborative tools has been launched. In the course of autumn 2014, a prefeasibility project was carried out to examine the possibility of establishing a new social intranet and collaboration tools in Orkla. As part of this project, survey interviews were conducted with a large number of people in the Group. In the interviews, the respondents stated that many of Orkla's digital tools are outdated and do not meet their expectations. Due to previous strategy on Group level, Orkla currently has high amount of different Intranets for separate legal entities and business areas. This fact gives another good insight into understanding the major need for one integrated collaborations site. According to the project owner Orkla badly needs modern new communications and collaboration tools. Based on the analyses of the prefeasibility project results, the Group Executive Board decided to carry out a main project with the following focus areas:

- Development and implementation of a common Orkla portal, with content adapted to the individual employee.

- Development of a standardized digital framework for group collaboration, across companies and business areas.
- Provision of management and user training in the use of new tools with collaborative functions.

In one of the discussions planned for this thesis came out that the aim of the project is to establish a shared intranet for Orkla, the contents of which will be tailored to the needs of the individual user. The second goal is to develop digital workrooms that can be used by companies, departments and teams. In addition, it is planned to establish an informal Orkla social network, which will be in-house version of Twitter or Facebook and it has particular value for gathering knowledge requirements in dynamic, cross-organizational environment.

Thorough training in tools for communication, searches, sharing and storing documents in new solution is seen as another component of the project. This can sharpen Orklas' competitive edge by increasing productivity, reducing costs, enhancing innovation processes and strengthening communications and culture. OAC sees the potential in a shared intranet for gathering the feedback and receiving ideas and suggestions for improving the internal processes. According to discussion with project manager, it will initially encompass Orkla's branded consumer goods companies in the Nordic region who have their operations already in Microsoft Office 365 platform, which is a prerequisite for set up of new collaboration tool.

The solution is now being rolled out to most of the companies across the group and OAC transfer is planned in near future. Currently OAC is developing their own SharePoint, which most defiantly should be a part of new Group wide solution. As mentioned already several times Orkla has been very decentralized due to historical reasons and owns major amount of different legacy systems and greatest them continuously. To assure that strategic goals in a Group level as well as in company levels are met, higher level of communication and knowledge sharing is mandatory. As a provider of shared services, it is essential for the OAC to be integrated to the shared intranet from the very beginning.

In the present situation, OAC is serving only part of the Orkla group and the further development of knowledge intensive business processes is limited by the use of different ERP platforms. The present non-functional requirements are set according to SAP functionality and specifications, which is not the only software used across the entire organization.

According to the interviews, it is not viable to switch the entire organization to the single application software platform, at least not in the foreseeable future. Though, to look at the processes from users perspective as well as from IT technicians perspective Orkla should start developing one platform for all companies, which then will be developed in one ERP system. This idea was briefly touched in every interview but cost analysis and business case will not support the decision.

The solution for balancing knowledge intensive process development needs and the existence of different legacy platforms is seen in developing metadata across platforms. We follow the definition of metadata as the data that describes all aspects of information assets, and enables the organization to effectively use and manage these assets.

Accordingly, the next proposed step in developing accounting processes would be the implementation of SAP Business Objects' Business Intelligence Suite. According to one of the interviews, this platform allows thousands of users to engage and collaborate on making decisions in every level of the company. Decisions based on analysis of accounting information are beneficial for the rest of the company, if OAC is able to provide analysis on behalf of business, it would higher the level on knowledge within internal processes. Important indicators may raise from the analysis and OAC does not offer any more only transactional accounting services. An essential advantage for the OAC is that this solution can be leveraged on top of various data sources, both SAP and alternative ERP systems, which is a mandatory requirement in current business set-up.

As a typical modern business intelligence platform, it enables business users to have self-service, dashboards and apps as well as reporting tools. For OAC the immediate consequences are in the requirements for extracting accounting intelligence according to the dynamic needs of business decision makers.

Orkla is constantly working on standardization and centralization in different fields to be more efficient and gain from synergies. From 1st of April 2015 the operational responsibility for production and logistics was transferred from company level to business area level. This means that the CEOs of the different business areas will be responsible for the production facilities and the logistics function within their respective business areas. The purpose of this change is to increase competitiveness by making further supply chain improvements, thereby enabling the management in the companies to focus even more on

innovation, marketing and sales. This was strategically important change towards a more optimized model, where economies of scale must be exploit to a greater extent.

