UNIVERSITY OF OSLO

Department of informatics

A case study of knowledge management in a large software company: How knowledge workers cope with large amounts of information

Master thesis

60 credit

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Abstract

This master thesis is a qualitative case study, carried out at Microsoft Norway. I have investigated different processes and strategies that are used for information distribution, work performance measurement, and learning in the organization. The thesis is interdisciplinary, and adopts theoretical perspectives from sociology, pedagogy and informatics. The main theme of the thesis is Knowledge Management (KM), in the context of strategies for information management and learning in an organization in the knowledge-based society.

KM strategies in the organization provide the employees with large amounts of information, and a finding of this study is that the amount of information can be a source of stress for some employee. It is important for the employees to have strategies to cope with the information in order to feel that they can master their work situation. I have identified two forms of information management: managing information flow, and managing information demand. These categories are dependent on whether or not the employees get required information from the organization, or seek it out on their own initiatives. Finally, I discuss how of information management is related to learning from a pedagogical perspective. I also discuss the notion of corporate culture in relation to KM strategies, and conclude that KM strategies in this case study have become an integrated part of the corporate culture and normal work practice.

Keywords: Corporate Culture, Information Management, Knowledge Intensive Firm, Knowledge Management, Microsoft, Primary Work, Secondary Work

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Finaly but not the least I would like say thank you to my husband for supporting me, encouraging me, and believing in me- Always!! You are the best! And to my two wonderful daughters for keeping up with a somewhat absent-minded and stressed mother during this period.

Oslo, July 2010, Elin Hultkivst

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1 Introduction and Background

During my years of studies, I do not think there is any subject that has been mentioned more often in almost all classes and syllabi than the changes in society due to the rapid growth in use of information technology. From a working life perspective, these changes involve new forms for communication, unlimited access to information, new technologies for development, and new forms of personnel strategies. I have a special interest in the latter. I have tried to gain more knowledge about personnel strategies whenever I have had the opportunity during my studies. I have also been working as an assistant in Human Resources for Texas Instruments Norway, which has increased my curiosity about different strategies used for personal management and development. This interest was the point of departure for my thesis. My first intention was to focus on the combination of Human Resource (HR) strategies and information technology (IT). I have considered several subjects on this theme, but it was natural for me to focus on knowledge management and learning since they appeared to have a central role in the work related to the Human Resources (HR) department at Microsoft. I will discuss the terms HR and Knowledge Management (KM) later in my thesis.

1.1 TOOL

I am an interdisciplinary student in the Bachelor and Master degree program, TOOL, which stands for Technology, Organization, and Learning. TOOL is a program that combines the studies of sociology, pedagogy, and informatics. The requirements for a TOOL thesis include at least two different theoretical perspectives representing the three areas covered in the program. This thesis focuses *on technology based strategies for information management and learning*. Without doubt, this theme covers more than one research field. In Chapter 3, I present the theoretical foundations for the thesis. The chapter is divided into three parts: 1) The New Working life, 2) Knowledge Management, and 3) Learning at Work. The first part of the chapter presents a sociological perspective; the second part is interdisciplinary, but includes theoretical perspectives from the field of information technology. The last part focuses on pedagogical approaches to learning at work.

1.2 Research question

The aim of this thesis is to study personnel strategies in relation to the work and technology in a knowledge-based society at its most general level. The research question has emerged during my work on this thesis, from a more diffuse consideration of HR strategies and ICT, to KM strategies and learning, and finally to its current specific form. I have been interested in finding out how employees working as product specialists[1] perceive KM strategies, especially in relation to learning. I focus on product specialists because I learned from the exploratory interview data that product specialists need to have a continuing learning process in order to keep up with product updates and launches. A product specialist is defined as an employee who has his/her work role connected to a specific product and has some form of "expert knowledge" regarding this product. In the research question, I define this group of employees as knowledge workers. If and why this can be an appropriate description is a subject of my discussion.

The research question to be addressed in this thesis is

How can knowledge management strategies help knowledge workers to cope with large amounts of information, and how is this related to learning?

1.3 Microsoft Norway and Knowledge Management

This research is a case study conducted at Microsoft Norway at Lysaker, which is outside of Oslo. In many ways, Microsoft can be viewed as representing the knowledge society. The company embodies the concept of an innovative knowledge and technology based firm. It has to be sensitive and adaptable to every change in society, and it only employs highly educated, young, and ambitious people that are passionate about their jobs. This was the general impression I had after conducting interviews with several informants. I will come back to this theme in section 6.1.1. Overall, there is an explicit focus on competence, learning, and development in the organization, which is evident even in the

[1] In order to avoid misunderstandings I want to clarify that for the purposes of this thesis, a product specialist does not refer to a developer of any kind, but to someone who has a thorough knowledge about a specific software product, and works in sales and marketing.

office environment. The picture below shows a corridor connecting two departments. The hanging chairs create a quiet "bubble" aimed for thinking and reflection; and on the walls are written words such as dynamic, effectively, learning, innovation, initiative, and glow. The words represent values that are supposed to be emphasised at Microsoft. I find it very interesting to investigate personnel strategies in this context.

Figure 1.1 Interior picture from Microsoft Norway, Lysaker

This thesis includes a description of the human resource strategies adopted by Microsoft, which constitute the basis for the assumption of knowledge management strategies in Microsoft Norway. When I use the term knowledge management system, or knowledge management strategies at Microsoft I refer to the technical (IT) system including the role guide, career plan, and development plan and related courses and strategies. An example is the talent management cycle. I will describe these strategies and tools in Chapter 2.

The term *knowledge management* has not been used explicitly by anyone at Microsoft during this study, but compared to the thesis' theoretical framework and previous research, I find it convenient to categorize these strategies under the umbrella term knowledge management. The term is discussed further in section 6.1.2.

1.4 Thesis outline

The thesis is organized as follows:

Chapter 1 – Gives an introduction to the thesis, background information, and presents the research question.

Chapter 2 - Presents Microsoft Norway, and describes strategies and tools used for human resource management and learning.

Chapter 3 – Presents theoretical perspectives that relates to the research question. The chapter is divided in to three parts: The New Working Life, Knowledge Management, and Learning at Work.

Chapter 4 – Presents methodological considerations: Why and how to conduct a case study, the process of data collection and analysis, and a discussion of validity, reliability and generalizability in qualitative research.

Chapter 5 – Presents empirical analysis, data categories, and findings.

Chapter 6 – Discusses the research question in light of the theoretical framework and empirical findings.

Chapter 7 – Conclusions

2 The Case and Context

Because Microsoft is a well-known company, I will therefore start this chapter with only a short description of the company, followed by a description of the organizational structure and an explanation of the sales process. I will then describe some of the human resource strategies in Microsoft Norway, with a focus on learning and development.

Figure 2.1 Interior picture from the reception at Microsoft Norway

2.1 Microsoft Norway

Microsoft is one of the world's leading it-companies in software, services, and solutions. The company was established in 1975 by Bill Gates and Paul Allen. Microsoft Norway is a subsidiary that was established in 1990. Microsoft Norway is a part of the Sales, Marketing, Services, IT, & Operations Group (SMSG), which spans all Microsoft products, services, and technologies. Microsoft Norway works with sales and marketing of software, customer support and services within the business divisions Windows Client, Information Worker, Server & Tools, and Microsoft Business Solutions. There is no product or software development in Norway--apart from the Norwegian company FAST, which became a Microsoft subsidiary in 2008. Microsoft Norway works with sales, mainly through their more

than 2000 partners. The most important task for Microsoft Norway is to provide their partners with the best prerequisites and up-to-date knowledge in order to sell Microsoft products.

2.1.1 Organization

The Norwegian organization consists of four large departments, four smaller departments, and STAB functions. Enterprise Partner Group (EPG) and Small Midmarket Solutions & Partners (SMS&P) are two sales departments working with different customer segments. Business Marketing Operations (BMO) both takes care of promotions, campaigns, information about products and coordinates sales and marketing across the organization. Services is the largest department and employs technical consultants working with partners to install, integrate, and support products for customers. Development Evangelism (DPE), Entertainment and Devices (EDD), Original Equipment Factory (OEM), and Consumer & Online (C&O) are all smaller departments. In addition, there are STAB functions: Human Resources (HR), Public Relations (PR), Finance, and Customer and Partner Experience (CPE).

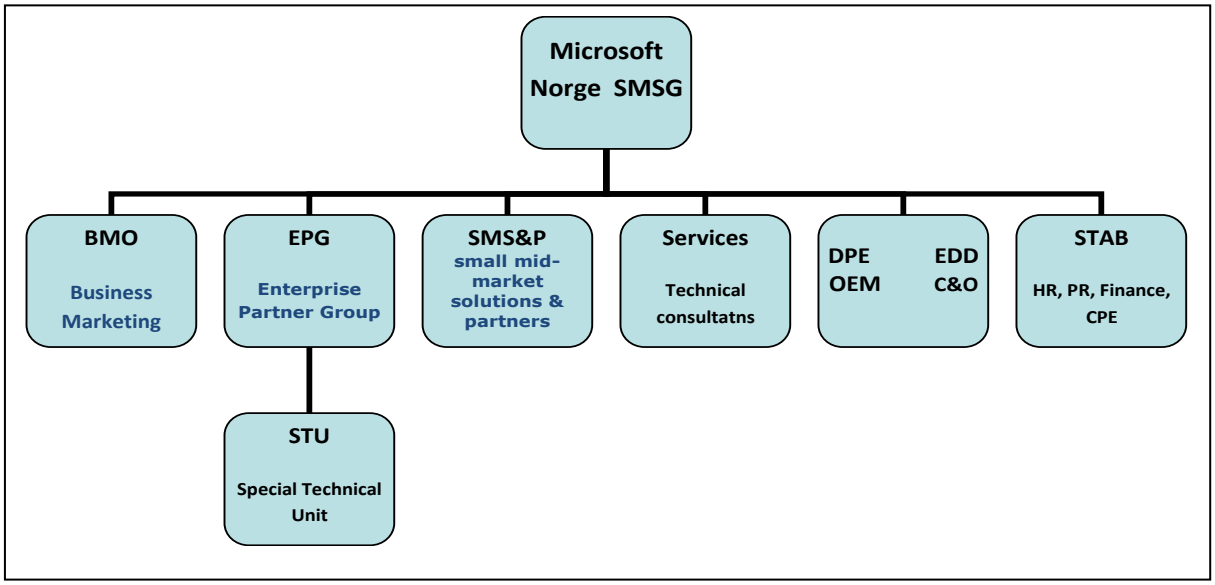

Figure 2.2 Organizational chart

I have interviewed three employees from the HR department regarding strategies and tools used for learning and development in Microsoft. Regarding the investigation of how knowledge workers perceive their learning, I have interviewed employees working as

technical experts in the sales departments and as product managers in BMO. I will expand on this investigation in section 4.2.2.

2.1.2 Sales process

Microsoft Norway is a sales organization. To understand the structures of work processes, it is important to know the sales process. As mentioned above, the customer segment is divided in two sales departments according to the size of the customer groups. The Enterprise Partner Group (EPG) targets the 160 largest customers. Small mid-market solution partners (SMSP) works with partners who in turn sell to small and midsize customers. Within each department, there are five or six customer teams. In EPG, the customer teams work directly with the largest customers. One team has responsibility for one or a few customers. In SMSP the customer teams work mainly with partners. The customer teams consist of an account manager who is responsible for the customer, and an account technical specialist who has control of the customer´s IT structure. Connected to the EPG department is the Special Technical Unit (STU), which consists of 12 people. The STU employees work as experts in different products and solutions. They are involved in the sale process by the account manager, and their task is to complement the customer team in the sales process by providing expertise in specific fields. The majority of the informants in this thesis are employed in STU.

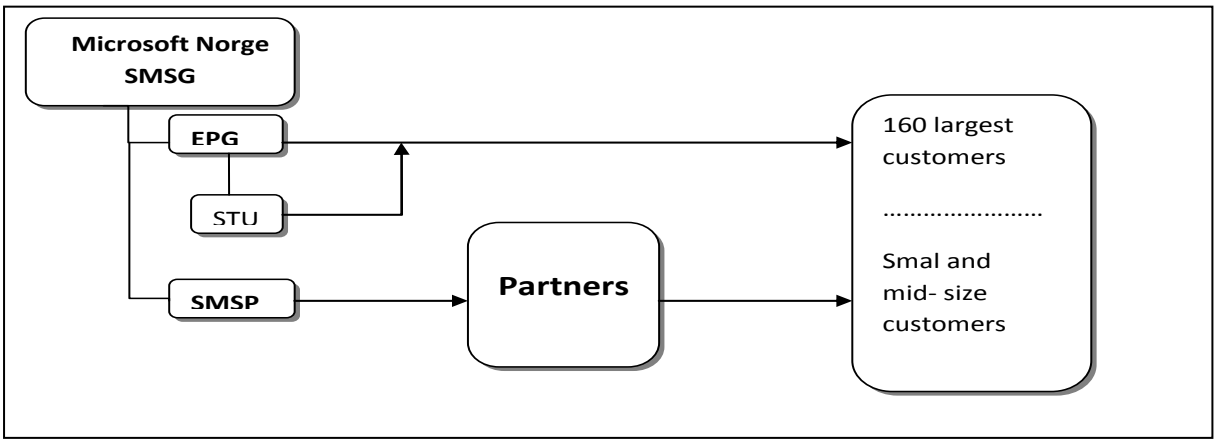

Figure 2.3 Sales process

2.1.3 Employees in Norway

Microsoft has about 250 permanent employees and approximately 70 external consultants (hired from a recruiting company) working at the Norwegian office. Around 70% of the employees are men and the average age is 37 years. Higher education is a criterion for employment, preferably at the master degree level. Before hiring, employees are evaluated by personality and ability tests, in addition to being interviewed by the closest manager, mid-manager, Human Resource representative and, when relevant, a technical specialist. Microsoft has a salary model where performance-related pay constitutes a significant part. All employees take part in a bonus system, and when they are hired they receive shares in the company. When starting at Microsoft, employees take part in a local Norwegian introduction course and New Hire Academy, which is a global program for helping new employees to identify what is important to learn in order to succeed at Microsoft.

