LAMK Lahden ammattikorkeakoulu
Lahti University of Applied Sciences

Proposal model for successful knowledge management

How can knowledge management be supported with organizational culture?

Lahden ammattikorkeakoulu
Degree Programme in International Business Development

JOKINEN,VARPU: Proposal model for successful knowledge
                     management
                     How can knowledge management be supported
                     with organizational culture?

47 sivua

Syksy 2018

TIIVISTELMÄ

Opinnäytetyö tutkii organisaation ja sen kulttuurin vaikutusta
tietojohtamiseen. Projektiyritys in suuri kansainvälinen teollisuusyhtiö. Se
toimii pääasiassa B2B sektorilla. Projektiyrityksen tietojohtamiskäytännöt
ovat keskittyneet pääasiassa kovan datan säilytykseen.

Myös uusittu ISO9001 standardi asettaa nyt vaatimuksia hallita
organisaation tietoa järjestelmällisesti. Työssä arvioidaan projektiyrityksen
tämän hetkiset tietojohtamiskäytännöt kolmen eri datan perusteella.
Tuloksia verrattiin aiempaan kirjallisuuteen.

Työssä huomattiin, etteivät kulttuuriset tekijät ole osa projektiyrityksen
tietojohtamiskäytäntöjä. Tätä kuitenkiin painotetaan kirjallisuudessa.
Toinen löydös osoittaa, etteivät tämän hetkiset IT –työkalut tue
tietojohtamista. Myöskaan työntekijät eivät koe näiden käyttöä luontevana.

Tulosten ja aiemman kirjallisuuden perusteella opinnäytetyössä laadittiin
malliehdotus tietojohtamiseen. Malli antaa kuvan, kuinka tietojohtamista
ylläpitävää kulttuuria voi rakentaa ja ylläpitää. Malli on laadittu aiempien
tietojohtamis- ja viestintäkäytäntöjä mukaillen. Se antaa käytännön
vinkkejä, kuinka organisaatiokulttuurissa vaikuttavat tekijät voidaan ottaa
huomioon tietojohtamisessa. Lisäksi malliin on lisätty IT –työkaluja
kuvaava osio. Mallia voidaan käyttää, kun tietojohtamiskäytäntöjä
implementoidaan uusiin osastoihin.

Lahti University of Applied Sciences
Degree Programme in International Business Development

JOKINEN,VARPU: Proposal model for successful knowledge
                    management
                    How can knowledge management be supported
                    with organizational culture?

47 Pages

Autumn 2018

ABSTRACT

The research gives insight on which elements in an organization and in its culture enable successful knowledge management. The Case company is a multicultural industrial company, which operates in business-to-business sector. Knowledge management activities in the Case company have focused mainly onto storing hard data and i.e. maintaining different databases.

Furthermore the recently revised ISO9001 standard sets new requirements to managing organizational knowledge. Safeguarding the organization from knowledge loss and encouraging it to acquire new knowledge should be handled in a structured way. Evaluation of the Case company's existing knowledge management activities and organizational culture is based on of three different sets of data.

As the first main finding, the research shows that the cultural factors are not included in the Case company's KM activities, contrary to the KM theories in the literature. The second main finding is that the current complex IT tools do not fully support knowledge management and that the employees are not comfortable with using them.

Based on theory and the research findings, a proposal for a knowledge management model is drafted. The proposal model gives insight into how to build and sustain a culture that enables the best knowledge management sharing practices. This model has been aligned with the Case company's existing knowledge management activities and communication style. It gives practical suggestions for how to include the organizational culture aspects into KM practices. Furthermore, IT systems and tools are added to the proposal model. This proposal model can be used when knowledge management activities are further rolled out and implemented to all parts of the organization.

CONTENTS

1   INTRODUCTION

How can knowledge management (here after KM) be supported with organizational culture? The purpose of the study is to recognize the elements in organizational culture that support knowledge management and collaboration. Then propose a tailored draft model for how to build and sustain a culture that enables the best KM sharing practices. Additionally the study will help to create awareness that organizational culture is important part of knowledge management. Sharing information inside organization supports people development and empowerment. The case company is multicultural industrial company with over 6000 employees in 120 different countries. It operates mainly in business to business sector.

Recently revised ISO9001 standard sets new requirement for organizational knowledge; to safeguard organization from loss of knowledge; to encourage acquiring knowledge. The ISO9001 standard addresses aspects of quality management. It guides and gives tools to different sizes of companies how to ensure that the services and products meet customer requirements. (www.iso.org)

1.1   Background and research question

Currently the case company's knowledge management actions have been mainly concentrating on sustaining and marketing internal and external databases and providing internal trainings. The large organization and big amounts of data in different locations and systems set challenges for information flow. The study will also provide useful information to better fulfil the recently revised ISO90001 standard with new requirements regarding knowledge management. The main research question is:

> *Can knowledge management be supported by organizational culture?*

This is approached from the case company's point of view. The case company already has existing knowledge management activities to support research and innovation community. Now these activities are

being implemented and extended also to other parts of the company. The KM existing activities are described further in chapter 4. Following sub-questions will be used to recognize the main influencing factors in KM success.

> *What is knowledge management?*
>
> *What are the supporting elements for knowledge management in organizational culture and environment?*

1.2   Aim of the study

The outcome of the study is to propose a practical model for creating and sustaining organizational culture that supports knowledge management. This is tailor made for the case company taking into consideration the existing limitations and challenges. The model can be used in the future knowledge management rollouts and implementation. A need for KM activities extension clearly exists in the organization. At the moment KM is systematically applied in one part of the whole organization.

Knowledge management requires both technologies and people. The aim is to get a view of the topic that covers both fields. A possible additional benefit of the study and the proposal model is to increase awareness of cultural enablers in knowledge management work. The case company has multiple IT systems supporting knowledge management. Already earlier recognized challenge in the organization is how to engage and adapt the employees to use these systems. This would help enable more effective use of the systems, and enhance collaboration and overall knowledge management. The study and proposal model offer also some suggestions how the organization could support the employees in these challenges.

The results and proposals can also be applicable to other organizations and industries. The literature reveals that these are common problem in knowledge management. In addition the ISO90001 update will make this study and its findings useful to many organizations.