This change is an important input to a process of streamlining accounting processes and bringing up improvement ideas in OAC processes, which can only be made in cooperation with purchasing and logistics. Since the whole department is now managed centrally, it is possible to set up shared improvement projects between OAC and central purchasing to achieve shared goals.

CONCLUSIONS

In this research thesis, the empirical findings from shared service centre on managing requirements knowledge have been presented. SSC is a business network and a well-established platform for raises in quality, efficiency and innovation throughout internal processes. Findings from this research are organized and conceptualized according to the knowledge requirements model and derived from Nonaka SECI process.

The findings have grouped according to quality, efficiency and innovation requirements. In terms of quality requirements, the key focus area for Orkla needs to be learning at collective level by following the best practice guidelines, which will lead to the consistency in operation.

The research results indicate that regarding the efficiency requirements semantic structures for functionality and interoperability have to be developed further. Without shared semantic structures it is not viable to transfer knowledge at the right time to the right person in a right format.

For innovation requirements the most essential gap lies in completeness of KM tools' integration across platforms and parts of business network. The interviews indicate the planned gradual implementation of tools and platforms, which is reasonable from technical point of view but becomes a disadvantage from KM point of view.

Knowledge management technologies are gaining the momentum in Orkla and there are several initiatives, which have been launched. The leaders of the respective project have an agenda, which is derived from the corporate strategy and from industry best practice while developing accounting processes is not considered to be the central topic. For the SSC it gives well suited platform for managing requirements knowledge, but at the same time active stake is needed in ongoing development projects. As a provider of shared services, it is essential for the SSC to be integrated to the shared intranet from the very beginning of the project.

The corporate strategy is shifting towards more integration and centralization for exploiting economies of scale to a greater extent, while leveraging their unique local insight

and market intelligence. Such business network with less static and formal systems and very precise and well-communicated development vision makes knowledge management tools particularly well placed for studying knowledge requirements. Both the interviews and document analysis have indicated the relevance of modelling the requirements according to three dimensions: quality; efficiency and innovation. Each of those dimensions can be connected to particular issues and development projects.

At the same time the research has indicated the unity of requirements knowledge where all the requirements need to be managed from balanced perspective. Innovation requires the cross-organizational completeness of information where quality becomes precursor through following best practice and efficiency is taken an imperative for developing the accounting processes.

Future research is foreseeable ingoing to the two directions: first, Orkla case developing into longitudinal study and second, repetition of case study on managing knowledge requirements in alternative business networks.

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RESÜMEE

TEADMUSEL PÕHINEVATE ARENDUSNÕUETE VÄLJATÖÖTAMINE PROTSESSIDE TÄIUSTAMISEKS TUGITEENUSKESKUSTES

Maria Sihver

Käesoleva lõputöö teema on teadmusjuhtimise valdkonnast ning kvalitatiivse uurimuse tulemusel otsitakse vastust kesksele uurimisküsimusele: „Kuidas arendada teadmusel põhinevaid protsesse tugiteenuskeskuste valdkonnas?“

Tugiteenuskeskust võib vaadelda ärivõrgustiku osana, mis annab ettevõtetele hea platvormi kvaliteedi, efektiivsuse ning innovatsiooni arendamiseks läbi organisatsiooni siseste protsesside. Sellest tulenevalt on käesolev lõputöö koostatud uurimaks neid kolme eeltoodud nõuet ning tulemused on organiseeritud ning konseptualiseeritud vastavalt teadmuse nõuete mudelile, mis on käesoleva töö autori edasiarendus Nonaka SECI protsessist.

Juhtumiuuring põhineb rahvusvahelisel organisatsioonil Orkla ASA, mille peakorter paikneb Oslos ning ettevõte on noteeritud Norra börsil. Ettevõtte peamiseks tegevusvaldkonnaks on tarbekaupade tootmine ja müük ning tegutsetakse nii Skandinaavias, Ida-Euroopas, Baltikumis, Aasias kui ka Ameerika Ühendriikides. Viimastel aastatel on Orkla Grupi strateegia korduvalt ümber sõnastatud ning läbi on viidud ulatuslikke organisatsiooni struktuuri muudatusi, mille tulemusel soovitakse luua kuluefektiivsem ning tsentraliseeritum ühtne ettevõte ajakohastatud eesmärkide, missiooni ja visiooniga.