2.1.4 Human resource strategies

The organization consists of standardized professions, or so called work roles, which are the same worldwide. Examples of work roles are Solution Sales Specialist, Partner Technology Advisors and Product Manager. Microsoft states that when evaluating a potential employee, the candidate should first be evaluated with regard to a long-term career in the company, and secondly in accordance with the actual profession. This evaluation process implies a strategy in which people often move between different professions within the company. On the website Microsoft.com one can read a statement from an employee named Ian:

> It's been new roles, new titles, new challenges every year or so. I finally stopped putting my title on my business card years ago because it was getting out-of-date so quickly. (Microsoft.com, 2010a)

2.1.5 Role-guide and career plan

All employees have a role guide, which is a description of the job--its requirements, goals, and training--in accordance with the employee's work role. In addition, permanent employees have a career plan in which they explicate what their ambitions are in Microsoft, and how they intend to fulfil them. The career path options are in general to focus on an area of expertise, or move across functions or businesses to experience the breadth of different positions. On Microsoft's website, Careers (Microsoft.com) there is a clear focus on career development and the multiple possibilities the company offers.

> Our career model is a framework and set of tools that gives you a consistent way to manage your career, identify opportunities for progress, and document your results. The model will help you understand how to take control of your career and provide context for the vast resources we offer to help you succeed. As part of your development, you'll have the option to engage in some 2,000 training programs taught by instructors from leading educational institutions and offered online, virtually, or in classrooms around the globe. You can't beat the level of investment we place on career development. (Microsoft.com, 2010a)

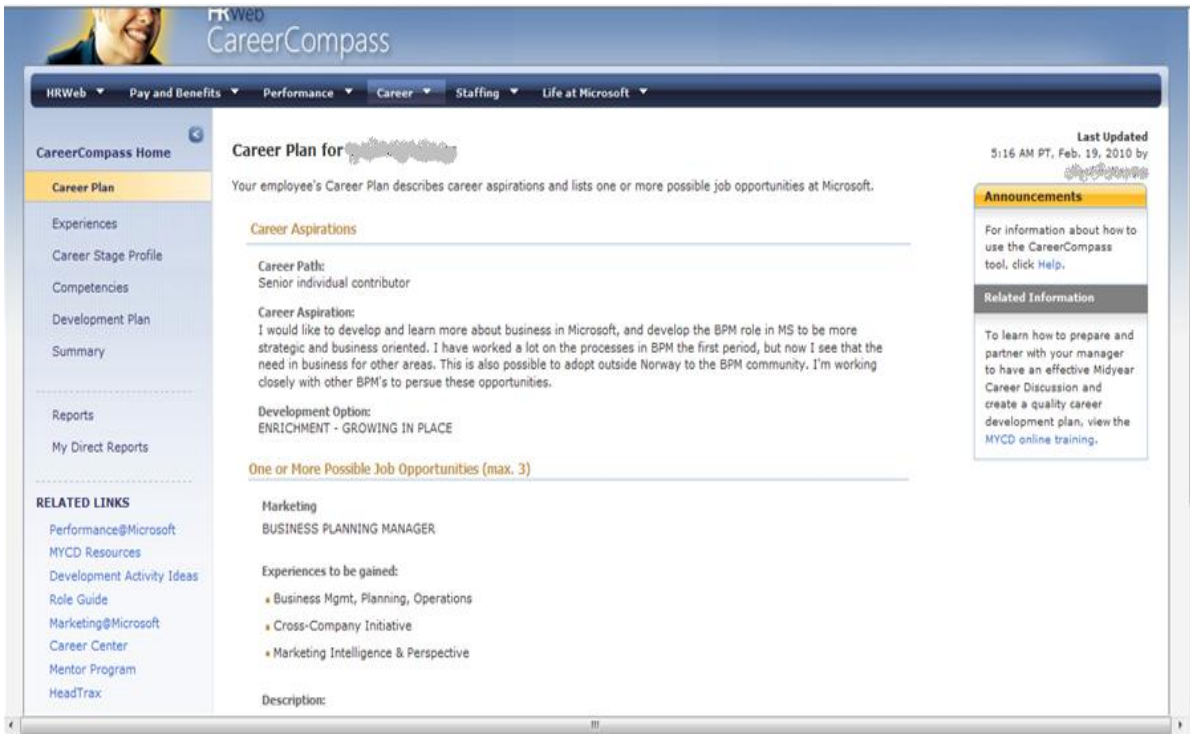

Figure 2.4. Career plan for an employee at Microsoft Norway

2.1.6 Development plan

In August of every year, the employee and the manager work out a development plan for the employee. The development plan includes goals and commitments that the employee shall achieve in both sale and profits and in training and personal development. The plan is meant as a tool for both the employee and the manager to be able to measure performance. During the year, employees have an appraisal meeting with their manager once a month. This is for communication, information, and feedback on the development plan.

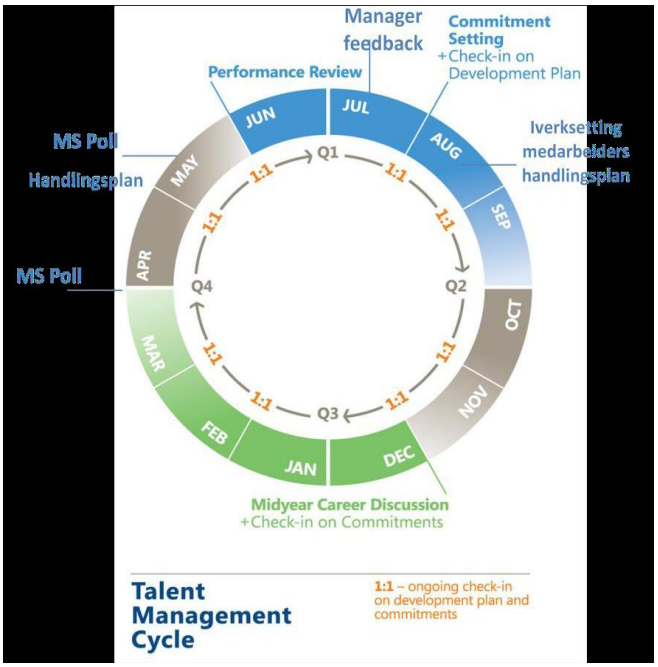

Figure 2.5. Talent Management Cycle

The talent management cycle shows how the development plan is followed up during the year. The MS Poll is a survey/study examining employee's relations with their managers, teams and units, how they feel about their work role and development, customer relations, and balance between work life and personal life. The results of this study form the foundation for actions and changes in the organization. Manager feedback is the employees' opportunity to give systematic feedback to their manager on how the manager-employee relation is working out.

Table 1 gives an overview of the three tools--role-guide, career plan, and development plan. It categorizes the purpose of the tools, what they contain, and how they are associated to learning strategies:

Table 2.1 Tools for knowledge management

	Purpose	**Content**	**Training**
Role guide	Identify the employees role in the organizational structure	Segment (SMSG) Profession (Sales and Technical Sales) Discipline(Solution Sales) Career Stage (Manager) Region (Norway) Customer segment (EPG) (text in parenthesis is my examples)	Online courses required for the work role. Online courses recommended for the work role.
Career plan	Develop employee's career in a long-term perspective.	Employee's ambitions Development options Possible job opportunities	Explicate how to reach the ambitions and to gain experience and knowledge for new job opportunities.
Development plan	Control and measurements of work performance	Work commitments and goals. Subjects for personal training and development.	Training and development in current work role

2.2 Learning in Microsoft

Learning/training initiatives for employees in Microsoft can be divided into three dimensions:

1. Courses and training specialized for the work-role. These are mainly online courses/e-learning, but also can be external courses and conferences.

2. Face-to-face learning on the job. Learning by experience, interaction with colleagues, Friday lunch presentations.

3. Learning by seeking information when needed. SharePoint libraries with product presentations, auto-groups, wikis, blogs.

2.2.1 Courses

There are more than 2000 courses and training programs to maintain employee competence levels and ensure that all employees are up to date regarding products and development in Microsoft. The various types of courses are:

- e-learning, where one first watches an information/instruction video and then takes a test
- live video meeting/conferences where an instructor gives a lecture and employees all over the world follow on video/communicator
- podcasts and videos of presentations and courses for streaming and download
- traditional classroom learning with internal or external lectures

All role guides contain courses that are required for the employee in a specific profession. In addition, there are several courses recommended for the profession. These courses are typically web-based e-learning and deal with themes such as products, updates and new features, customer relations, and ethics. The required courses are always present in the employees training plan, which is a part of the role guide. The courses should be completed by a certain date and are arranged in levels 100, 200, 300, or 400 according to how advanced they are within their theme. If the employee is familiar with the content in the course, it is possible to take a test-out, which is a knowledge test to see if it is necessary to take the course.

Below is a screenshot from an employee's training plan. (This employee is not a permanent employee, but hired from a recruiting company. That is why it says on the right

hand side that the course is not associated to competencies (development plan) and career stage (plan). Those plans involve only permanent employees)

Figure 2.6 Screenshot from an employee's training plan

All employees have the opportunity to attend one conference a year that is suited to their professions or products. The conference can be internal, only including Microsoft employees, or external, including customers as well. At the conference, there are different sessions in learning and information. Many of these are recorded and available on videos and podcasts on Microsoft web for the rest of Microsoft staff.

2.2.2 Breakfast meeting

Every Friday, employees and managers meet for breakfast and receive the latest information about business, activities, products, and customers. The occasion is used for knowledge sharing and learning that concerns the whole organization. Once a month, the

breakfast meeting is followed by a learning session where different Microsoft products are examined; for example, how to work more efficiently with Outlook.

3 Theoretical perspectives

In this chapter, I will present the theoretical perspectives that I have chosen for this thesis, and which I will use to shed light on my empirical findings and research questions. The chapter is divided in three sections, which also represent the three academic disciplines that constitute the base for the TOOL-master program: Sociology, informatics and pedagogy. The first part presents theoretical perspectives on changes in modern society and working life. I will introduce the terms *Knowledge Society*, *Knowledge Worker* and *Knowledge Intensive Firm*. This section is primarily based on theories that have their point of departure in a sociological perspective. The second section discusses the concept of *Knowledge Management*. I will give an overview of history and different approaches, and finally present a previous study on Knowledge Management in Microsoft. Knowledge Management is an interdisciplinary research field but belongs primarily to informatics. The last theoretical section presents some pedagogical perspectives on working life learning.

3.1 *The new working life*

> It is argued that society has entered a new era, where the epochal shift lies in the turn from stable to turbulent markets and rapid technological change, particularly in information technology, and focus on uncontrollability, chaos, flexibility, and disorganization. (Alvesson, 2004 p.6)

Since the beginning of the 1980s, there has been a large number of books and articles published that discuss the changes in the economy and modern society. The major theme is that society has gone through a paradigmatic shift from the industrial society characterized by theories that emphasize control and measurements in order to systemize work on the assembly line[2]. Until today, when terms like flexibility, differentiation, information-technology, and knowledge define key characteristics. (Thompson and McHugh, 2002, Olberg, 2003). Thompson and McHuge (2002) gives an overview of selected contributions to

[2] For example Taylor's theory of scientific management and fordism, which originate from the work of Henry Ford and his car production (Taylor 1947`, Littler 1982`, both cited in THOMPSON, P. & MCHUGH, D. 2002. *Work organisations: a critical introduction,* Basingstoke, Palgrave.).

the subject. Classical theories on this theme are Piore and Sabels' (1984) "flexible specialization" and Atkinson's model of "the flexible firm" (Atkinsen 1984 cited in Thompson and McHugh, 2002, and in Olberg, 2003). Both theories emphasize fast changes in the market´s demand for products and services, and the need for more customized products. To meet these demands, companies need to reorganize production, invest in flexible technology, and hire a more adaptable and flexible work force. (Olberg, 2003, Torp, 2005). Other examples of contributions are the description of the development from *fordism* to *post-fordism*. The fordist corporation is characterized by hierarchical structures, formal rules, and close control as opposed to a post-fordist corporation, which is characterized by decentralized leader ship, horizontal communication, and self-regulating units (Mulgan, 1989 cited in Thompson and McHugh, 2002). The change from *machine age* to *information age* refers to the massive growth in information technology (Hamel and Prahaøad 1996 cited in Thompson and McHugh, 2002). In the mid 1990s, the term *new economy* was widely used to describe the changes in social, political, and economic life due to the development of information technology (Lipsey 2001 cited in Torp, 2005). Regardless of the names for these changes, familiar themes are the replacement of hierarchies by networks, collaboration and participation instead of rules and commands.

According to the Norwegian researcher, Hege Torp (2005) the most common Norwegian label for these turbulent times is *det nye arbeidslivet*, the new working life. This is used both descriptively for changes identified, and normatively for future changes and challenges. The expression has no obvious parallel in international writings. An account of changes in Norwegian working life, based on analysis of the Work and Business study (Arbeids- og bedriftsundersøkelsen, 2003), is given by Torp (2005). Presented here is a short summary of some results that are relevant to this thesis:

There is an increased use of performance-related pay, especially in companies without collective agreements and/or with foreign ownership. Companies with performance-related pay have a more qualified work force then average. On-the-job training and education is widespread and increasing. The training is technology based, and the most extensive training is given in companies with a new IT structure, and where the employees use

computers daily. The individual-oriented personnel strategies are in general more common, but clearly most are in Anglo-American subsidiaries.