1.3   Scope of the study

The study approaches the topic through four stages. The literature study consists of knowledge management concepts and theories. Then the study focuses on the organizational cultures effects on the knowledge management. Because different technologies are also important field of knowledge management, different tools are investigated. The technologies develop constantly in increasing speed. Hence a short section focuses on the future of KM tools with a comparison to traditional tools used in the case company. The literature study contains a part of organizational culture concepts and a short analysis of already recognized cultural enablers for knowledge management. Interview with external service provider was conducted to get recent knowledge of collaboration platform. The case company already has knowledge management activities. These are also explained in the literature review to get a full view of the research area.

The data for the research is collected from three different sources. One is a yearly made survey for organization where knowledge management tools are well known and implemented. This will be regarded as KM pilot. Other set of data will be gathered from interviews in other organization, where the knowledge management is to be rolled out. The survey data from the pilot organization will help identify the improvement areas and implemented. The interview data will tell in more details the expectations and improvement needs of the organizations, where the knowledge management is not yet fully implemented. Third data source is the employee survey results. It will be used to outline the existing organizational culture.

2   KNOWLEDGE MANAGEMENT IN THEORY

2.1   What is knowledge management

Managing knowledge is important in today's business world. The formation, storing and using the knowledge has become more and more important for competition. This chapter explains the basic theories and concepts in knowledge management.

Knowledge is usually considered as intellectual asset and here are some features of it; using knowledge does not consume it; transferring it does not result losing it; it is abundant, but the abilities for using it are scarce and; much of the organization's valuable knowledge goes tatioout the door in the end of the day. (Dalkir 2011, 2). Dalkir (2011, 5) gives the following definition for knowledge management:

> *Knowledge management is deliberate and systematic coordination of an organization's people, technology, processes and organizational structure in order to add value through reuse and innovation. This is achieved through promotion of creation, sharing and applying knowledge as well as through feeding valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning.*

As scientific field knowledge management is described as multidisciplinary. To name few it draws upon organizational science, information technologies, anthropology, education and training, also communication.

Knowledge that is managed can be defined in many ways. Davenport and Prusak (1998, 1) state that knowledge is not data or information. It is clearly related to both. Data is verifiable facts on a subject; information is analysed data (Dalkir 2011, 9). It is important to understand the difference of these and how do they develop from one to another is essential to manage them successfully (Davenport and Prusak 1998, 1). Explicit knowledge is content that is some way captured, codified and accessible via some media. Tacit or silent knowledge is in the head of the knower and

harder to identify and capture (Dalkir 2011, 10). Table 1. Clarifies the differences between tacit and explicit knowledge.

Table 1. Comparison of properties of tacit versus explicit knowledge (Dalkir 2011, 10)

Properties of tacit knowledge	Properties of explicit knowledge
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, to reproduce, to access and re-apply throughout the organization
Expertise, know-how and care-why	Ability to teach, to train
Ability to collaborate, to share vision, to transmit culture	Ability to organize, to systemize, to translate vision into mission statement into operational guidelines
Coaching and mentoring to transfer experiential knowledge on one-to-one face-to-face basis	Transfer knowledge via products, services and documented processes

Example of explicit knowledge could be technical drawings. An engineer has formulated a detailed product design containing drawings and qualifications. The drawings are easy to store for any future use or modification. Tacit knowledge is something more difficult to transfer to other people. It is tangled such things as intuition, rules of thumb, and perception. Knowledge management does not solely focus on transferring tacit knowledge into more tangible. It is much broader and emphasis is more on how to leverage the overall value of knowledge in the organization. (Dalkir 2011, 10-11, Krogh et al. 2000, 7)

In addition to explicit and tacit knowledge dimensions De Long and Fahey (2000, 114) have identified at least three distinctly different types of knowledge. **Human knowledge** constitutes what persons know or have the know-how to do. It can be for example expertise that combines tacit and explicit knowledge or riding a bicycle. **Social Knowledge** represents knowledge that exists in the relationships between people. Social knowledge is for example team of scientists which as a team performs better than an individual member. This type of knowledge is mainly tacit and result of working together. **Structured Knowledge** is embedded in the processes, systems and routines of an organization. It is in the rules and mostly explicit. It can be regarded as organizational resource. (De Long and Fahey 2000, 114)

2.2   Knowledge management cycle

Dalkir (2011, 53) present an integrated model for knowledge management cycle on the basis of previous research. It describes the key processes in KM that transforms information into knowledge. These steps are knowledge capture and/or creation, knowledge sharing and dissemination and knowledge acquisition and application, see Fig 1.
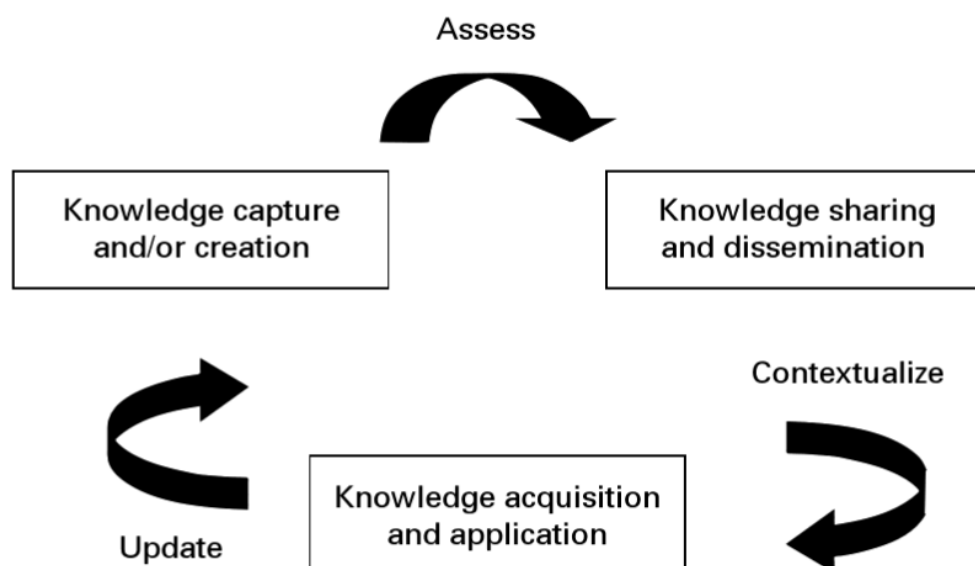

Fig 1. Integrated knowledge management cycle

In the first stage knowledge capture and creation the internal (possibly previously unnoticed) knowledge or knowhow is identified and codified. Or possibly knowledge or know-how of an innovation. This inventoried knowledge is assessed against organizational goals; what is valid? If it is useful and valid, then the knowledge is contextualized for different purposes in example; a short executive summary or detailed product specification. The cycle goes on when users encounter new innovations or other useful content. (Dalkir 2011, 54)

2.3   Benefits of knowledge management

So for what reason the management of knowledge is important? It is widely recognised that successful knowledge management improves quality and competitiveness. Organizations are coming more and more global and have multicultural and are fragmented in multiple locations. Working pace has increased, changes are implemented faster and workload has increased. Mobility of workforce is increasing which causes problems in continuity. (Dalkir 2011, 22-23) Effective knowledge management can be described even as a weapon for sustaining competitive advantage (Lee and Byounggu, 2003). Also recognized benefits of knowledge management is how it is linked with organizational creativity and innovation.