Grupi eesmärke silmas pidades otsustati luua 2013. aastal Orkla Accounting Centre OÜ (OAC), mis pakub korporatsiooni tütarettevõtetele raamatupidamisteenuseid. Peamised eesmärgid finants-tugiteenuskeskuse loomisel olid kuluefektiivsus, protsesside standardiseerimine ning tsentraliseerimine. Tänaseks päevaks osutab OAC teenuseid 23. tütarettevõttele ning pakub tööd 27 inimesele, kelle hulka kuulub ka käesoleva lõputöö autor. Projekti ja teadmusjuhi positsioon ettevõttes andis töö autorile ainulaadse võimaluse koguda

informatsiooni teadmusjuhtimise valdkonnas ning ettevõttes, millele muudes tingimustes oleks ligipääs piiratud. Teema aktuaalsus ning väljatöötatud terviklahenduste puudumine andis aluse ning soovi teemasse süüvida.

Tulenevalt ajaloolisest taustast on Orkla Grupi ettevõtted, protsessid ning süsteemid suures ulatuses detsentraliseeritud. 2015 aasta algul otsustas ettevõte arendada üksuste vahelise suhtlusplatvormi, et tõsta efektiivsust ning hoida kokku kulusid läbi tihedama koostöö ning teadmiste jagamise, mis on kaasaegses ärijuhtimises üks rohkesti käsitletavatest teemadest. Informatsiooni üleküllus on tekitanud olukorra, kus on keeruline leida asjakohast informatsiooni konkreetse probleemi lahendamiseks. Selline informatsioon võib olla organisatsioonis juba olemas, kuid sellele puudub juurdepääs. Infotehnoloogia ja teadmusjuhtimise tööriistadega on võimalik selline teadmus kaardistada, talletada ning õigel ajal ning õigetele inimestele kättesaadavaks teha.

Käesoleva töö tulemused on grupeeritud vastavalt teadmusenõuete mudelile kvaliteedi, efektiivsuse ja innovatsiooni nõueteks. Uurimuse tulemusel võib väita, et kvaliteedi nõude täitmiseks peab ettevõte arendama organisatsiooniülest koostööd ja teadmiste jagamist, järgides samal ajal turu parimaid praktikaid, mis on aluseks tegevuste järjepidevusele ettevõttes. Efektiivsuse nõue täidetakse funktsionaalsuse ning koostalitlusvõime arendamise tulemusel, mis omakorda eeldab organisatsiooniülese terminoloogia ning andmedefinitsioonide väljatöötamist ja juurutamist. Orkla Grupi kõige nõrgem lüli innovatsiooni arendamiseks on teadmusjuhtimise tööriistade mittetäielik arendamine erinevate süsteemide ning ärivaldkondade lõikes.

Orkla korporatiivne strateegia liigub integratsiooni ning tsentraliseeritud tegevusmudeli suunas, et võimendada mastaabisäästu efekti ning kasutada ära unikaalseid teadmisi kohalikult turult. Selline ärivõrgustik oma vähese formaliseerituse, kujunemisjärgus infosüsteemide ning täpse ja hästi kommunikeeritud visiooniga annab hea aluse teadmusjuhtimise vahendite kasutamiseks, et välja töötada teadmusnõuded protsesside arendamiseks.

Nii uurimustöö käigus läbi viidud poolstruktureeritud intervjuude kui ka põhjaliku dokumentatsiooni analüüsi käigus selgus, et kvaliteedi, efektiivsuse ning innovatsiooni nõudeid peab haldama tasakaalustatud perspektiivist lähtuvalt. Innovatsiooni arendamine nõuab organisatsiooniülest informatsiooni ning teadmiste jagamist, mille eelduseks on protsesside kvaliteet, mis saavutatakse läbi standardiseeritud protsesside ning mis on

arendatud lähtuvalt turu parimatest praktikatest. Efektiivsuse nõude täitmine on aga hädavajalik arendamaks protsesse tugiteenuskeskustes ning saavutamaks seatud eesmärgid.