3.1.1 Knowledge society

In the current debate, the core values of the modern society are emphasized by the label *knowledge society*. It relates to employees having work tasks that involve generating and transferring knowledge (Guldbrandsen, 2000). This is what Alvesson (2004) refers to as *knowledge-intensive* work. Work defined as knowledge-intensive is typically comprised of intellectual and analytical tasks that require an extensive theoretical education and experienced employees to perform successfully (Alvesson, 2004). In the knowledge society there is an increasing number of knowledge-intensive companies where the competence and knowledge of the employees are vital (Torp, 2005).

3.1.2 New personnel strategies

The competition for and specialization in the products and production increase the significance of company-specific skills, and therefore the companies have to invest in training and education. When the employers' knowledge and education is the most important resource for the company, it is likely to affect the relations between the organization and the individual. It can be claimed that the knowledge belongs to and moves with the employee rather than staying with the organization. This ownership of knowledge will change status of employees, since the companies are dependent on their loyalty to get a return on their investments. The companies need to have strategies for recruiting, developing and keeping competent employees. Therefore, management needs to develop horizontal co-ordination with collegial and collaborative methods (Torp, 2005 p. 16, Thompson and McHugh, 2002 p. 162). Rules and control in earlier strategies are replaced by a focus on high qualifications, adaptability, and changeability. Examples of strategies that implement aspects of these concepts are Human Resource Management, Total Quality Management, Lean Management, and Knowledge Management. Many of these strategies place the employees in the centre to control and plan the company's future need for a

competent and qualified work force (Torp, 2005, Olberg, 2003). The management of personnel is a part of the company´s overall long term strategies (Olberg, 2003). An important feature of new personnel strategies is the increased use of performance-related pay (Torp, 2005).

3.1.3 Human Resource Management

The notion of human resource management (HRM) appeared in the 1980s with a dual usage. This was both a new way of describing the field of people management and a distinctive approach to management of employees (Thompson and McHugh, 2002 p. 52). The basic assumption is that humans are a resource equivalent to finance, and the emphasis is on integrating "personnel issues" within the overall business strategy. HRM can be distinguished in *harder* and *softer* versions. The hard version is related to Strategic Management, which stresses that that management of employees shall be performed at all levels of the organization in order to create and sustain a competitive advantage. From this point of view, HRM is a systemic and rational tool that can be used both to support organisational changes and to measure and mobilize employee competence and performance. The softer version is focused on the relation of employees to the organization. The aim is to enhance employee commitment and involvement. This is the origin to HR departments in many cases have a prominent role in changing processes in order to define and measure value changes. The softer version of HRM can be associated to teamwork, quality, and continuous improvement with the goal of encouraging employees to "go beyond contract," that is, to perform more than they necessarily are required to (Thompson and McHugh, 2002 p.53).

Human Resource Management has been reviewed and discussed. For example, there has been much discussion about the extent to which HRM adds something new to existing personnel management strategies used in the US , or if HRM is just the same 'package', with new wrapping (Legge, 1999).

Today, HR is a common label for personnel management without reference to a specific strategy. In Norway, the term HR has replaced the word personnel in many

organizations, private as well as public. For example, Personnel department (personale avdeling) has become HR department, and Personnel Manager (Personale sjef) is often called HR Manager. In Microsoft Norway, HR is used to refer to the management of employees in the company. When I use the term HR or Human Resources, I refer to management of employees in general, without reference to specific strategies.

3.1.4 Knowledge Intensive firms

Alvesson (2004) elaborates on the theme Knowledge Intensive Firms (KIF). KIF refers to large firms employing substantial numbers of people working with complex tasks that call for autonomy and use of judgments (Alvesson, 2004p.1). He points out that the KIF theme goes well beyond a focus on just knowledge in organizations. It includes many other interesting features of knowledge-intensive work such as complex social and political processes, identity and motivation, and issues about marketing and competition. KIFs are organizations that offer the use of advanced knowledge or knowledge-based products to the market. Typical examples of knowledge intensive firms are law, consultancy, IT development and market research firms. The core activities in these companies are based on the intellectual skills of a very large portion of the work force deployed not only in development but also in the sale of products and in service work (Alvesson, 2004 pp. 17-24). A large section of the employees has an academic education and relevant experience. Intellectual skills and theory-based knowledge is a key criterion for employment, and both management and other employees devote a lot of interest in developing, sharing, and utilizing knowledge. The organizational structure is generally not very hierarchal but rather flat and open, with collegial relationships across position levels. Knowledge workers usually have a high degree of autonomy in their work situation. The individual workers often have the best general insights into the problem areas and situational expertise may often carry more authority than a formal position.

Since the knowledge workers are the most crucial resource for knowledge intensive companies, they have to spend a lot of effort in recruiting and/or developing their employees. Alvesson distinguishes between Human Capital Advantage and Human Process

Advantage; the former refers to the employment of talent and the latter refers to processes within a firm such as cooperation, training, and development, and the establishment of organizational culture (Alvesson, 2004 p. 139). For KIF´s it is important to secure people's satisfaction and loyalty to the company in order to attract and retain a qualified workforce. Alvesson proposed the notion of *personal concepts* to refer to a company´s basic ideas behind its HRM strategies.

> The personal concepts refers to an idea or conception of employees in relation to the organization and the effort to define the motivational and developmental basis for the employee-employer relationship, which an organization develops and uses as a starting point for and key theme in personnel-HRM strategies. (Alvesson, 2004 p. 147)

Alvesson's definition incorporates an idea of the kind of employee the company wants to attract, what they will offer of rewards and benefits and to what extent these relates to development and competence. It can also involve ideas about how to shape and associate the employees to the organization through identity, motivation, and culture. The personal concept may influence not only HRM systems but also the whole organization--its work structure and task, and the kind of competence and results it wants to achieve (Alvesson, 2004).

3.2 Knowledge Management

Knowledge Management became popular in the 1990s. The book, *The Knowledge Creating Company* by Nonaka and Takeuchi published in 1995, is by many regarded as the starting point for the public interest in Knowledge Management as an international research field (Sandvik, 2001). The ideas emerged in response to demands in the knowledge society and the development of communication technologies that created access to computerized networks and real-time interaction. Knowledge Management provides various perspectives on how to manage and control recourses in form of humans and knowledge. The four basic processes in knowledge management is creating, storing/retrieving, transferring, and applying knowledge. Both practitioners and academics have adapted and developed these

ideas across a broad range of disciplines (Alvesson, 2004, Nonaka and Peltokorpi, 2006, Alavi and Leidner, 2001).

3.2.1 Perspectives on knowledge

Nonaka and Peltokorpi (2006) have reviewed the 20 most frequently cited KM articles published in management journals between 1993 and 2003. They give an account of different perspectives on some of the most basic themes in KM. One of the most important discussions within KM is the complex nature of knowledge. It has been usual to distinguish knowledge from data and information, where data is raw numbers, images, and words. Information is data arranged in meaningful patterns. Information is a message with a sender and a receiver. Knowledge is about beliefs, commitment, judgment, intentions. and action (Nonaka and Peltokorpi, 2006, Davenport and Prusak, 1998). Nonaka concludes that ”information is a flow of messages, while knowledge is created and organized by the very flow of information, anchored on the commitment and beliefs of its holder” (Nonaka, 1994 p. 15). Davenport and Prusak (1998) offer a definition of knowledge that expresses the characteristics that make knowledge both valuable and difficult to manage:

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms. (Davenport and Prusak, 1998 p. 5)

Examples of taxonomies used to classify different types of knowledge are *know-that and know-how,* declarative and procedural knowledge; perhaps the most frequently used is tacit and explicit knowledge. Know-that/know-how (Brown and Duguid 1998 cited in dePaula and Fischer, 2005) and knowledge-that/knowledge-how (Ryle 1949 cited in Nonaka and Peltokorpi, 2006) and declarative and procedural knowledge represent attempts to link knowledge to action and practise. The notion of tacit and explicit knowledge was first introduced by Michael Polyani (cited in Nonaka, 1994, and in Nonaka and Peltokorpi, 2006)

but was made popular through Nonakas' (1994) theory of organizational knowledge creation. This taxonomy refers to an assumption that most of our knowledge is difficult to articulate because it is grounded in our experiences, actions, and involvements and is more or less unconscious to us. Explicit knowledge is theoretical knowledge and information we can put in words, but represents only the tip of the iceberg compared to the entire body of possible knowledge (Nonaka, 1994). There are differences in opinion about to what extent taxonomies like this are understood as complementary or exclusive: Is knowledge attached to the knower and the individual, or should it be treated as collective phenomena? According to some researchers, collective knowledge has to be understood as an aggregation of individual knowledge. Others propose that collective knowledge is not reducible to individuals, and some scholars emphasize the socially constructed nature of knowledge. In most KM works, collective knowledge is embedded into artefacts, culture and identity, and routines (Nonaka and Peltokorpi, 2006).

3.2.2 Approaches to Knowledge Management

Leidner, Alavi, and Kayworthe (2006) describe two fundamental approaches to knowledge management: the process approach and the practice approach. The first focuses on knowledge management IT systems, and the second is more concerned with organizational and human relations. The process approach involves use and development of information technologies to enhance the quality of knowledge creation and distribution in the organizations. In this approach, knowledge is often viewed as an object that can be codified, stored, and accessed by processes and technologies, or knowledge is apprehended as a condition of access to information, where information is organized, codified, and made searchable (Alavi and Leidner, 2001). Organizations that adopt the process approach often implement formalized processes to collect and disseminate knowledge throughout the organization. On the other hand, in the practice approach to knowledge management, it is assumed that a great part of organizational knowledge is tacit and impossible to codify, collect, store, and distribute by formalized processes and technology. The focus is on building social environments to facilitate the sharing of knowledge through interaction (Leidner et al., 2006).

Mørch, Moen, Hauge and Ludvigsen (2008) distinguish between three perspectives on KM, the technical, socio-technical, and the socio-cultural perspective, where the first two are closely connected to the process and practice approach. However, Mørch et al. also distinguish between first and second generation of Knowledge Management. The first generation of KM is concerned with managing knowledge and skills that are present and identified in the organizations. The second generation focuses on creation of new knowledge, and the tools and processes that facilitate it. Like the process approach, the technical perspective focuses on capturing, storing, utilizing, and distributing knowledge by technologies such as databases and information systems. The purpose of these systems is often to improve work performance and well-defined work skills. The socio-technical perspective on KM focuses more on the users than on the technologies. The aim is to connect people in the organization to enable knowledge sharing. Tools used in this perspective are interactive systems for social networking and information exchange--for example blogs and wikis. Shortcomings of both the technical perspective and the socio-technical perspective are that there is a gap between the context of information design and the context in which employees use the information. This gap may lead to the knowledge management system not being as useful as expected. The socio-cultural perspective on KM focuses on knowledge and learning, which is perceived as a social and participative activity. In this perspective, knowledge management is about how tools can mediate this activity and how new knowledge can be constructed in the collective practises of organizations.

The researchers dePaula and Fischer (2005) propose an approach to KM they call a design perspective. Through this perspective, they view knowledge as collaboratively designed and constructed, and emphasize innovation, continuous learning, and collaboration as a process (dePaula and Fischer, 2005). The design perspective implies that stakeholders create new knowledge as they carry out their work practice. The goal is to enable innovative practices at a social level by supporting collaboration and communication. Knowledge is distributed in a network of stakeholders and artefacts, and is constructed and accepted during the work process. Learning is closely connected to problem solving. Problems are not given, but they are situated and appear and must be solved in a context. According to dePaula and Fischer (2005) this perspective has two essential aspects that

distinguish it from other KM perspectives. First, stakeholders, not specialists, create knowledge. Second, knowledge is a collaborative by-product of work. Knowledge is integrated into potential solutions by the stakeholder at *use time*, rather than being predefined at *design time* by a design specialist.

3.2.3 Knowledge Management at Microsoft

In 1997 Davenport (1997)conducted a case study on knowledge management at Microsoft. He followed the implementation of a project called SPUD (Skills Planning und Development) which had started in 1995. The project involved building an online system that contained a competency structure, job rating systems and ratings database, and competency levels for employees. The goal for the project was to create an online competency profile for jobs and employees within Microsoft IS. This competency model would be used to transfer and build knowledge. The project was expected to lead to better matching of employees to jobs and work teams. The SPUD project consisted of five major components:

• Development of a structure of competency types and levels

• Defining the competencies required for particular jobs

• Rating the performance of individual employees in particular jobs based on the competencies;

• Implementing the knowledge competencies in an online system

• Linkage of the competency model to learning offerings

Microsoft defined different levels of competencies and created a four-level model.

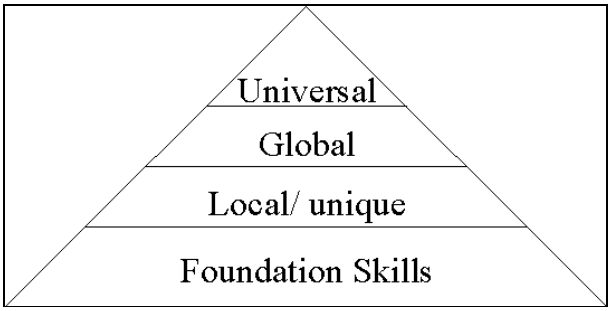

Figure 3.1 Different levels of competencies

Foundations skills are the entry-level skills for people to be employed in a certain profession. Local or unique competencies are the advanced skills that apply to a particular job type. Global competencies should be present in all employees within a particular function or organization, and Universal competencies are knowledge important to everyone employed in Microsoft.

Within each of the four levels of competencies, there were two different types, *explicit* and *implicit* competencies. Explicit competencies involved knowledge of and experience with specific tools or methods. Implicit competencies involved more abstract thinking and reasoning skills. In Microsoft, the implicit competencies were expected to stay relatively stable over time, while the explicit competencies change frequently in line with development and changes. Within each type, there are also four defined skill levels: basic, working, leadership, and expert.