Benefits of knowledge management on individual level are saving time, better problem solving, easier to keep up to date and provides opportunities to contribute. For different communities of practice the benefits are in example: professional skill development, promoting peer-to-peer mentoring, facilitates networking and collaboration and helps develop a common language. On organizational level knowledge management helps drive strategy, improves problems solving, cross-learning and cross-fertilizing of ideas, improves competitiveness and builds organizational memory. (Dalkir 2011, 25)

2.4   Objectives of knowledge management

To name a few typical objectives Dalkir (2011, 5) point out to ensure successful transition of knowledge between retiring and successors. To minimize the loss of corporate memory when people are leaving the company, this requires actions such as transferring working documents to accessible locations and paying also attention to the tacit knowledge that might be leaving. To identify who knows what and who knows well, for example to operate complicated equipment. Von Krogh, Ichijo, and Nonaka (2000, 4) bring up a term knowledge enabling:

> *The overall set of organizational activities that positively affect knowledge creation.*

This knowledge enabling contains for example facilitating relationships and conversations and sharing knowledge through the organization over department borders. Enabling the creative source of tacit knowledge is recognized as a challenge by Krogh et al. They describe it too mysterious to be used in business situations, but also a powerful tool for innovation. They also emphasise that there is a deeper level in the organization, which relates to culture and how people treat and encourage each other. To create an enabling context the organization should be able to provide shared space that nurtures evolving relationships on physical, virtual and mental levels. Knowledge is based on actions, and it is relational and dynamic. (Krogh et al. 2000, 4, 7)

In the modern society knowledge can be stored and transferred via multiple channels and the IT field is constantly developing. Although the technology is creating new opportunities there still exists many problems that are knowledge related. Probst (1998, 17) describes a classic knowledge problem where research made in one department is not available in another. This creates waste, possibly double work "re-inventing the wheel" and loss of quality. He brings out that the goal of knowledge management is:

To improve organizational capabilities through better use of the organization's individual and collective knowledge resources.

2.4.1   Probst model

The case company has based its knowledge management activities on a model that was first introduced by Gilbert Probst. There are many others also available. Here is some insight on the practical model Probst has proposed. The model handles the same areas as the integrated KM cycle to some extent. It has been drafted so that other already existing management concepts such as total quality management are taken into consideration. Furthermore, it is action-oriented and highlights the importance of appropriate instruments that are skilfully used.

The model recognizes the similar stages in the KM cycle as Dalkir's integrated cycle. The named cycle steps are acquisition, identification, use, preservation, distribution and development. Probst emphasizes that the different activities of the cycle should not be conducted separate from others. The activities are interdependent. The model also incorporates the goals into the cycle. There can be strategic and operational goals. Strategic goals define which organizational capabilities should be developed to what level and operational goals follow that the development of the capabilities is actually pursuit. (Probst 1998, 19)
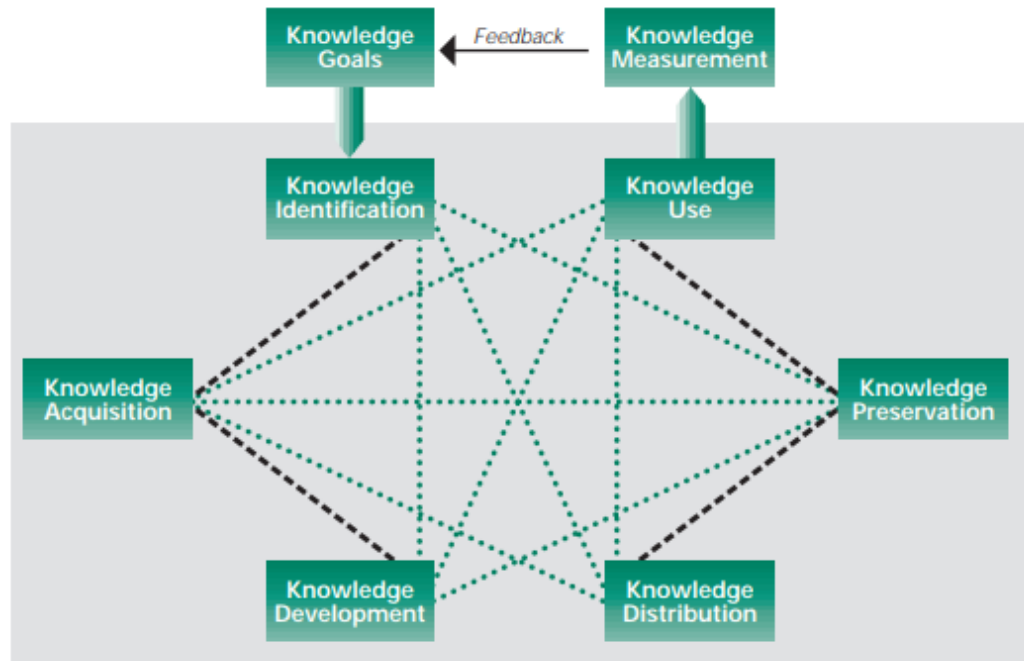
Figure 2: Building blocks of knowledge management (Probst 1998, 19)

2.5 Knowledge management systems and collaboration channels

There are multiple different technologies available for knowledge management implementation. Many new ones are developed and many have some intersection with knowledge management. Technologies are for store, analyse, share and archive knowledge. And also to communicate and collaborate. Dalkir (2011, 267) on the time of global enterprises knowledge is transferred more and more without face to face contact. Online platforms enable communication and knowledge sharing via Internet.