Käesoleva lõputöö autor leiab, et tööl on mitmeid piiranguid, mis annavad võimalusi teema edasiseks uurimiseks ning mudeli arendamiseks. Esimesena võib välja tuua käesoleva töö aluseks oleva ettevõtte juhtumiuuringu versiooni, kus uurimus viiakse läbi pikema perioodi jooksul või erinevates tütarettevõtetes, kuid samadel alustel. Teise suunana peaks mudelit testima tugiteenuskeskustes, mis tegutsevad sarnase organisatsiooni ülesehituse alusel.

APPENDICES

Appendix 1. Interview number 1

Discussion points	Key ideas / answers
OAC project	Smart move from Orkla to establish Shorter timeframe for project and larger scope – faster benefits Rise in quality of the processes needed OAC has to be able to present efficiencies through standardization. Closer communication with companies and especially with the ones with integrated finance functions. Definitions for strategically important processes within companies needed.
KPI between OAC and business units	Good idea to have shared KPIs between OAC and business units OAC should come up with suggestion
Standardization	OAC has to take responsibility Important across the group
Collaboration between OAC and business unit	Good idea and something to work on Hoping to receive
BI solution for finance	The need to have BI solution for finance functions is identified and project is work in progress

Appendix 2. Interview number 2

Discussion points	Key ideas / answers
What kind of content has been considered? Information sources? Legacy systems?	Present situation is that there is a number of intranets in various Orkla companies. That would be considered as initial content but there are still a number of open issues which are under consideration.
Connection with work contexts? How will the digital workrooms be connected to processes?	A work task model as a formal description of work tasks to be supported, a domain model as a semantic description of the domain in terms of concepts, relations, and objects.
Annotating the content	The concepts in work tasks model and domain model are used for annotation of documents.
Any prepopulated formal content?	Initially there were no plans about it but relevancy in managing requirements knowledge raises it into development agenda.
Behaviours which are seek or expected: help seeking; learning; vertical communication	Standard commercial tools to be implemented for informal communications in groups. Sharing, learning, getting help, etc. The clear goal is to make it easier across the organization to interact and share knowledge. This can sharpen the competitive edge by increasing productivity, reducing costs, enhancing innovation processes and strengthening communications and corporate culture.
Workroom life cycle management?	Targets created for workroom owners. Integration to business processes and projects.

Appendix 3. Interview number 3

Discussion points	Key ideas / answers
Shared data warehouse in the centralization context	Strategic alignment Forming complete value chain
ETL process (and tools)	Predefined within several ERP solutions.
Data quality and governance	Data ownership function, integration to data warehouse processes.
BI services: existing and proposed Cooperation with OAC	Identified needs and initiatives, several opportunities to harmonize. Ongoing dialogue. Implementing tools which can be leveraged on top of all various data sources
Metadata Glossaries; taxonomies etc.	Central definitions and local definitions are being created.
Data lineage and impact analysis	Lineage delivered to business users.

Appendix 4. Process overview

√	Standard
—	Minor differences
X	Separate process
N/A	Not followed

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
1.0											
1.1.2	—	—	—	—	—	—	√	—	—	—	—
1.1.3	√	√	√	√	√	√	√	√	√	√	√
1.1.3	X	N/A	X	X	X	X	N/A	X	X	X	X
1.1.5a	√	√	√	√	√	N/A	√	√	√	√	√
1.1.5a	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A
1.1.5b	√	—	√	N/A	√	N/A	√	N/A	N/A	N/A	N/A
1.1.5b	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A
1.1.5c	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5d	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5e	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5f	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5g	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5h	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.5i	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.6a	√	—	√	√	√	N/A	√	√	√	N/A	N/A
1.1.6a	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A	N/A
1.1.6b	X	N/A	X	N/A	X	X	N/A	N/A	X	X	X
1.1.6b	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.6b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.6c	—	—	√	√	√	√	—	√	√	√	√
1.1.6d	√	N/A	√	√	√	N/A	√	√	N/A	N/A	N/A
1.1.6e	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
1.1.6f	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.7a	√	—	√	√	√	√	—	√	√	√	√
1.1.7b	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.7c	—	√	—	—	—	—	—	—	—	—	—