According to Davenport (1997), another important part of the project involved evaluating workers in relation to their current job. The evaluation process was a rating process where both employee and supervisor rated the employee's competencies. The rating process was intended to serve as an occasion for conversation about the employees competencies. The goal was to build a competency inventory that could be used all across Microsoft.

A key goal of the project was to link competency profiles to educational resources. This was not done during the time of the case study, but the intention was to use the

system to assess course demand on the basis of competency level and role descriptions and the competencies they required.

The SPUD project was developed by a unit within Microsoft's internal Information Technology (IT) group. The IT group consisted of over 1000 employees who developed applications, built infrastructures, and operated computers and networks. The unit was responsible for training and education for IT personnel. The system was built on SQL server and should have a Web front for easy access around the world through Microsoft's Intranet. The implementation of the SPUD project was done in the IT group with all employees and their jobs in the IT group.

Davenport presents some issues that were determined after the implementation of SPUD in the IT group. One of these issues was how the competency model would spread to other software developers within Microsoft outside the IT group. Another issue was what role the Microsoft HR function would have relative to the competency model. HR were not initially part of the project, even though they had made some small contributions. An expectation for the SPUD program was that it should become a tool for institutionalizing innovation in the fast-changing IT industry. Davenport gives an example of how this was supposed to be done.

> If Bill Gates, for example, determined that employees at Microsoft needed to master a new form of knowledge (e.g., Web-based application development), then he could force development of the competency by insisting upon its presence in all job competency requirements. A means by which needed innovations could be identified and rapidly implemented would seem to be critical in Microsoft's business and industry. (Davenport, 1997 p. 6)

Davenport notes that the project manager realized that the success of the project depended upon whether or not the individuals who would use SPUD felt that they were getting something from it. The project manager felt that employees and supervisors had to feel that they contributed to the development of templates for jobs. Then, she thought, they would buy into the competency model because they had a hand in the design and implementation of it.

Davenport states that this ambitious attempt to advance knowledge by focusing on individual knowledge competencies requires the active involvement by everyone in the organization (Davenport, 1997).

3.2.4 Eight factors important to make knowledge managements projects succeed

From this and thirty other case studies, Davenport and colleagues have identified eight factors important for knowledge management projects to succeed (Davenport et al., 1998, Davenport and Prusak, 1998). These are:

- **Link to economic performance or industry value**

  Knowledge management projects can be expensive for the company and therefore must be linked to economic benefit or competitive advantage. This can be in money saved or money earned, or more indirect in form of other measures like customer satisfaction or timesaving. For example, in another case in Davenport's study, the company measured the amount of knowledge reused in form of proposals, presentations and deliverables. They measured the contribution of the company's knowledge repository to closing sales (Davenport et al., 1998).

- **Technical and organizational infrastructure**

  According to Davenport et al., knowledge projects are more likely to succeed when they use the broader infrastructure of both technology and organization. Technology infrastructures are tools that provide opportunities for learning and gives access to knowledge. Examples from the research by Davenport et al. (1998) are Lotus Notes and web-based intranets. Organizational structures mean that there are roles and groups whose members have the skills to serve as resources to individual projects.

- **Standard, flexible knowledge structure**

  Successful knowledge management projects benefit from some degree–though not too much--of a knowledge structure. Because knowledge is naturally fluid and closely linked to the people who hold it, its categories and meanings change

frequently (Davenport and Prusak, 1998 p. 159). The structures of knowledge repositories cannot be too rigid, but must be flexible enough to always reflect the pattern of use.

- **Knowledge-friendly culture**

  A knowledge-friendly organizational culture exists when people have a positive orientation to knowledge and take part in knowledge sharing instead of avoiding it in fear of losing a competitive advantage. According to Davenport et al., this participation is one of the most important factors for success with knowledge management, but also the most difficult one to create. Davenport et al. (1998)notes that it is important that the knowledge management project fits the culture.

- **Clear purpose and language**

  Effective and suitable communication around learning and knowledge was important in the cases studied by Davenport et al. (1998). He notes that the language must fit the culture. A statement from a knowledge manager in Davenport's study explains that "normal business language gives the impression of being fact based, often drawing on military and natural science metaphors. But knowledge management deals with things like complexity, uncertainty, and organic growth. That calls for a new vocabulary and managers aren't used to it" (Davenport et al., 1998 p. 53).

- **Change in motivational practices**

  The motivation to create, share, and use knowledge is a critical factor for Knowledge Management projects. Approaches to increase motivation should be long-term and linked to the general evaluation and compensation structure.

- **Multiple channels for knowledge transfer**

  Knowledge management projects should facilitate knowledge transfer through both technologies and face-to-face channels. The multiple channels are suitable for different forms of knowledge, and they will reinforce each other.

- **Senior management support**

Davenport et al. (1998) found that strong support from managers was crucial for transforming–oriented knowledge projects but less necessary in efforts to use knowledge for improving individual functions or processes. The important types of support from managers were that they signaled the value of knowledge, which knowledge was most important, and provided resources for knowledge infrastructures (Davenport et al., 1998, Davenport and Prusak, 1998).

3.2.5 Corporate Culture and Knowledge Management

Davenport et al. emphasise a knowledge-friendly culture as a key factor in making knowledge management projects succeed (Davenport et al., 1998). Leidner et al. (2006) note that culture is widely cited as a challenge to knowledge management initiatives and knowledge sharing. Leidner et al. have conducted a multiple case study to examine how organizational culture influences knowledge management initiatives. They define culture in the context of knowledge management as norms and practices that determine "who is expected to control what knowledge, as well as who must share it, and who can hoard it" (Delong & Fahey, 2000, cited in Leidner et al., 2006). The study suggests that it is not culture on an organizational level that has the most significant influence on KM strategies; the most significant influence comes from the individual employee's perception that the culture is individualistic or cooperative. This has an impact on how KM strategies can evolve in the organization and on the migration of knowledge. Organizations that encourage individuals to achieve individual goals and reward individual performance would be considered to have an individualistic culture. Organizations prioritizing collective goals and cooperation and rewards for organizational accomplishments would be considered collectivist. These dimensions of organizational culture emerged as critical in the study. Leidner et al. (2006) state that over time, when the knowledge management project has been established and is evolving with the organization, it begins to reflect the values of the organization and becomes a part of the organizational culture. Knowledge Management strategies then become a part of normal work praxis (Leidner et al., 2006).

3.3 Learning at work

As mentioned earlier, the development of the modern global world and the knowledge society has made the concepts of learning related to work more actual than ever. Changes in society and in technology development happen so quickly that it is impossible to educate people in school with specific knowledge to meet problems in the future, which are unknown at the time of learning. Instead, it is often argued that the ability to learn, that is, sort out what is worth learning from what is not, has become more important. This ability provides the basis for future learning in relation to working life and is in line with development (Illeris, 2004). As the previous presentation of Knowledge Management showed, there has been an interest in web-based learning in working life since the mid 1990s. Knowledge Management is only one concept of many that deals with learning in relation to information technology. Mørch and Skaanes (2010) use the term web-based learning portal and web portal to refer to technology that aims to mediate work and learning.

3.3.1 Pedagogical approach to web based learning

Mørch, Engen, and Åsand (2004) discuss e-learning both in general and in relation to a research project about the introduction of e-learning in a Norwegian service company. They identify three dimensions that have impact on e-learning: technological, pedagogical, and organizational. The technological dimension refers to technological factors such as systems and tools. The pedagogical dimension is about company-specific teaching programs, theories of workplace learning, and conceptual frameworks for evaluating individual and organizational learning. New ways of learning and working is an organizational issue, as is the participation of employees on multiple levels in the organization (Mørch et al., 2004 p.142). The researchers use the term E-learning to refer to technologies as well as strategies (...) *that* "must take technological, pedagogical and organizational concerns into account" (Mørch et al., 2004p. 142)

Mørch and colleagues note that there is little pedagogical theory included in e-learning literature, and therefore they present a conceptual framework that can serve as an explanation when doing research on e-learning. However, Mørch et al. emphasize that the

conceptual framework is suitable for studying the "introduction of e-learning in service oriented, computer networked organizations" (Mørch et al., 2004 p. 143), but it can be assumed that the framework is also relevant when studying e-learning that is well established in the organization. The conceptual framework consists of aspects of situated learning, master-apprenticeship, and learning on demand. The notion of situated learning in working life refers to situations where an employee needs to consult a secondary source such as a colleague, manual, or computer in order to find an answer to a question or problem, and by doing so learns new information that is relevant for job performance (Lave and Wenger 1991, Suchman 1987, both referred in Mørch et al., 2004). Apprenticeship learning is when an employee learns how to perform parts of the job from a more experienced colleague (Collins, Brown and Newman, 1989, and Nielsen and Kvale 1997, both referred in Mørch et al., 2004). This form of learning often involves situations that can be difficult to predict, and where "learning-by-doing," with scaffolding from the more experienced colleague, can be the best way to gain required practical knowledge. Learning on demand (Burton, Brown, and Fischer, 1984, and Fischer, 1991 both referred in Mørch et al., 2004) is a computerized form of apprenticeship learning and situated learning. An example of "learning on demand is how a computer can be utilized to find information to resolve a difficult situation associated with the task at hand" (Mørch et al., 2004 p. 145). This could be done by providing a contact to a more experienced colleague or automatic delivery of relevant information from a knowledge repository. Nevertheless, as Mørch et al. (2004)note, learning at work not only involves individuals solving work related problems, it also involves how the organization as a whole learns and evolves, and how learning is related to the shared goals of the company.

3.3.2 Primary/secondary work

In order to capture learning processes in a service industry area where work includes frequent customer interaction, Mørch and Skaanes (2010) and Mørch, Engen, and Åsand (2004) distinguish between *primary work* and *secondary work*. Primary work is the main work to be accomplished during daily work. This is often described in a work description. Primary work is updated according to demands in society, customer's needs, changes in the company etc. Secondary work supports and enhances primary work or questions and

analyzes it. It refers to the workers reflections around primary work, and is responsive to innovations and changes. Secondary work is work that is supported by training and learning, and is often the source to changes and updates in primary work. It involves the knowledge building that goes on the organization, and the knowledge needs of the organization's teams and employees. According to *Mørch,* "This is closely associated with e-learning and Knowledge Management and the ways individual performance support systems can be integrated with the company's knowledge management systems" *(2004 p. 144).*

The relation between primary and secondary work is both dynamic and interdependent. *Gap closing* is the activity where the distance between primary and secondary work is reduced such as when primary work is changed according to activities or ideas in secondary work. Gap closing is an activity associated with learning (Mørch and Skaanes, 2010, Mørch and Engen, 2008).

3.3.3 Reflection in work-life learning

Steen Høyrup (2004) presents a theoretical analysis of the concept of *reflection* as an important feature of learning in organizations. However, in the discussions around knowledge and learning there is no agreed upon definition of this concept. As a definition of reflection, Høyrup quote Van Bolhuis-Poortvliet and Snoek (from Woerkom 2003):

> Reflection is a mental activity aimed at investigating one's own action in a certain situation and involving a review of the experience, an analysis of causes and effects, and the drawing of conclusions concerning future action. (Woerkom 2003 cited in Høyrup, 2004)

Høyrup (2004) notes that it is important to see the complexity in the concept of reflection, to distinguish between different forms of reflection--reflection and critical reflection, for example--and between different levels of reflection such as individual and organizational. While reflection focuses on a task or a problem, critical reflection focuses on basic assumptions. It involves questioning the social, political, and cultural aspects that affect the context in which the task or problem is situated (Høyrup, 2004 p. 444). "Critical reflection is not concerned with how, or how-to of actions but with why, the reasons for and the

consequences of what we do" *(Mezirow 1990:1 cited in Høyrup, 2004)*. Høyer gives a review of the thinking of John Dewey, David Boud and Donald Schön in order to present reflection on an individual level. The researcher Donald Schön's theory on *reflection-in-action,* is related to the domain of problem solving.

> Problem-solving in this connection should be seen in the perspective that the individual adapts to a life of continual and rapid changes, and most of what we learn in life is the result of our efforts to solve problems. (Høyrup, 2004 p. 447)

Reflection-in-action occurs when professionals are developing their knowledge through interaction with a specific situation. The activity of reflection occurs at the same time as the situation is addressed. Professionals analyse their actions in the situation and thereby affect the situation and adapt their actions. The reflective process is at least to some degree conscious, but may not be verbalised. This is how professionals deal with situations of uncertainty, instability and uniqueness and value conflict (Høyrup, 2004, p. 447). On the other hand, when professionals perform their work tasks, they use their knowledge of how to act in that specific work situation. Schön (1983 cited in Ohlsson and Granberg, 2000, p. 42) has analyzed practitioner's thinking and actions in work life. Which is a form of know-how knowledge, a tacit knowledge, which he has called *knowing-in-action* (Schön 1983 cited in Ohlsson and Granberg, 2000, and in Høyrup, 2004) Schön distinguishes this from *reflection-in-action*, which takes place after the event that is consciously undertaken and often documented (Ohlsson and Granberg, 2000, p. 42).

Høytup notes that most theories accentuate reflection on an individual level in a social context where the interaction with others is more implicit. However, individuals also reflect together in an organizational context. And the fact is "that most of the core processes in reflection such as critical opinion sharing, asking for feedback, challenging groupthink, learning from mistakes, sharing knowledge and experimentation–only can be realised in processes of interaction" (Høyrup, 2004, p. 448).