Even tacit knowledge is becoming more tangible with new technologies such as e-learning, videos, virtual reality etc. In this chapter the traditional and new KM technologies are evaluated. As the case company is operating in 120 countries the collaboration channels are also regarded as important KM tools and also part of this evaluation. There are many classifications of different KM related technologies. Dalkir (2011, 269) turn to previous classification by Rollet 2003 and present a list of tools. It contains communication, collaboration, networking, content creation and

management, adaptation and personal tools. For example e-mail, different collaboration platforms, and social media in content creation and networking. In addition they mention e-learning and artificial intelligence.

Because knowledge management is multidisciplinary field there are no technologies nor application which could cover the whole field. There also exists a gap in the user expectations and competence. The newer generations grow up with constantly developing technologies and have no trouble with new ones. They also have higher expectation on application performance. Older generations prefer face-to-face meeting and are more tolerant to errors. Many of new emerging tools offer multiple functions in KM sense. (Dalkir 2011, 269)

In numerous big international companies challenge for communication is the distance. Modern technology has many different tools for collaboration online. Dalkir (2011, 269) points out that many prefer to use systems they are familiar to find explicit data. To find tacit knowledge people prefer face-to-face contact. On-line video chat and call enabling applications are more and more popular both in working and in private life. These applications enable the f-to-f contact and searching for tacit information even from long distance.

As already indicated the challenge for knowledge management is how to encourage people to use the KM technologies? Kaschig, Maier and Sandow (2016) propose in their study that organization needs to be able to offer both support and IT tools to initiate the knowledge creation process. Problems usually arise when new IT tools are implemented. And afterwards it is discovered that the new system is not used as planned or it might totally overlooked. The users need to feel confident using them. Leonardi (2017) refers to previous research and sums the difficulties up:

> *"It seems that people just don't like documenting what they know and contributing that documentation to some system (Heinz & Rice, 2009). Also, people who need knowledge often don't know it. If they do know they need it, they often don't know whether it exists somewhere in the organization for them to find (Choi, Lee, & Yoo, 2010). If they do know it exists, they often express a preference to ask other people for it rather than go to the databases where it is stored (Yuan, Fulk, Monge, & Contractor, 2010). "*

According to this, the employees need a lot of convincing and support to use effectively any KM systems. There are many items that influence user acceptance of new knowledge sharing systems. Li, Downey and Wentley (2007) did a research on the topic and they turn to a conceptual framework form previous studies by Venkatesh & al. Unified theory of acceptance and use of technology model show the impacting factors Figure 3.
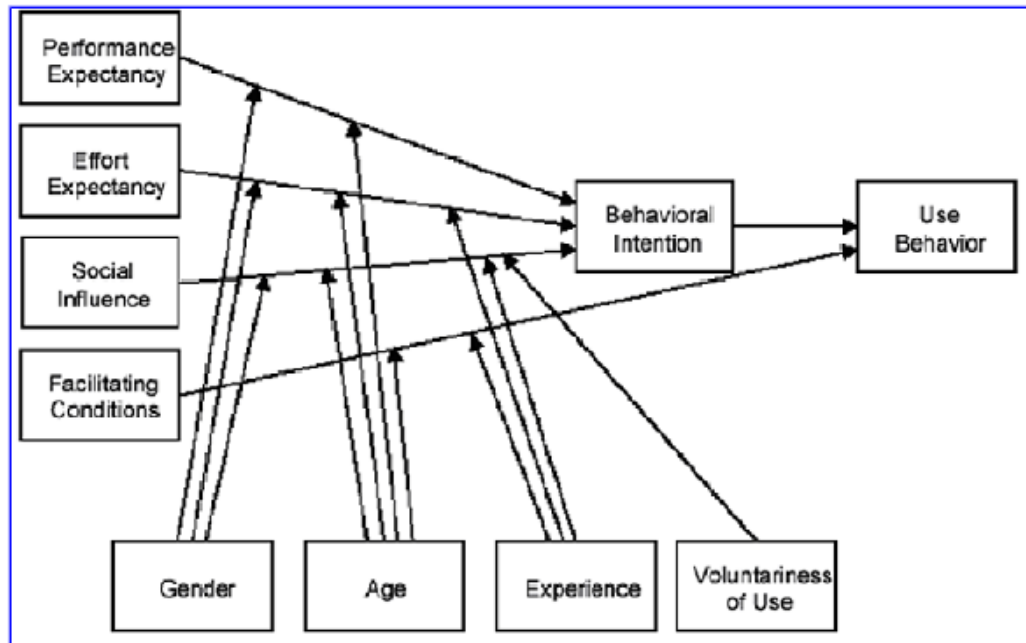

Figure 3. Unified theory of acceptance and use of technology model (Li et al. 2007)

So from the figure we can see that basic elements effect on the acceptance of technologies, such as age and gender.
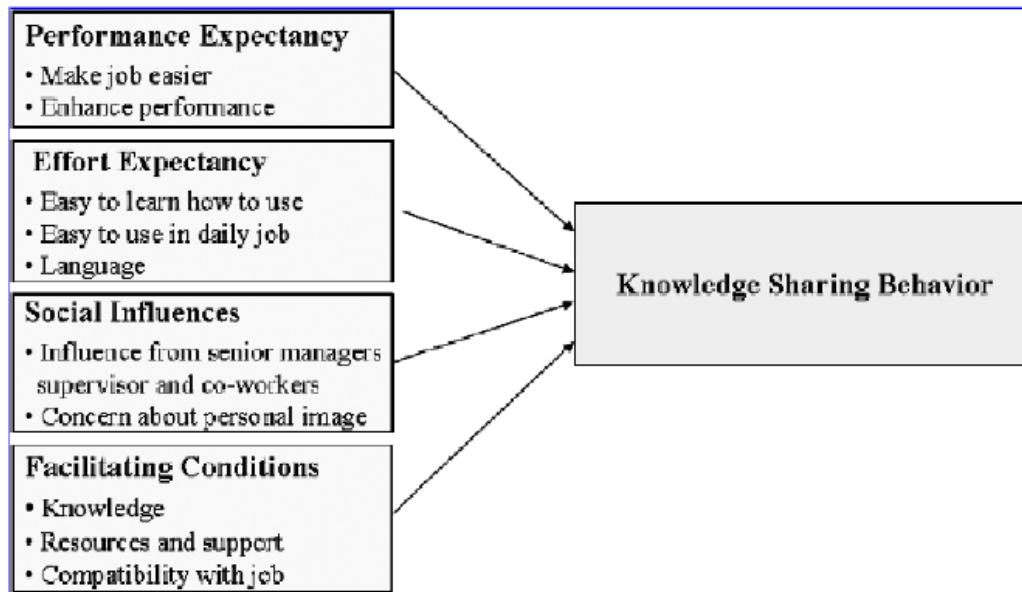
Figure 4. Knowledge sharing behaviours and influencing factors (Li et al. 2007)