1.1.7d	√	√	√	√	√	√	√	√	√	√	√
1.1.7e	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
1.1.7f	√	N/A	√	N/A	√	√	N/A	N/A	N/A	N/A	N/A
1.1.7g	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.8a	—	—	—	N/A	N/A	N/A	—	N/A	N/A	N/A	N/A
1.1.8b	N/A	√	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.8d	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
1.1.10	√	√	√	√	√	√	√	√	√	√	√
1.1.11	√	√	N/A	—	—	—	N/A	—	—	—	—
1.1.12a	√	√	√	√	√	√	√	√	√	√	√
1.1.12b	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.12c	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.13	√	N/A	√	√	√	√	N/A	√	√	√	√
1.1.13	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1.1.14	√	√	√	√	√	√	√	√	√	√	√
2.0											
2.1											
2.1											
2.1.2a	—	N/A	N/A	N/A	N/A	—	—	—	—	N/A	N/A
2.1.2b	N/A	N/A	X	N/A	X	N/A	N/A	N/A	N/A	N/A	N/A
2.1.3	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
2.2											
2.2.2a	√	N/A	√	√	√	√	√	√	N/A	N/A	N/A
2.2.2b	N/A	N/A	N/A	√	N/A	N/A	N/A	N/A	√	N/A	N/A
2.2.3a	√	N/A	√	√	√	√	N/A	√	√	√	√
2.2.3b	N/A	N/A	N/A	√	N/A	N/A	√	N/A	N/A	N/A	N/A
2.2.5	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.2.6	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
2.2.7	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
2.2.8	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
2.2.9a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.2.9b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.3											
2.3.2	√	N/A	√	√	√	√	√	√	√	N/A	N/A
2.3.3a	√	N/A	√	N/A	√	N/A	N/A	N/A	N/A	N/A	N/A

2.3.3b	√	N/A	√	N/A	√	N/A	N/A	N/A	N/A	N/A	N/A
2.3.3c	√	N/A	√	N/A	√	N/A	N/A	N/A	N/A	N/A	N/A
2.3.4	√	N/A	√	√	√	√	N/A	√	√	N/A	N/A
2.3.5	√	N/A	√	√	√	√	N/A	N/A	N/A	N/A	N/A
2.3.6	√	N/A	√	√	√	√	√	√	N/A	N/A	N/A
2.3.7	√	N/A	√	√	√	√	√	√	√	√	√
3											
3.1											
3.1.2	√	N/A	√	√	√	N/A	N/A	√	√	√	√
3.1.3	√	N/A	√	√	√	N/A	N/A	√	√	√	√
3.1.3	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
3.1.4	√	N/A	√	√	√	N/A	√	√	√	√	√
3.1.5	√	N/A	√	√	√	N/A	—	√	√	√	√
3.1.6	√	N/A	√	√	√	N/A	√	√	√	√	√
3.1.7	—	N/A	—	—	—	N/A	—	—	—	—	—
3.1.8	√	N/A	√	√	√	N/A	N/A	√	√	√	√
3.1.9	—	N/A	N/A	N/A	N/A	N/A	N/A	—	N/A	N/A	N/A
3.1.10	√	N/A	√	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.1.11	√	N/A	√	√	√	√	√	√	√	√	√
4.1											
4.1.3	—	N/A	—	—	—	—	—	—	—	—	—
4.1.3	N/A	N/A	N/A	N/A	N/A	N/A	X	N/A	N/A	N/A	N/A
4.1.4b	√	N/A	√	√	√	√	√	√	N/A	N/A	N/A
4.1.4c	√	N/A	√	√	√	√	N/A	√	√	√	√
4.1.4d	√	N/A	√	√	√	√	N/A	√	√	√	√
4.1.5	√	N/A	√	√	√	—	X	√	√	—	—
4.1.6	√	N/A	√	√	√	√	N/A	√	√	√	√
4.1.7	—	N/A	—	—	—	—	—	—	—	—	—
4.1.8	√	N/A	√	√	√	√	√	√	√	√	√