3.4 Summary of the theoretical perspectives

In this chapter, I have presented the theoretical perspectives in the context of the theme of the thesis. I began with an introduction to the concept of the new working life and knowledge society, and the impact the changes in working life have had on personnel strategies. I then proceeded to my main perspective, which is on Knowledge Management. I presented history, different approaches, and previous studies involving a study on KM at Microsoft, and a study of corporate culture and Knowledge Management. The last section in this chapter presented some pedagogical perspectives on learning and reflection in regard to learning at work. As mentioned in the introduction to the chapter, these three parts can be seen to represent the three academic disciplines--sociology, informatics, and pedagogy. However, the three sections also represent different perspectives on personnel strategies and work life learning--a perspective on society, on the organization, and on the individual.

4 Methodological Considerations

We were two students working together to find a company in which we could conduct our master's theses research. In the spring of 2009, we contacted the HR department at Microsoft. We were excited about getting in touch with Microsoft, since it is such a well-known company with (we assumed) access to state-of-the art technologies. During our first meeting at Microsoft, we introduced ourselves and our supervisor. We explained our background and the thoughts and ideas we had prepared for the meeting, which pertained to how we wanted to focus our theses. We then decided to try to do some exploration interviews before the summer of 2009, and then start with the actual data collection right after the summer. This did not turn out as we planned. We had some difficulties getting in touch with our contact person at Microsoft, and were not able to start the exploration interviews until September. During the data collection period we had, for various reasons, four different contact persons at Microsoft. This sometimes made it difficult to get answers and arrange interviews and meetings. However, once we had accomplished the first interviews, we were able to focus our different research directions. At this point, I decided to focus on learning strategies, with a special interest in employees working as technical experts. My colleague, Jørgen Taxt Walnum, decided to focus on tools used for communication and interaction (Walnum, 2010).

In this chapter, I will describe the process of data collection and analysis, and methodological considerations connected to this process. For this chapter, I have used a disposition presented by Kudrik in her master's thesis (Kudrik, 2009), since I found this to be a clear and carefully-thought out way to do it. I will start with an explanation of the differences between qualitative and quantitative research.

4.1 Qualitative vs. quantitative research

Qualitative and quantitative can be understood as the two underlying and opposing approaches to research. The quantitative approach is usually associated with statistics, numbers, amounts, and frequencies. It is useful in order to be able to examine large samples and can give findings that are statistically representative or show distribution of a phenomenon. Research methods are typically surveys and analysis of quantities. In

qualitative research, the samples tend to be smaller and the aim is in-depth information and detailed descriptions. The researcher is typically interested in research questions such as how and why. Common research methods are interviews and observation, and the data collected for analysis is in the form of words, pictures and objects. The process of analysing qualitative data can be very time consuming and the researcher plays a subjective role in this work. The researcher is the data gathering instrument and his or her experience and previous knowledge is likely to influence the analysis. While quantitative research generates data that is more or less without a context, qualitative data has to be analysed in light of its context to be meaningful. This is one of the reasons why it is difficult to generalize from qualitative data (Thagaard, 2003).

My main research question asks how knowledge management strategies can help knowledge workers to cope with large amounts of knowledge and information, and how this relates to learning. Since this is an in-depth study of employees' subjective experience and uses a small sample, a qualitative research study is most applicable.

4.2 Case study

> In general, case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context. (Yin, 2003 p. 1)

I have conducted a holistic single case study. The study was done in one organization and included one unit of analysis. Before selecting the case, I knew my interest fields were within the themes of human resources and information technology. However, as Silverman (2005) notes; "very often a case will be chosen simply because it allows access". (Silverman, 2005 p. 127) I must admit it was the situation with this case. We got in touch with Microsoft through a professor at the Institute for Informatics at the University of Oslo. When Microsoft agreed to assist us in our master's theses research by letting us do our data collection in their organization, I started to do some theoretical research to have a theoretical foundation for my study. According to Yin, "for case studies, theory development as a part of the design phase is essential, whether the ensuing case study's purpose is to

develop or test a theory" (Yin, 2003 p. 28). I developed a design for the study that included study questions, units of analysis, techniques for data collection, and strategies for analysing the data. Nevertheless, both the study questions and the strategies for data analysis changed during the work due to new theoretical and empirical findings.

4.2.1 Data collection techniques

The most common ways to collect data in a case study are by documentation, archival records, interviewees, observations, participant-observation, and physical artefacts. All these methods have strengths and weaknesses, and they are in many ways complementary (Yin, 2003 p. 85). As strengths, data collection allows the use of multiple sources of evidence, so the researcher can address a broader range of issues. Any finding or conclusion in a case study will appear much more convincing and accurate if based on several sources of information (Yin, 2003 p. 98). At first, my intention was to conduct my data collection in line with triangulation techniques, and complement my interview data with a questioner. However, when I had conducted my interview data collection and transcriptions, I had 120 pages of text. In consultation with my supervisor, I decided that it was more interesting to focus on the data material than to use time in conducting a more generalizing survey. In addition, I have used interviews and document analysis as my primary sources of data in this study.

4.2.2 Participants

The informants in this study were selected through our contact person in Microsoft. The contact person was not a manager and had no authority to order them to participate. The participation was voluntary and all the informants were informed that they could withdraw from the study without further explanation. The target group of this study was employees that work as product specialists. As mentioned in Chapter 1.3, this was because I assumed that they needed to have a continuing learning process in order to keep up with product updates and launches. I have defined a product specialist as an employee who has his or her work role connected to a specific product and has some form of "expert

knowledge" regarding this product. I have interviewed 9 employees that I categorise as product specialists. They work as technical specialists in the sales department Small Mid-market Solutions and partners (SMS&P), or technical experts in the Special technical Unit (STU) or as product managers in Business and marketing (BMO). The informants are in the age group 30 – 40, two of them are women, and they have all been working in Microsoft for 1 – 5 Years. In addition, I interviewed 3 persons from the HR department.

I have recorded and transcribed these interviews, and stored this material on my computer and at my work place at InterMedia, University of Oslo. Since this material includes content that can identify the respondents, I was obligated to report this thesis to NSD (Norsk Samfunnsvitenskaplig Datatjenste), and store and handle the material according to NSD requirements.

4.2.3 Interviews

Yin (2003) distinguishes between three types of interviews: open-ended, focused, and survey. In open-ended interviews there is a loose structure of the questions that are posed, and the desired result of the interview is more open. The interview is in the form of a conversation about certain phenomenon, and the researcher asks respondents about facts as well as their opinions. In focused interviews, the respondent is interviewed for a shorter time--an hour, for example. The interviews can still be open-ended, but it is likely that the researcher has a more structured set of questions and focuses on a certain theme. The survey interview follows a strict set of questions and can be used to collect quantitative data in a case study (Yin, 2003 p. 90).

As previously mentioned, we were two students working together in the beginning of the data collection process. We were researching two separate theses with different focuses but with some overlapping issues. We did some interviews together, but one of us was always in charge of the interview and had developed the interview guide. The other one listened, but could ask some follow-up questions if it seemed appropriate. The first two interviews we conducted were in order to explore the themes of our thesis and to have a ground for our interview guides. These two interviews were open-ended interviews, which

lasted for up to two hours each. When conducting these interviews, we had several themes to ask about, but no set questions. This was also the situation during the interviews with employees from the human resource department. The rest of the interviews, conducted with employees working as product specialists, were in the form of focus interviews. In these interviews, I used an interview guide developed from my theoretical foundations and the exploration interviews. (See Appendix 1 for a full description of the interview guide.) In total, I conducted 12 interviews, whereas 9 would constitute the data for the empirical analysis. The remaining three interviews are with employees from the human resource department, and they have given me an insight in to the methods and strategies Microsoft has used regarding learning, development, and measurements. Ten of the 12 interviews were audio recorded, including all interviews that were used in the empirical analysis.

The strengths of the interview as a source of evidence are that it is focused directly on the case study topic, and that it can give the researcher insight into how the respondents perceived a situation. However, Yin notes that interviews should always be considered as verbal reports, and as such, they are subject to problems such as bias, poor recall, and poor articulation. Bias can be due to poorly constructed questions or the informant's attempt to give the answers they think the researcher wants (Yin, 2003 p. 89). Figure 4.1 below shows the interview situation at Microsoft. The woman on the left hand side of the photo is an employee at Microsoft, but not one of the informants. The other woman is me.

Figure 4.1. Interview situation during the data collection

4.2.4 Documentation

I have studied relevant documents to get a more detailed understanding of the process, strategies, and tools used by Microsoft, and described in Chapter 2. Typical examples of such documents are descriptions and information meant for new employees. In addition, I have studied organizational charts in order to understand the formal structures in Microsoft, and descriptions of departments and professions in order to understand how the organization is structured. I have also used the report *Microsoft--Great Place to Work (Microsoft Norge AS, 2009)*, which was written by the Human Resource department at Microsoft Norway in connection with the ranking done by the *Great Place to Work Institute*[3].

4.3 Data analysis

Ten of twelve interviews were audio recorded and transcribed word-by-word. The transcribed data material consists of 121 pages, of which I transcribed 91 pages; my colleague transcribed the rest. The form of data analysis I used is neither a top-down process, where one applies a theoretical perspective on the data material, nor a bottom-up process, where the data material generates the theory. My approach to the data analysis is a combination in which I have used categories defined in relevant previous research as a point of departure (likewise Littleton and Whitelock, 2004, and Möllenkamp, 2010). It is also a form of open coding (Corbin and Strauss, 1990) where new categories are generated from the data material.

When the data material was collected and transcribed, I went read the interviews several times. I then decided to use the the "eight factors important to make knowledge management projects succeed," identified by Davenport et al. (1998) and described in section 3.2.4, as a point of departure for my analysis. The grounds for this choice were as follows. First, the factors were identified in a multiple case study, where a KM project at Microsoft was one of the cases (Davenport, 1997). Second, compared to this previous case study at Microsoft, I assumed the KM project at Microsoft could be considered successful,

[3] For more information see http://www.greatplacetowork.no

since it used strategies[4] similar to those used in Microsoft Norway today, 13 years later. I was interested to see how relevant these categories were for my data material. However, Davenport conducted his research in 1997/1998 in U.S. I have done my research in 2010 in Norway and have tried to interpret the factors from Davenport et al. to categories that are suitable in the current context. I have made my own interpretations of what they mean today. My interpretations were based on the meanings I should look for in the data material, and the kind of information I glean from these categories.

I used the eight categories presented on pages 27 to 29 for coding the interviews. In effect, this categorization was done by reading the interviews and marking parts of this text with a colored pen, according to how they fit into the different categories. This work is shown in Figure 4.2.

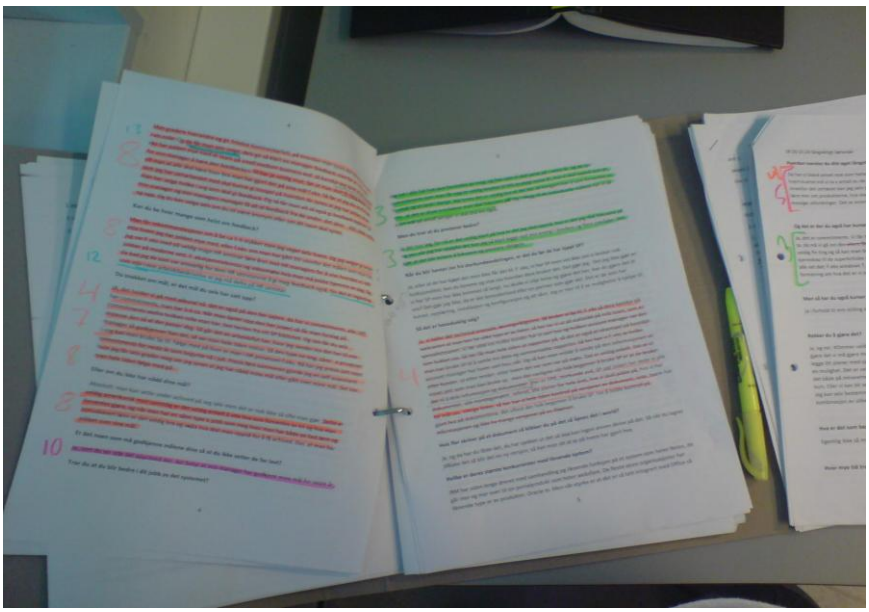

Figure 4.2 Data coding

During the process I found out that some categories were more relevant than others and some categories were more suitable if they were differently renamed. In addition, new categories were formed since a significant part of the data material did not fit into the

[4] Examples are defined work roles, work role requirements and ratings, linking work role to learning offerings, and different levels of competence.

existing categories. The process of data analysis and the elaboration within categories was a challenging and demanding process.

In brief, I ended up with four categories of data material, which included the most important findings. These categories are:

- Link to economic performance and value
- Technical and organizational infrastructure
- Corporate culture

And the last category, which does not originate from Davenport's research, is

- Information Management.

The data and analysis of these categories is presented in Chapter 5, and they are discussed in light of the research question in Chapter 6.

4.4 The criteria for quality in qualitative research

In order to judge the quality of any empirical social research, it is common to consider it from the perspectives of reliability, validity, and generalizability. In this section. I will discuss some methodological problems with these aspects in regard to my research study.

4.4.1 Reliability

> Reliability refers to the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions. (Hammersley referred in Silverman, 2005)

The goal of reliability is to minimize the errors and biases in a study, which is accomplished by being as accurate as possible during the process and by conducting research as if someone were looking over your shoulder (Yin, 2003 p. 38). We are two students conducting research on the same case at the same time. During the process, we

have regularly discussed our findings and interpretations to see if the other agrees or has another understanding, which is one way to increase the reliability. When I coded and analysed the data material, I used categories that have been identified in a comprehensive case study on Knowledge Management. The increases the relevance of these categories for my smaller study on Knowledge Management and is a way to increase the reliability of the data analysis.

4.4.2 Validity

Validity refers to the truth "interpreted as the extent to which an account accurately represents the social phenomena to which it refers" (Hammersley referred in Silverman, 2005 p. 210).