In addition to user acceptance Venkatesh et al propose a conceptual framework for knowledge sharing behaviours and influencing factors. It describes that people who are expected to start sharing knowledge are influenced by performance expectancy, effort expectancy, social influences and facilitating conditions. The framework clarifies the factors that affect knowledge sharing behaviours. In ideal world the facilitating conditions and social influences would support to create low effort expectancy and high-performance expectancy. For example social expectancy can have major impact on the acceptance and further on the knowledge sharing behaviour. Employees can be heavily pushed to use a new tools, and then feel overwhelmed and insufficient know-how leads to avoiding the problem –using of the new tool. (Li & al 2007)

2.6   Future trends

Krogh et al. already in 2000 emphasized the importance of care in the organizations. Perhaps this has been somewhat overlooked because recently both Yle News and Helsingin Sanomat recently published articles on emotional intelligence, and how it will become more important in the

future work environments. This trend will most likely influence the organizational culture and the atmosphere at work. Jarkko Rantanen points out in the article (HS 14.1.2018) that employee engagement is stronger in environments where individuals share more than just work-related topics. This will increase trust and commitment; which in KM sense will build an environment for sharing.

Katri Saarikivi discusses the same topic in YLE news article (YLE uutiset 15.01.2018). She points out that empathy and interaction skills have not been appreciated earlier in work environment. Also Kuusela S. (2015, 22) points out the importance of empathy and a culture that supports also sharing emotions. This supports cooperation and helps to get to know each other. Especially positive emotions support team creation and sense of belonging. Krogh et al. (2000, 5) describe the ideal manager to be a knowledge activist. Knowledge activist is a person with broad social and intellectual insight. In addition a person, who can connect the knowers or workers and also mobilize them for more efficient use of knowledge.

2.7 Emerging technologies

Also the emerging technologies are developed to support informal communication and sharing. There are several emerging collaboration tools that try to make sharing and collaboration easier, more user-friendly and intuitive to use. Not to forget different artificial intelligence applications, which are enabling more and more. To get a broader view on knowledge management future, the upcoming trends in the different technologies are investigated in this chapter.

Technology trends that most likely will effect on the case company's future are artificial intelligence and robotization. Kataja (2016) proposes that artificial intelligence can be used to produce best practises and solutions. In the case company this could work for example in the production environment; AI could calculate machine breakdowns and HSE factors to provide maintenance plans and schedules. This way the production time could be optimized and the unexpected shutdowns minimized. In addition,

different ways of robotization could be used in the production and laboratory environments. The data from the robots is automatically saved for future use without middle steps of people entering the data; the information is instantly available and correct. Similarly, the discussion with clients can be stored for further use.

New technologies will definitely change also the educational setups all around. Currently visible trend is e-learnings and videos. Future trends predict that virtual reality will become learning tool in different environment. Thinking of the case company it could be possible to set up different sort of simulators in VR. Where you could learn i.e. Process technology or laboratory work. The virtual surrounding could match the existing process so the learning experience would imitate the reality. The new technologies can be used for peer support regardless of location and sharing information in different communities. The constantly changing environment sets a challenges and lifelong learning is a requirement for organizations and individuals.

Surprisingly blog post by Arrow solutions highlights the softer, social side more than the technologies. It is indicated that social media plays a new role in knowledge management and that the same social elements are integrated to KM systems. This enables more effective communication of information. Research by Leonardi (2017) suggests also that social media platforms are useful for sharing knowledge. He describes the social media as leaky pipes; the knowledge leaks thought the organization.

The sharing in social media is intentional and seeking knowledge in social media is intentional. The difference to more traditional sharing is that the person sharing does not necessarily know who will be using the knowledge eventually. In the social media platforms the discussions are also visible to broader audience, so even an "outsider" can absorb the knowledge from the discussions. The discussions stay visible for the whole community; for comparison e-mail messages and the knowledge in them stays only between the sender and receiver. So basically the knowledge leaks through organization. (Leonardi, 2007)

2.7.1 Social intranet versus team sites

Main parts of today's and futures work happens online and managing knowledge and efficient communication via these new channels becomes more significant, the new technologies are viewed in more detail in this chapter. As indicated in the previous chapter the social collaboration platforms play a major role in future knowledge management. Currently there are several new emerging collaboration platforms or social intranets. To build a better insight to the differences between traditional tools and the new generation: one recently developed collaboration platform Hailer and traditional and widely used team site features (for the case company SharePoint 2013) are compared shortly.

Hailer is a communication platform with social intranet features that was developed 2010 for complex project management purposes during oil catastrophe in Mexican Bay. Hundreds of companies and institutions worked together for the same goal. The challenge was to get the right information and knowledge to right persons. The main purpose of the platform is to support internal communication in organizations and to reduce the time used for finding important knowledge related to ones work. (Hailer Oy) Sharepoint2013 is a collaboration tool from Microsoft. The main purpose is to share and store documents via team sites. The basic function of a team site is to share and store files that are relevant for the organization. It offers sharing possibilities and notifications on document updates   (Microsoft)

To get a view of the differences Dowbor has drafted a figure 5. It visualises the main differences between portals, social sites and team sites. It shows also how social intranet platforms combine the features of traditional tools. The traditional social sites lack business context and are disconnected from the company processes. The traditional team sites (i.e. Sharepoint) are shown as information silos. Portals often offer a substantial amount of information, but are one-way communication and slow pace. Cavazza (2011) discusses the benefits of a collaboration ecosystem and proposes

a five pillar model of social intranet, which ties the business processes and data to the social behaviour.