Common threats to the validity of qualitative research are the researcher's pre assumptions and understandings, the degree of accuracy in the respondents' interpretations, and an issue called anecdotalism. The first problem is impossible to avoid since all people have some sort of preset understanding of the world. However, it is important for the researcher to acknowledge this bias, and try to take different perspectives on the same phenomena during the research. The second problem is problematic. It is not easy to control the respondents' responses or their beliefs in the researcher or the company would like them to tell. I have tried to overcome this issue by interviewing several informants who are close to each other in the organization and who share the same organizational context. This strategy increased the possibility for more representative data on the real working life experience of these informants. The last issue, anecdotalism, refers to qualitative research that is intent on presenting a few well-chosen examples of the most representative data (Silverman, 2005 p.211). To overcome this issue, within each of my data categories, I have presented several extracts. In addition, I have presented contradicting extracts when that has been the case. This makes it easier for the reader to have an opinion on the degree to which the analysis is well grounded in the data material.

4.4.3 Generalizability

Criticisms of case study research typically assert that one single case offers a poor basis for generalization compared to much broader a survey research. However, survey research relies on statistical generalization, whereas a case study relies on analytical generalization (Yin, 2003 p. 37). In analytical generalization, the researcher generalizes a result to a broader theory. Nevertheless, to be able to generalize, the relevant theory must have been tested or developed in a context that is similar to the current case, and the results have to be replicated in the current study (Yin, 2003). I have connected my study according to previous research both in the process of data analysis and in the discussion of this analysis, thus making it possible to place this case research in a larger context.

5 Empirical Analysis

In this chapter, I present the findings of my empirical analysis. The data consists of 9 audio-recorded interviews. For analysis of the interviews, I have used the "eight factors important to make knowledge management projects succeed" identified by Davenport (1998) and presented in Chapter 3. Due to the limited scope of this thesis, I will not present all my findings, but concentrate on the most significant ones. The categories of data that will be presented and analyzed are: 1) link to economic performance and value; 2) technical and organizational infrastructure; 3) corporate culture; and information management.

I first present the category and a small elaboration on the context of this category in Microsoft today. Second, I will present a few carefully chosen extracts from the interviews, and finally I will summarize my findings in light of the category.

5.1 Link to economic performance or industry value

This category acknowledges the importance of some form of measurement, which legitimates the use of resources such as time and money spent on the knowledge management project. Since I have interviewed employees that participate in these strategies, and not managers controlling or developing them, I have only the individual's perspective on measurements. Therefore, this category reveals how the individual's performance is measured and to what extent it is connected to the company's business strategies. Moreover, this category determines if the measurements legitimate the time and energy the employees spend on learning. Extract 1 is taken from an interview with a Solution Sales Manager working in the STU-team, here called informant 1. In this extract, the role of the commitments in the development plan is discussed.

Extract 1

Question: Do you think this system (the commitments) makes you better in your job?

Answer: *At least I know what is expected of me and what we shall prioritize in the next year. And the commitments you get are very connected to Microsoft's strategy for the next year, what we shall achieve as a company and as a Norwegian subsidiary. (…)In addition to the*

individual measures, we have, of course, measurements in how much money we have earned.

Question: But do you think this makes you perform better?

Answer: *Yes, I do. Because it's so clear what I shall achieve and what I shall focus on. Then of course, when I have reached my goals, I can use my energy on a broader field. It makes it easier to focus and perform right.*

In this extract, the informant says that the commitments she has in the development plan help her know what she is supposed to prioritize at work. What are called here the "individual measures" are commitments related to learning and development, unlike commitments regarding earnings. The informant says that when the goals are reached, it's open to change the priorities.

If the company's strategies change during the year, the commitments should be reconsidered. One informant explained how this is done with the employee and the manager under the Mid-Year Discussion. In Extract 2, the informant is a Partner Technology Advisor in SMSP, here called informant 2.

Extract 2

We sit down and say, okay, this is the commitments from the beginning of the year (i.e. August), has anything changed according to this? And if we see that this things here (i.e. commitments), we shall not work with anymore, that is what they say at corporate. Well, let's take them out then. Then we shall not spend time on that, but on something else instead. So, we follow that. And when it comes to the end of the year, we take a sum-up with our manager, to see if we have done what we were supposed to do. If you have done other things, spent a lot of time on expositions or worked with the wrong products, you have not done your job, the job you have committed yourself to.

In this extract, the informant is simulating the process of evaluation of the commitments. In this case, a manager and the employee are comparing the commitments to the overall strategies in Microsoft. If the commitments are no longer a part of these strategies, they are removed from the development plan. In end of the working-year (i.e.

July) the employee's performance during the year is evaluated according to the commitments in the development plan.

Extract 3 is from an interview with informant 5, a Solution Sales professional who works in STU. In this extract, we are talking about the basis on which he searches for new knowledge and his responsibility to follow up the commitments.

Extract 3

Question: So, when you seek information, it is either in courses you have to take (i.e. obligatory), or that you are trying to solve problems and questions that come from partners or customers?

Answer: *Yes, that as well. You get some questions like, what is this? However, it is mainly connected to the development plan we have. Where are we going, what are our goals, what do you want to learn more about. It is my responsibility to follow that up. Therefore, I have to have focus on it. Nevertheless, time is a problem, a challenge.*

In this extract, the informant says that when he is searching for new information and knowledge, it is usually in accordance to the commitments and goals in the development plan. Moreover, he states that the employee is responsible to follow the plan, and prioritize learning that is connected to the commitments in the development plan, even though it can be difficult to find the time.

5.1.1 Analysis

All informants had comments about the commitments they have as a part of their development plan. In particular, they talked about the commitments that concern learning and courses to support training. Several informants stressed that the commitments make them focused and that they give priority to the "right" things, that is, according to the company's business strategies. The development plan works as a kind of contract between the employee and the manager to assure that the employee are using his time and energy in the company's interest. When the development plan is worked out in August, and both employee and manager have approved it, they are both committed to the plan. These

commitments seem to have an established role in Microsoft. None of the informants questioned this practice. They commented on the positive effects; for example, informant 2 offered, "if you say to your manager that: now is this conference, can I sign up? And he says: well, we don't have time right now. Then you can say: but it says in my commitments that I shall attend in that conference, and then he has to say: okay then." The commitments and goals are used both to measure the employees' performance and to legitimate the time and energy spent on learning and courses.

5.2 Technical and organizational infrastructure

Compared to the findings in Davenport's (1997) study, it is obvious that much has changed in technological infrastructure. Web-based intranets can hardly be considered as advanced infrastructure any more. They are a basic standard in most companies. Microsoft's intranet, including their sites for training and development, is built on SharePoint, a platform for cooperation, communication, and document sharing. This category of data is about how employees at Microsoft Norway use technical and organizational infrastructures to get knowledge and information.

Extract 4 is from the interview with informant 4, a Product Manager working in BMO.

Extract 4

Question: How do you do to keep yourself updated (on products)?

Answer: *There are two things about Microsoft. For one, you have incredibly many resources (of knowledge) all around the world, but on the other hand, it is extremely difficult to find the right one. If I need a presentation of a product, then I know it exists without doubts. But where is it? That is the challenge, to navigate through this enormous system.*

Question: How do you do deal with it?

Answer: *We have some internal web-sites where you can search in everything we have of catalogues. Or we have something called "resource one", which stores technical presentations. If I go there, I will probably find something relevant. You have that (kind of*

recourses) for different professions. And we have a type of web-mail-alias, so my group, product managers for window servers, can send an email to my colleagues through a forum. I did that yesterday: I need some resources does anyone know where it is? It is about using that kind of resources, both intranet and colleagues worldwide. (….) Moreover, if it's critical you can escalate it to persons who are employed to help you finding out what you need. If I have a customer case and need information that is very technical, I can escalate it to something named compote, which is a group of people ready to answer critical questions. So there are different levels. However, you only go there if you need something super good, attention now, and it is important.

In this extract, the informant talks about some of the different resources of knowledge there are in Microsoft, and that the challenge is to know how and when to use each resource. Internal web sites and Resource One are places where you can search for stored information. In the web-mail-alias and Compote, it is possible to get new or specific information by asking questions of people. However, before making a request to Compote, the employee should try to solve the problem himself. In Extract 5, informant 7 describes how he uses a web-mail-alias called auto-group to get information. Informant 7 is a Solution Sales Professional employed in STU.

Extract 5

We have this auto-group, a tool we use to subscribe to different discussions in Microsoft al around the world. Everyone can start such a group, but I have never done that. The groups I belong to are established groups, started by the product teams. Like, biz-talk is one of my products, so I have one group called Biz-Talk technical discussion, and one called Biz-Talk champs I think. The later is more about sale than technical discussions. However, these are groups where you can ask questions. And I can search in those groups to get information because I have stored all emails from these groups. I think I have 70-80 000 emails from my Biz-Talk group, and that is just from the last 3-4 years. For me, this becomes a knowledge library, in which I can search by using the search engine in Windows. And then I can filter on documents, slides, or whatever I need to find. This works very well for me, so I use that a lot.

In Extract 5, the informant explains how he has created a knowledge library with questions and discussions that are related to his products. These groups are open to everyone in Microsoft, and it is up to everyone to contribute and answer questions. This works very well for this informant, but in Extract 6, informant 2 is much more skeptical about this tool. Informant 2 is a Partner Technology Advisor in SMSP.

Extract 6

What we use today are email-lists. If I have a question, then I send an email to a bunch of people who gets disturbed by it. And then people are very fast to press "replay all", and then it's started. I addition, if you want to be able to use this information later, you have to store al the crap that is written. With the result that your mail-box gets full and you will have to organize all the information.

The informant in extract 6 thinks that the practice with email lists/groups disturbs people in their work, and he thinks it is not an effective way to share information and knowledge in the company.

5.2.1 Analysis

Microsoft has formal channels for knowledge distribution, and groups and people allocated to support knowledge intensive tasks. The courses and training that are linked to the development plan and the role guide seem to follow defined structures. However, when employees need specific information or knowledge for their work tasks, it is up to them to find the most effective resource. There are many different resources and ways to get information at Microsoft, and people have different strategies of how to use these resources and channels. As one can see in Extracts 5 and 6, there are various opinions on what is useful or not. Several of the informants thought that these groups were a good way to get information. On the other hand, one informant had never used these tools. Extracts 4 to 6 show examples of some resources for knowledge. Other resources used by the informants are podcasts, wikis, blogs, and video and live meetings, suggesting that there is no united infrastructure for how the employees search for knowledge on their own initiative.

5.3 Corporate culture

This category acknowledges how the participants perceive the organizational culture. In these settings, the concept of culture was interpreted by the informants without any influence from the researcher. No questions during the interviews mentioned culture. The link to culture in these answers was made by the participants.

Extract 7 is taken from the interview with informant 7.

Extract 7

So, it's basically a pretty good 'corporate culture' here then. Most people like to teach others. There is no culture that says I'm going to sit here with my own knowledge and no one else should know this, because if they do, I can lose my job. It's much more focus on that we shall learn from each other, and make each other improve. Now this sounds very ideal, but it is a bit like that, even if not 100%

In extract 7, the informant emphasizes that at Microsoft, people are not worried about sharing knowledge because of internal competition. People enjoy giving information to others. The informant realizes that his statement can appear idealized, but underlines that he describes the actual situation as he sees it. The same informant (7) describes the internal rating system in Extract 8.

Extract 8

We have a rating system. We rate people so that 10 % are over performance, 10 % under, and the rest in the middle. I think this works okay. A lot is about making sure you are noticed. So, if you are a good communicator, talk to everyone, and talk to the right people, this will show in your ratings.

This rating system is one of the basic factors for determining bonus payments to the employee. The informant says that in order to get good ratings, it is an advantage if you are social and talk to people who are in a position to affect your ratings. It is important to attract positive attention to yourself.

Extract 9 is from the interview with informant 4.

Extract 9

Question: What do you perceive as the most positive part of your job?

Answer: *Microsoft! Because Microsoft is just an amazingly cool company to work in, there are people working here that are incredibly talented. Everything, from the biggest geeks, the ones with top-knowledge in their profession, and others that are fantastically skilled in understanding the business. The whole spectrum. It is a privilege to work in such a young and dynamic milieu. I don't have a job, I have a hobby, and that is pretty special. And maybe, that's why Microsoft is where it is today. Because of our milieu.*

The informant in extract 8 is very enthusiastic about his work. He underlines that people in most positions in Microsoft are very skilled and that there is a special milieu among employees in Microsoft, which might be the reason for the company's success. The informant describes his job as a hobby, that is, a special interest and a favorite activity.

In Extract 10, the topic is the informant's background and education. Informant 8 is employed as a Solution Sales Professional in STU.

Extract 10

My education is from the military officer school, and that's all education I have. The rest is self-educated. My background is to be a developer, and that's the way I have climbed.

Question: Are there many employees that have a background from the military officer school? At least three of the people we have interviewed so far have mentioned this.

Answer: *Yes, that's right, it can be because the milieu here challenge you so much, that to have that kind of background is an advantage. Not necessarily, but it helps. Because, I see a lot, there is a lot of competitive people here. (..) To be the best is very important in one way. Everyone here is very good I think. It is one of the things that constantly surprises me here. It's rarely that I have been at a work place, and I've been at a couple of workplaces before, where everyone is good in their profession and in their own way.*

This extract also stresses that people are very skilled in their professions. However, the informant says there is a form of internal competition. To be the best is important. In addition, it is a challenge to work in that kind of competitive milieu, so a military background can be an advantage.

Extract 11 is from the interview with informant 3, a Product Manager in BMO.

Extract 11

Question: What do you think make Microsoft different from other companies when it comes to learning?

Answer: *What make us unique are two things. For one, the amount of information, and that's not necessarily just positive. It's a wealth of information, and the job is to prioritize. The second is our open landscaped office. Not only physical, but also when it comes to sharing. We're trying to sit by each other's work-desks and we're trying to have lunch with different people each day. We have a sharing culture when it comes to personal contact. Even the top manager sits in an open landscape. So, it's rather flat, in many ways. A culture easy to share.*

The informant in Extract 11 asserts that the amount of available information at Microsoft is exceptional, and that this is one of two things he believe makes learning in Microsoft differ from learning in other companies. The other thing is a flat culture, in which people make an effort to get to know each other and interact with each other. This involves everyone from the top-managers down. In Extract 12, the same informant is talking about one of his work tasks. He has called in a group of people to try to set a collective agenda for one of his products.

Extract 12

My work is to get them to participate in these meetings with me. (..) They don't want to prioritize this, because they know that I 'own this', so I'm the one who gets punished if this is failing, or rewarded if it goes well.

Since the informant has taken the initiative to these meetings, he “owns” them. This means he is responsible for all practical settings, booking meeting rooms, and making sure people attend. He also sets the agenda for the meetings, which is a way for him to reach his goals regarding products and sales. If this tactic works, he will be rewarded. He believes that since the other participants do not have any responsibility or direct outcome from these meetings, they will not prioritize them.

5.3.1 Analysis

All informants interviewed had a noteworthy positive attitude towards Microsoft as a workplace. These responses included attitudes towards the corporate culture, the organizations and structures for individual development, colleagues, human resource strategies and benefits, employee autonomy, and managerial support, for example. The statement in Extract 9, “I don’t have a job, I have a hobby,” may appear as extreme, but is still one of several similar statements in the data material. Others are “it is almost as a family” (informant 6); ”I’m looking forward to go to work to meet friends and colleagues” (informant 3). In general, the informants talked about the culture in terms of a flat hierarchy; they stressed people are appreciated because of their knowledge, and there is a strong culture for sharing knowledge and helping each other. As informant 7 put it, “It’s much more focus on that we shall learn from each other, and make each other improve.” All the informants were very eager to tell about their positive milieu, and they meant that there is an extremely high competence level in the organization. However, if one takes a more analytical perspective, it looks as if there is a relatively high degree of internal competition, which can be demanding for the employees. Informant 8 is the only informant who does not have an academic education. His educational background is from the officer candidate school, and we note that there are many who have a similar military background. The informant elaborates on the reasons for this. Informant 8 says, “it can be because the milieu here challenges you so much, that to have that kind of background is an advantage (…) To be the best is very important in one way.” My impression of the military is that it makes you a bit tougher. This indicates that the competitive milieu at Microsoft can be perceived as quite challenging.

This level of competition is not surprising considering that performance is measured on an individual basis, both in earnings and development and in the bonus rewards based on individual performance. It is important for the employees not only to reach their goals but also to get high ratings from their colleagues. While the first point implies giving priority to their own work tasks, the second is more oriented towards social interaction activities.

5.4 Information management

This is not a category based on Devonport's eight factors. This data category appeared during the work with coding and analyzing the interview data. The main point in this category has been mentioned in previous extracts such as Extracts 4 and 11. However, I find it striking that the data material indicates that the ability to prioritize among multiple sources of knowledge and information is very important for the employees at Microsoft who participated in this study. In this category, I take a closer look on how employees perceive and cope with the large amount of information and knowledge that appears to exist at Microsoft.

Extract 12 is from the interview with informant 7.

Extract 12

Question: What is the most positive side of your work task?

Answer: *That it's very challenging. To keep updated is very challenging. And at the same time very exciting, and it can be very frustrating as well, because it happens so much all the time. Suddenly something comes up that I have never heard of before. Alternatively, if I am in a customer meeting, they can be disappointed if there are things I don't know of.*

Informant 7 says that to keep updated on products and launches is a positive challenge. However, it can be frustrating because there are so many products, updates, and new launches, and the customers expect him to know all of it.

In Extract 13, the topic is how informant 3, who is a Product Manager working in BMO, copes with updates and new products.

Extract 13

Our challenge isn't lack of information, we have too much information you can say. The challenge for me personally, is to get the right information communicated to me. And to store that information somewhere, where I'm supposed to find it. Because there is amounts of people at corporate in USA, which produce a wealth of information, both technical and communicational, and to find the time to pick out what's important to me, is difficult. We get a lot of information. (…) There are many people in Microsoft who has problems with prioritizing. Then it becomes up to us, in the field, to prioritize what is important information and acquire that. However, if you get a 12 pages word document in font size 10, it's placed in the later pile, and then never read.

The informant asserts that there is too much information. Microsoft produces a lot of information of both a technical and sales nature, which is distributed throughout its corporation. He feels that the task of prioritizing what is important is left up to him and the others who are working with the customers and partners. He perceives it as a challenge both to know how to find the most important information and to be able to prioritize it. However, his example states that he would give a 12 page document with compact text information a very low priority.

In Extract 14, informant 6, a Solution Sales Professional working in STU, answers the question on how she learns about product updates.

Extract 14

There are always notifications on updates. We get to know that these and these dates these products are launched, and then there is some courses on that. But we talk to each other. Do you know that we launch this and that, etcetera? That's also a way to learning. You just don't have the time to sit down and learn. You have to skim information. E-mails, skim it, get the date, the product, what's new, the critical things. And you will eventually learn while you work.

The respondent in extract 14 says that they constantly get information about new updates and launches of products. The information is usually followed by a training course

on the product. Nevertheless, she says, it is difficult to find the time to sit down and take these courses. When she gets information of this kind she skims it to be aware of what date the release or update happens, which product it concerns, and the most important changes. Then she will learn during work. However, another channel of information is employee communication about updates and products. She underlines that this is also a way to learn.

Extract 15 is from the interview with Informant 4.

Extract 15

In the beginning of my career, I was super stressed by the fact that there is so much I don't know. However, in the end you just have to realize that you have no chance. If you should try to keep updated on everything, you would have to work night and day, constantly. There is so much to learn. So, you just have to find out that: okay, these things here is my priority, and then you have to hold on to that. So, I was stressed in the beginning, but eventually, you learn how to cope with that.

In Extract 15, the informant emphasizes that the large amount of available information made him feel terribly stressed in the beginning of his career in Microsoft. However, he has now concluded that to keep himself updated on everything is impossible, he does not have enough time and there is too much to learn. He thinks that in order to cope with the stress, employees have to prioritize what to focus on.

5.4.1 Analysis

The large amount of available information appears to be a challenge for the informants. This can cause frustration and stress. In order to cope, they develop different strategies. As shown in Extract 5, building a knowledge library with an effective search function can be a strategy to handle lots of information. However, this is a strategy best used when it is known what to look for. At Microsoft, new information that the employees need to know is constantly communicated. As mentioned in Extracts 11, 13, and 15, there is more information than is possible to learn, and the first step may be to realize this fact. Consequently, employees need strategies for prioritizing. Examples from the data material

of what influences the priority strategy are the commitments in the development plan, time perspective (immediate attention gets the highest priority), requests from customers and partners, communication with colleagues, and personal interests, in that order.

5.5 Summary

In this chapter, I have presented the most important findings from my interviews with employees at Microsoft Norway. The findings are summarized as follows:

- The informants perceive that the commitments in the development plan help them to focus and prioritize work in accordance with the overall strategies at Microsoft. It works as a contract between the worker and manager and can legitimate time spent on courses and conferences.

- There are multiple channels for the employees to obtain knowledge in several levels of the organization. While learning and courses related to the development plan follow a clear strategy, the informants have different strategies for how to get information on their own initiative.

- There is a focus on competence among employees, and it is important for the employees to appear skilled and proficient. A reason for this is that the work environment is competitive, and employees cope with this in various forms of social interaction and by personal strategies, which are also supported by the organization.

- There is a large amount of new information distributed to the employees. To cope with this information can be both a source of stress and frustration, and a positive challenge. It is important for the employees to realize they cannot learn everything and then find a strategy to prioritize.

6 Discussion

In this chapter, I will discuss my research questions in light of my empirical findings and theoretical framework, and include explanations from the theories.

The research question for the thesis is: How can knowledge management strategies help knowledge workers to cope with large amounts of information, and how is this related to learning?

In this discussion, I will take as a point of departure knowledge worker concepts.

6.1 Knowledge worker

To what extent can employees at Microsoft be called knowledge workers in a knowledge intensive firm? Alvesson (2004) describes the characteristics of a knowledge intensive firm, and several of these characteristics can be found at Microsoft Norway. Most of the work force is highly qualified and has an academic education. Competency is a key word in the organization. Employees work in identifying, analysing, and solving problems, as well as in teaching and distributing knowledge to partners, customers, and colleagues within the organization. The organization is built on work-roles, each of which has a specific responsibility. At Microsoft Norway, the employees are typically the "experts" in the organization on their products, implementation, and customers. The employees have a high degree of autonomy in how and when to organize their work. They perceive the organisational structure as rather flat, and individual competency ranges above rank position in many situations. Microsoft Norway emphasises knowledge and competency development among their employees.

However, as Alveson (2004) notes, it is always problematic when one tries to put labels on people or organizations. The distinction between those who belong and those who do not is seldom very clear. Moreover, words and labels are not objective. Knowledge is a positively loaded word, and formal knowledge, based on academic education or experience, is regarded as valuable and attractive in today's society. As Alvsson puts it, "The label 'knowledge-intensive' portrays certain organizations in ways that draw attention to certain characteristics, and away from others. It has effects in terms of status and legitimacy" *(Alvesson, 2004 p. 27).* Terms such as Knowledge Company have become widely known and

popular and sometimes become a buzzword. Several of the informants used the term to stress the importance of knowledge in their work tasks. For example, Informant 4 says, “We are a knowledge company; if I don’t know what I’m talking about I lose all my credibility.” It is reasonable to believe that people would rather describe the organization they belong to as a knowledge organization than as a sales organisation, even though the latter may be a more accurate description of the business. For most people, “sales” is probably not as positively loaded as “knowledge.”

Nevertheless, I think it can be appropriate to use the terms knowledge worker and knowledge intensive firm in order to discuss some important aspects in the context of this case study. Software products are knowledge-based, and it often requires specific knowledge to know how to use the products most efficiently. Microsoft knows that this kind of knowledge is essential for the company and makes a lot of effort to develop and maintain the knowledge level in the organization. They have established strategies and processes that ensure that employees stay updated and share a common knowledge of products and values that are important to the company. The emphasis on knowledge sharing and cooperation is reflected in the office environments, which include open office solutions, transparent walls, and different rooms to encourage meeting activities. Figure 6.1 shows an interior typical of modern workplaces that have institutionalized practises promoting learning and cooperation with new technology (Bjerrum and Bødker referred in Mørch et al., 2004). The pictures below are from the Microsoft office at Lysaker.

Figure 6.1. Interior picture of Microsoft Norway at Lysaker

Most employees at Microsoft Norway have an academic education, and this is a key criterion when people are employed. This implies that employees know about learning and how to cope with new information. Microsoft constantly produces new information in line with new products and features of existing products. The result is that there is an enormous amount of information existing in the organization. An example is the informant in Extract 5, who had received *70-80 000* emails in one product-group forum over the last 3 to 4 years. This information deluge leads to a discussion of the difference between information and knowledge.

6.2 Knowledge vs. information

In his critical paper "The Nonsense of 'Knowledge Management'," T. D Wilson (2002) reviewed the concept of Knowledge Management. Wilson's review refers to Davenport's (1997) study at Microsoft. Wilson states that the Knowledge Management strategies (SPUD) at Microsoft are nothing more than a training program "wrapped in the jargon of the day" (Wilson, 2002 p. 17). This misnomer is due to the inaccurate use of the words knowledge and information according to Wilson. SPUD was a program with the goal to build a competency model that should be used to transfer and build knowledge (or information if one should follow the reasoning of Wilson). Based on the assumption that SPUD is the basis for many strategies that exist in Microsoft Norway described in this thesis,[5] the program has gone through a major development. The aim of SPUD was to: 1) identify competencies required for particular jobs; 2) rate employees based on these competencies; and 3) link competencies to learning offerings. These three aims still form the basis for the strategies in Microsoft. However, the numbers of users, employees, jobs, and learning offerings has exploded since Davenport's study in 1997. Now these strategies involve more than 90 000 employees all around the world. As already mentioned, this strategy system now encompasses enormous amounts of information.

[5] I have no information that confirms that SPUD actually is the basis for this, but I find it likely that SPUD at least constitutes some form of starting point for the current strategies

In order to address the research question, I will first turn to the discussion of information versus knowledge. As mentioned in section 3.2.2, information can be described as a message with a sender and a receiver, and knowledge can be described in terms of beliefs, commitment, judgment, intentions, and action (Nonaka and Peltokorpi, 2006, Davenport and Prusak, 1998). Wilson agrees with this definition, but he emphasizes that it is impossible to separate the knowledge from the knower. As soon as the knowledge is shared in forms of words, text, and pictures, it becomes a message, and "messages do not carry knowledge, they constitute information" (Wilson, 2002 p. 2). This implies that all information that exists in the organization and is transferred between repositories and systems to employees is to be regarded as information until the employees acquire it; only then does it become their knowledge. Therefore, I discuss the notion of managing information instead of managing knowledge. However, will I still use the term Knowledge Management regarding the strategies in Microsoft.

Information management in this study can be distinguished by two forms. I have named these *managing information flow*, and *managing information demand*. The first form involves information that is, or should become, a part of the employees' general knowledge base. This includes information and training that is related to the employees' work role and development plan, or information the employees receive from Microsoft corporate regarding launches and updates on products. The second form, managing information demand, refers to information that the employee needs in order to perform specific work tasks such as finding an answer to a customer request, solving a specific customer problem, or creating a presentation of a product. These are situations where the employees seek information based on their own initiative.