- Information – easily flowing information in all directions
- Knowledge- development of databases to a more democratic and flexible way to capitalize knowledge
- Communities – help to build communities through simulation and moderation
- Collaboration – collaborative workspaces with socialized project management
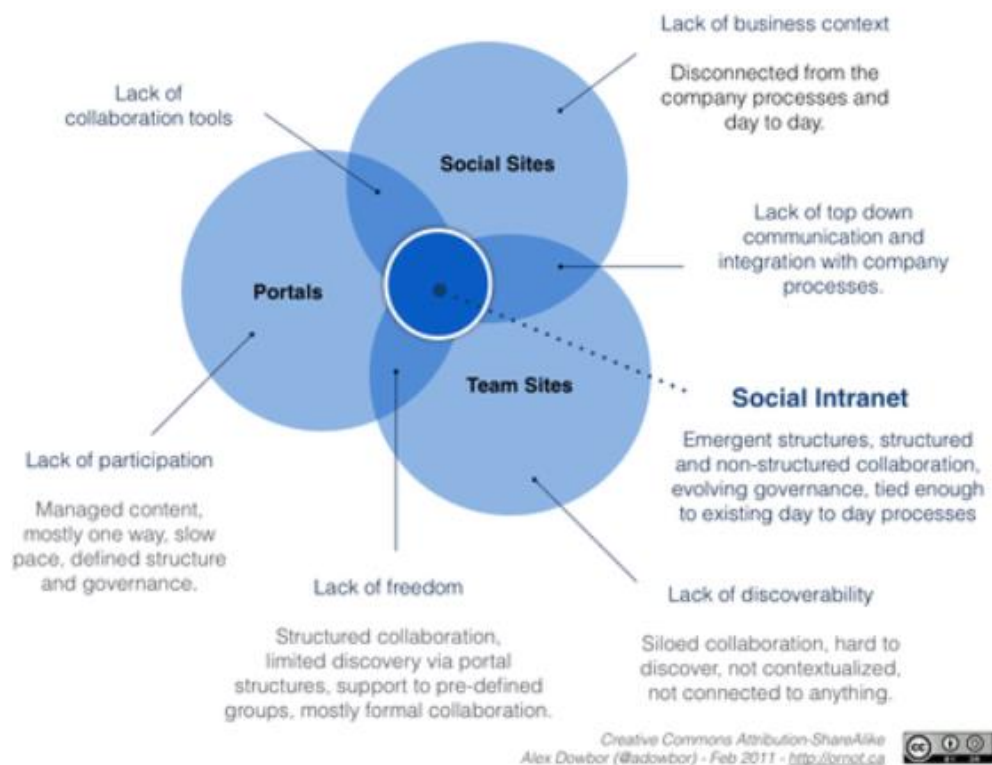
In the Fig 5. Social Intranet the Intersection (Dowbor)

3   ORGANIZATIONAL CULTURE ENABLERS TO KNOWLEDGE MANAGEMENT

3.1   Organizational culture

Dalkir and Liebowitz (2011) define organizational culture as a manifest pattern of behaviour, consistent ways of working and sets of different mechanisms such as informal values, norms and beliefs that exists in the organization. They describes culture and different types of it:

> *There is a good analogy between organizational culture and the climate control of a large building: although the temperature may be set at room temperature throughout the company, there are in fact a series of different microclimates depending on which part of the building you are in, how the office furniture is arranged, the number of people, the number of plants and so forth. (Dalkir, 2011)*

The organizational culture has similar situation. It may vary between departments. Kuusela (2015, 17) highlights the culture as a key to successful cooperation. Each individual effects the culture by their own behaviour. The existing culture is a part of the working habits. In the very core of organizational culture there are norms, emotions and social respect. These characteristics are difficult to concretize, but each individual can recognize them.

Norms define what is expected, what is considered important and what is not tolerated. These could be described also as visible and invisible rules for social interaction. If someone acts unlike these norms, it could attract attention and feel uncomfortable. Norms do not formulate in short period of time. They need repetition, feedback, reflection and successes to be formulated. Emotions are a second part of culture's core. The emotional rules affect the atmosphere of the organization. (Kuusela 2015, 16, 19. Dalkir 2011, 230)

Social respect is also part of the core elements in organizational culture. If a person does not feel respected by other, he most likely will not perform the best possible manner. It is one of the basic needs of a human being to

feel belonging to a group, feeling of acceptance and collaboration. Employee should have a feeling that he is an interesting, respected and appreciated member of a team. Equality is also important and the fact that each member's opinion is respected. Social respect includes creation of supporting atmosphere. Employees get and can help each others. Open discussions and collaboration improve social respect. (Kuusela 2015. 23) De Long and Fahey (2000, 116) draw a figure how these three cultural core elements influence behaviours and knowledge creation and sharing. See figure 6
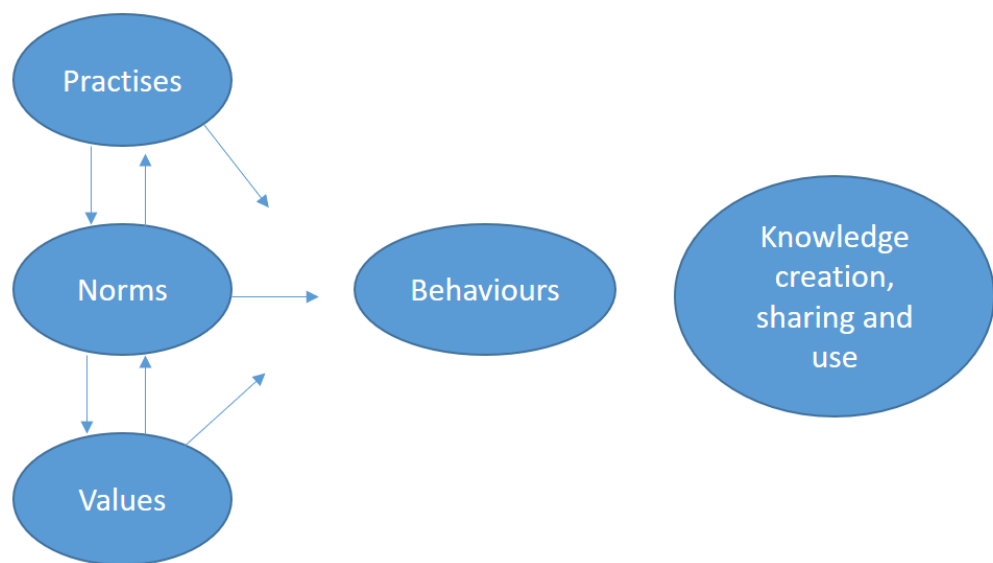
Figure 6. Cultural core elements in knowledge creation (De Long and Fahey 2000, 116)

Honkanen (2006, 151) proposes in his book that organizational culture is formed on the basis of the size, hierarchies, location and structure of personnel. Functional work community holds features of several different areas. In a functional community the work is autonomic and the employee can plan the tasks individually. Open atmosphere supports discussions and acceptance of different opinions. This type of work community and organizational culture upkeep open cooperation and support between the employees. The managers have a coaching role. The communication flows effectively through the organization. When decision making takes into account opinions from all levels, the culture supports involvement.