6.3 Three rationalities of Knowledge Management Strategies

In the discussion of my research question, I will use a reasoning borrowed from Guribye's analysis and discussion of Learning Management Systems (LMS) in Telenor (Guribye, 2005). Guribye discusses LMS in light of three forms of rationalities. Rationality in this sense should be understood as something that is subject to a certain logic, even if not

always purposeful, planned or conceived. Rationality differs according to perspective such as that of a manager or a worker.

> As an analytical concept 'rationalities' is used for addressing this middle ground between structure and action, more specifically between organisational arrangements and the activities of its members. The different rationalities can also be seen in relation to different organisational goals. (Guribye, 2005 p. 158)

The three rationalities are *pedagogical rationality*, *logistic rationality*, and a *rationality of a managerial control*. I find these distinctions relevant in describing how the KM strategies, including the development plan, role-guide, and career-plan, relate to the organizational context. I will use the two first types of rationality in relation to strategies concerning information management. Logistic rationality regulates information distribution and rationality of a managerial control concerns the company's control over employees and managers' learning activities. Pedagogical rationality refers to the purpose of the system in order to facilitate learning. I will come back to this rationality later in this discussion.

6.4 Managing information flow

Logistic rationality refers to the distribution of learning resources and information in the organization. At Microsoft Norway, the role guide controls who should know what and have access to which information. The four level model of competencies developed in the SPUD project (figure 3.1, p.30) is an example of logistic rationality in order to make sure employees receive the information they need in their profession. Information sharing at Microsoft Norway seems to follow this, or a similar, information levels structure. Employees are provided with different information depending on their position in the organization and their work role. Courses and information that are obligatory are mandatory. Courses and information that are recommended are suitable to their work role, but they are not mandatory. This system constitutes a first selection of information.

The development plan is used to keep control of employees learning and training activities as well as work performance and achievements. The development plan includes

commitments that are connected to goals that are measurable and are connected to the rationality of managerial control.

A comparison with the theoretical framework for Knowledge Management in Chapter 3.2.2, reveals that strategies that belong to a form of logistic rationality, or a rationality of managerial control involving a perspective on knowledge that strongly links knowledge to action and practice. These strategies belong to the *process approach* (Leidner et al., 2006) or *technical approach* (Mørch et al., 2008) to KM, in which the purpose is to improve work performance and well-defined work skills with advanced IT.

From the perspective of the informants in this thesis, strategies related to the rationality of managerial control are strategies that help them to focus and prioritize in accordance with the overall strategies at Microsoft. This strategy gives them a priority of which information to deal with, and what to put aside when it comes to information that is not obligatory. The priority is to fulfil the commitments stated in their development plan, in order to reach their measures. Attainment of their measures will show in their ratings. If the ratings are good, they get bonuses and more opportunities in the organization[6]. However, this strategy loses its effectiveness somewhat when the measures are reached. Informant 1 says, "of course, when I have reached my goals, I can use my energy on a broader field. It makes it easier to focus and perform right".

Because the amount of information easily becomes a source of stress, it is important that employees find strategies to cope with it in order to feel that they can master their work situation. The first step in establishing a priority is to realize that there is more information than it is possible to take into account. As informant 4 puts it, "In the beginning of my career, I was super stressed by the fact that there is so much I don't know. However, in the end you just have to realize that you have no chance." Nevertheless, the large amount of information can also be a positive challenge and a dynamic milieu that maintains employee interest.

[6] This is of course a simplification, but serves as a basis for this reasoning.

6.5 Managing information demand

The term, managing information demand, refers to information the employee needs in order to perform specific work tasks which may be to find an answer to a customer request, solve a specific customer problem, find or create a presentation of a product. These are situations where the employees seek information based on their own initiative. Strategies for managing information demand pertain to logistic rationality, but contrary to strategies for managing information flow, the object of the rationality is not an organizational goal but an individual preference.

Microsoft has multiple channels for knowledge sharing as well as groups and individuals allocated to answer questions and support employees. However, when employees need specific information for their work tasks, it is up to the individual to find the most effective resource. There are two types of information resources. The first is stored information, which is the kind of resource informant 4 refers to in his statement: "We have some internal web-sites where you can search in everything we have of catalogues. Or we have something called 'resource one', which stores technical presentations. If I go there, I will probably find something relevant." Resources for stored information include papers, podcasts, wikis, blogs, and video. The other source of information is social interaction--to ask someone, which can be done in person, by instant messaging, or email by searching in SharePoint for a colleague with relevant competence. Other sources may be to post a question in an auto-group or on other forums, or send a question to human knowledge resources such as Compote. There are many different resources and ways to get information at Microsoft, and people have different strategies for using these resources. As Extract 5 illustrates, one informant uses a resource based on social interaction as a source of stored information.

> I can search in those groups to get information because I have stored all emails from these groups. I think I have 70-80 000 emails from my Biz-Talk group, and that is just from the last 3-4 years. For me, this becomes a knowledge library, in which I can search by using the search engine in Windows. (Informant 7)

Strategies for managing information demand that are based on stored information can be categorised to belong to the same KM approach such as strategies for information flow.

However, strategies based on social interaction are more common in a *practice approach* (Leidner et al., 2006) or a s*ociotechnical approach* (Mørch et al., 2008).

6.6 Information management and learning

The *pedagogical rationality* of the KM strategies refers to the purpose of the system to facilitate learning. In the development plan, employees can always see the status of training and courses that are required or recommended for their work role. To take the required courses is a part of their measurement. In addition, the employees have a career plan, which defines their future ambitions in Microsoft. The career plan includes a strategy for how they shall reach their ambitions and gain experience and knowledge for new job opportunities. Moreover, there is a constant flow of information regarding updates and new products. From the perspective of the company, it seems obvious that these strategies are subjects to a pedagogic rationality. If the employees learn, they have more knowledge about products and are better in representing the company to the customers.[7] These strategies are an example of secondary work (Mørch et al., 2008) that enhances and supports primary work.

From the perspective of the informants in this thesis, it is not that clear that they take part in this strategies because they want to learn, that is, that the learning (or increased knowledge) is the motive. It appears as if this, to some extent, has become just a part of the job, which they do in order to fulfil their commitments and achieve their goals. For example, in Extract 3, informant 5 says, "However, it is mainly connected to the development plan we have. Where are we going, what are our goals, what do you want to learn more about. It is my responsibility to follow that up."

My interpretation is that the Knowledge Management strategies that are a part of the information flow, which provides the informants with new information, do not lead to a greater degree of reflection on the work, at least not in form of critical reflection and questioning (Høyrup, 2004). The KM strategies are always related to the business strategies through the commitments. Furthermore, as shown in extract 2, if there is a gap between the commitments and the business strategies, the commitments change, and with them the

[7] Again, this is a simplification that serves for the reasoning

intentions for learning change. The employees are exposed to a constant flow of information. From this point of view, learning in regard to these KM strategies at Microsoft is more connected to the processing of information than reflection on it. Nevertheless, as Illeris (2004) notes, the ability to know what is worth learning, as opposed to what is not, provides an important base for learning in work life.

However, this reasoning only applies to employee strategies for managing information flow. When employees seek information in order to cope with an information demand, they do this because they need that specific information. The employees analyze and reflect on the situation where the information demand appears and thereby takes action to find the necessary information. Assuming that the employees learn from the new information they gain, this process is an example of *situated learning (Mørch et al., 2004),* as well as the process of reflection-in-action that was introduced in Chapter 3.3.

Another source of learning is interaction with colleagues, which was stressed by several informants as unique and positive. It appears that status is connected to an appearance of skill, proficiency, and ability to share knowledge. Employees seem to perceive the organizational culture as sharing and open regarding knowledge, but individualistic and competitive when it comes to measurements and rewards. According to Leidner et al., this appears to be a contradiction (Leidner et al., 2006). Organizations that encourage individuals to achieve individual goals and rewards individual performance would be considered to have an individualistic culture, which is likely to have a negative impact on how KM strategies can evolve in the organization. However, Leidner at al. note that when the knowledge management project has been established and evolving with the organization, it begins to reflect the values of the organization and becomes a part of the organizational culture. My interpretation is that this is the situation at Microsoft. The KM strategies are so well established in the organization that employees to some extent regard them as a part of their regular work tasks.

7 Summary

This thesis has explored Knowledge Management as an example of strategies for information management and learning in a knowledge based society. More precisely, the research question for the thesis asks "How can knowledge management strategies help knowledge workers to cope with large amounts of information, and how is this related to learning?"

The discussion based on the research question can be summarized as follows:

- There is an enormous amount of information in the organization, and it seem like the amount of information can be a source of stress for some employees. It is important for employees to have strategies to cope with large amounts of information in order to feel that they can master their work situation. The first step in establishing a priority is to realize that there is more existing information than is possible to take into account.

- Knowledge Management strategies that belong to the *process approach* or *technical approach*, where the purpose is to improve work performance and well-defined work skills, help the employees to focus and prioritize in accordance with the overall strategies at the company. This gives the employees the ability to prioritize what information to deal with and what to put aside. These strategies apply to managing of the information flow.

- Knowledge Management strategies that belong to the *practice approach* or a s*ociotechnical approach,* which emphasise interaction, provide the informants with multiple sources of knowledge, but it is up to the individual employee to choose how to use a resource when they need information. These strategies apply to managing of the information demand.

- It can appear as if the Knowledge Management strategies are so well established in the organization that employees to some extent regard them as a part of their regular work tasks. Consequently, they do not necessarily take part in these strategies because they want to learn but in order to fulfil their commitments. The

KM strategies at Microsoft Norway have become integrated in the organizational culture, and have become a part of normal work practice.

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Appendix 1. Intervjuguide

Person info: (3)

Hva er din stilling?

Utdanning?

Bakgrunn?

Arbeidssituasjon (10)

Hvilke er dine arbeidsoppgaver?

Produkter?

Kunder?

Skulle du beskrive deg selv som en ekspert innom dit område?

Beskriv en typisk arbeidsdag?

Hvilke er dine største utfordringer i arbeidet?

Hva synes du er mest positivt med dine arbeidsoppgaver?

Hva er din oppfatning av Micrsoft som arbeidsplass? (kort)

Hva gjør MS annerledes fra andre arbeidsplasser?

Kunnskapsdeling (15)

I hvilke situasjoner føler du at du trenger mer eller ny kunnskap i ditt arbeid?

Spørsmål fra kunder?

Oppdateringer / nye produkter?

Egen interesse?

Hvilken type kunnskap er det du trenger?

Produktkunnskap?

Kundekunnskap?

Har du et eksempel på en situasjon?

Hvordan søker du ny kunnskap?

Hvilke verktøy?

Raske svar?

Mer langsiktig lærende?

I hvilke situasjoner er det andre som spør deg om ting?

Hvilken kunnskap har du som andre trenger?

Samarbeid. (15)

I hvilke situasjoner arbeider du tilsamens med andre i Microsoft?

Forskjellige kompetanse?

Arbeidsoppgaver?

Kunder?

Hvordan skjer samarbeidet?

Verktøy?

Hvem sitt initiativ?

Hvilke er de negative siderne ved samarbeid?

Konkurranse

Hvilken betydning har samarbeid for din prestasjon, individuelle læring, trivsel, motivasjon?

Når blev du sist skikkelig irritert eller frustrert i en jobbsituasjon?

Når blev du sist skikkelig glad og fornøyd i en jobbsituasjon?

Hvor konkurransepreget opplever du at det er i MS?

Læring (5)

Hvordan ser man på læring innom MS?

Hva lære du deg gjennom ditt arbeid?

Når lærte du sist noe nytt i ditt arbeid?

Når lærte du sist bort noe til en medarbeider?

Hvilken betydning har læring for din prestasjon, individuelle læring, trivsel, motivasjon?

Hva tror du er unikt for læring i Microsoft?

Appendix 2. Samtykkeskjeme

Informasjon/ Samtykkeskjema

Vi er studenter på studieprogrammet Teknologi, organisasjon og læring, (ved institutt for informatikk, UiO) og skal nå skrive våre avsluttende mastergradsoppgaver. Det er to separate oppgaver med to forskjellige problemstillinger men vi arbeider sammen om deler av datainnsamling. Elin Hultkvist vil fokusere på læring og kunnskapsdeling hos produktspesialister, evt. knyttet til produktutvikling. Jørgen Taxt Walnum vil fokusere på bruk av produktet Groove, og hvordan dette brukes både internt og utad mot andre organisasjoner, f.eks. partnere. Intervjuet vi omhandle dine arbeidsoppgaver, og spesielt hvordan samarbeid med andre foregår i praksis, og/ eller hvordan du tilegner deg ny kunnskap. Veileder for begge oppgavene er Anders Mørch, første emauensis ved forskningssentert InterMedia, UiO. I denne anledning intervjuer vi ansatte ved Microsoft for å innhente data som kan bidra til å belyse våre problemstillinger.

Vi ønsker skriftlig samtykke til at vi kan intervjue deg, ta lydopptak av intervjuet og benytte oss av informasjonen i masteroppgavene. Vi vil også på et senere tidspunkt (angi ca. når) gjennomføre en spørreundersøkelse med….. (angi hvem som skal spørres). Alle personopplysninger vil bli anonymisert i all rapportering fra studien og lydopptakene og transkriberingene vil slettes når prosjektet er over. Prosjektet skal avsluttes før utgangen av 2010. Prosjektet er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS. Deltakelse er frivillig, og samtykke kan trekkes så lenge studien pågår uten å oppgi grunn, dette vil ikke ha innvirkning på deltagers forhold til Microsoft. Vi er underlagt taushetsplikt og opplysningene som samles inn vil bli behandlet konfidensielt. Microsoft har ikke tilgang på innsamlet materiale.

Mvh

Elin Hultkvist og Jørgen Taxt Walnum

Jeg samtykker herved til at intervjuet tas opp og transkriberes og at opplysningene som kommer frem kan benyttes i de gjeldende prosjekter.

_____

Dato **Signatur**

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