There exists many different culture analysis and definitions of different types of organizational culture. According to quite recent study by Grousberg, Lee, Price and Cheng (2018, 46) the culture can be managed. They propose a framework to asses and align the organizational culture with the corporate strategy. They describe organizational culture as norms that define, what is encouraged, discouraged, accepted or rejected in a team.

Their framework for culture alignment consists of following eight characteristics. **Caring:** in caring organization the focus is in trust and relationships, sincerity. Teamwork and positive relationships are encouraged. The environments are warm and welcoming. **Purpose**: idealism and altruism are nurtured. The employees share ideas and feel that in their work they are contributing to a greater cause. **Learning:** in learning-focused organization exploration, expansiveness and creativity, innovation, knowledge and adventure are emphasized. In **enjoyment** organization fun and excitement, spontaneity and a sense of humour are emphasized. In **results**-focused organization the achievements and winning, goal accomplishment is emphasised. In **authority** focusing organization decisiveness, strength and boldness, confidence and dominance are emphasized. In **safety** focused environment **p**lanning, caution and preparedness, realistic views and planning ahead is emphasized. In o**rder** focused organization respect structure and shared norms, shared procedures and time-honouring customs are emphasized.
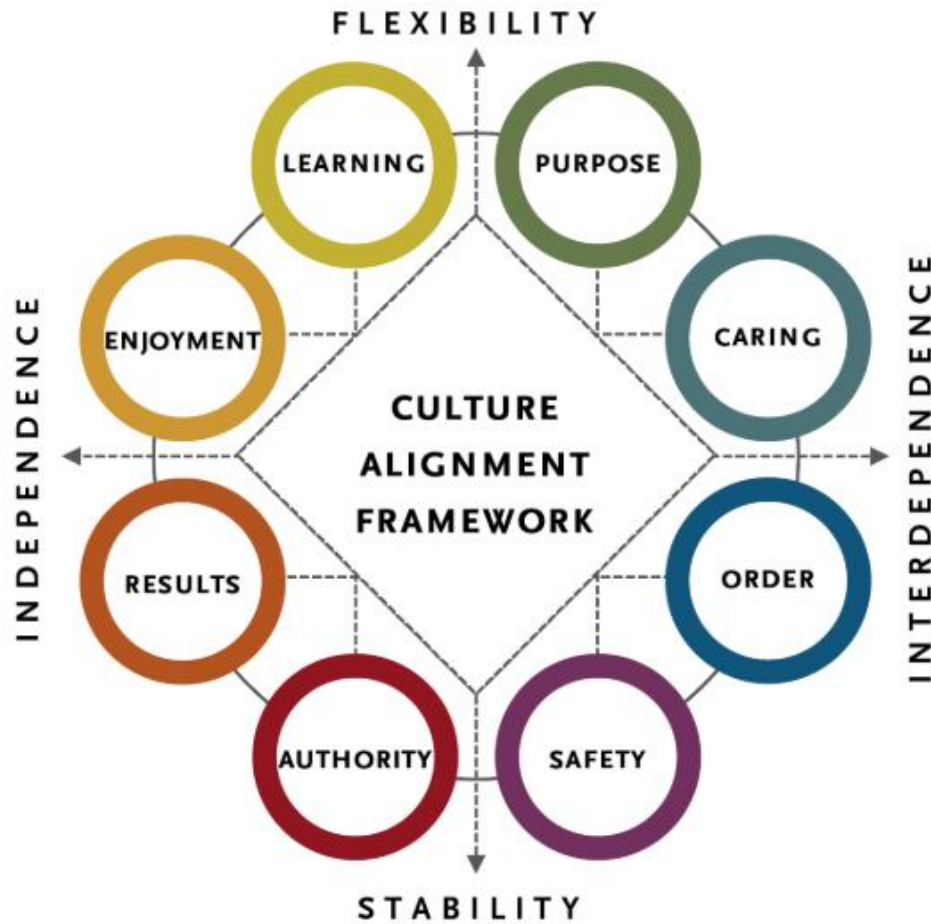
Figure 7. The Culture alignment framework (Grousberg et al. 2018)

All these eight characteristics have both advantages and disadvantages. It is the corporate strategy, which points out the direction to head. (Grousberg et al. 2018)

3.2   Organizational culture in knowledge management context

Knowledge management is important for many reasons in modern businesses. It is widely recognised that successful knowledge management improves quality and competitiveness. It can be described even as a weapon for sustaining competitive advantage (Lee et al. 2003). Also recognized benefits of knowledge management is how it is linked with organizational creativity and innovation.

The organizational culture sets different enablers and obstacles to knowledge management. These cultural dimensions are discussed further in this paper to recognize how organizational culture could enable KM success and encourage collaboration. This is why it is important to analyse the existing culture before KM initiatives. (Dalkir 2011, 224)
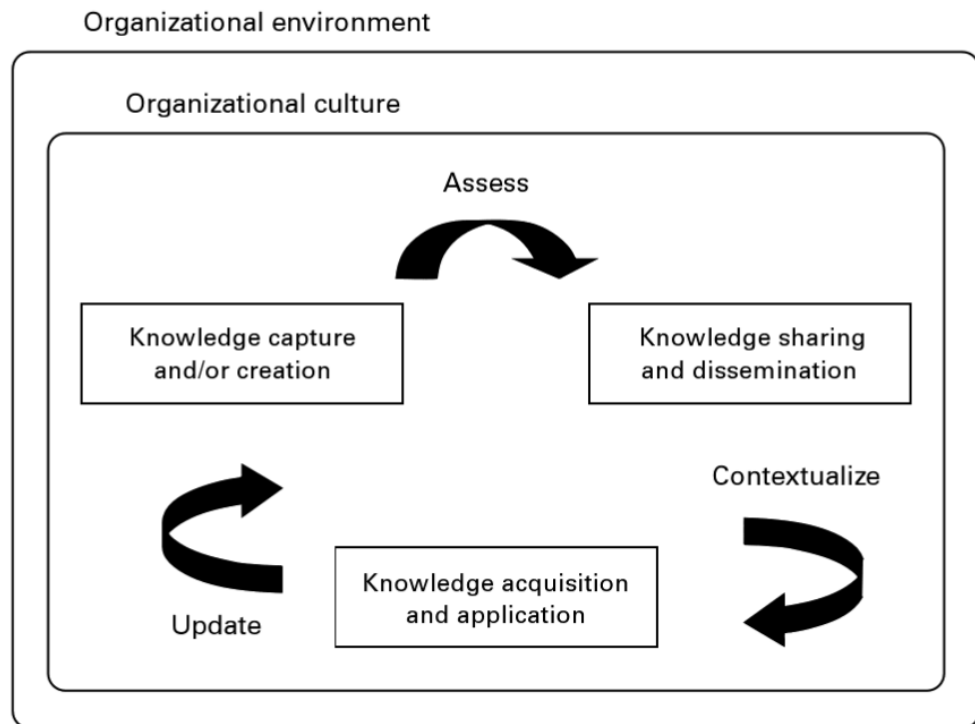
Figure 8. The cultural component in an integrated KM cycle (Dalkir 2011, 225)

Dalkir (2011, 224) draws a figure that indicates that the knowledge management cycle takes place inside the organizational environment and culture. This points out the importance of understanding the surrounding culture. The environment plays a crucial role in all activities in the organization.

3.3   Key enablers and obstacles

"Knowledge is power" is well-known phrase, Dalkir argues that "sharing knowledge is more powerful". They highlight that in knowledge sharing culture, sharing is the norm. Employees are encouraged to share

information, collaborate freely and rewarded from the results. Trust and open sharing are emphasized... (Dalkir 2011, 234)

How to then succeed in creating collaborative environment and organizational culture? Adler and al. (2011) point out that success requires four organizational efforts: defining and building a shared purpose; cultivating an ethic of contribution; developing processes that enable people to work together in flexible but disciplined projects. This relates to earlier discussed trust and common goals. Dalkir (2011, 234) highlights that the communication should flow through the organization both vertically and horizontally. He also turns to previous research by Gruber and Duxbury form 2000, which shows that the collaborative climate is the one biggest, factors affecting knowledge work. This same study suggested that distance is bad for the collaborative environments. Dalkir (2011, 233) also states that the organizational culture is always more important factor in knowledge management than KM the technologies.

Krogh et al. (2000, 18) state that there are barriers for knowledge creation on two different levels; individual and organizational. Individual barriers exist in new situations and ability to manage them. Persons have a true belief on the knowledge and experiences and changing perceptions or modifying behaviours can be challenging. If the new situation is too difficult to manage or accommodate, it causes stress and might cause the person to turn away.

Knowledge work does not grow naturally and cannot be lead with traditional management techniques. People might have difficulties with accepting new knowledge. And similarly they have difficulties in announcing new knowledge. There might be bosses or executives who express disagreement. The process of transferring knowledge and creating new is a delicate process where the underlying challenges in human interaction are turned into new strengths. (Krogh et al. 2000, 18)

Several researches indicated the following factors in organizational culture support knowledge management. Dalkir (2011, 234) highlights the earlier

study by Gruber and Duxbury. It concludes that environment that truly support KM has a reward structure; it recognizes sharing with colleagues. It has open atmosphere and no hidden agendas; communication is transparent. Communication and collaboration between employees and teams is supported. The organizational environment has a mutual sense of trust. Not to forget the support from management and communication through the organization. (Dalkir 2011, 234)

De Long and Fahey already in 2000 (122) draw a figure with similar elements. They call it "Cultural Characteristics that Shape Social Interaction. According to this figure the cultural characteristics that affect social interaction are discussability of sensitive topics, management's approachability, frequency of interactions, collective responsibility of problem-solving, orientation to existing expertise and knowledge, knowledge sharing, teaching and learning from mistakes. The context for social interaction containing these characteristics builds up to behaviours that leverage knowledge. (De Long and Fahey 2000, 122)
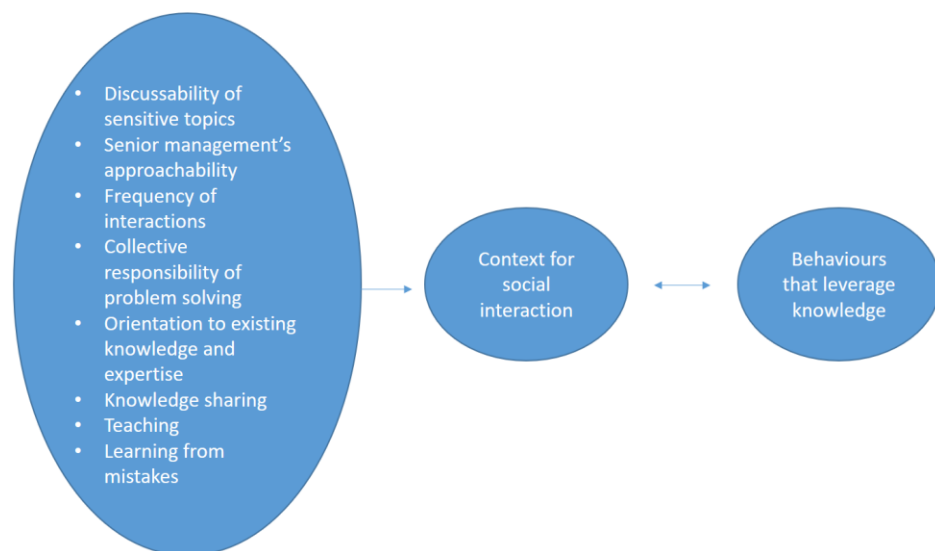

Figure 9. Context for social interaction (De Long and Fahey 2000, 122)

McDermott and O'Dell (2001, 9) conclude their research on overcoming cultural barriers to sharing knowledge with following five lessons. Firstly the knowledge management should be clearly tied with a visible

connection to the business goals. This can be reached by learning from incidents and creating examples. The purpose is to visualize how the knowledge sharing is connected with business problems or innovativeness. Second lesson focuses on the organizational style. The style of all knowledge sharing activities should be matched with the existing style in the organization. Third lesson ties the knowledge sharing activities with the core values. The advice is to appeal to deeper purposes and link the core values of the organization with the knowledge sharing activities. This makes sharing consistent with management expectations. Fourth lesson focuses on networks and enhancing the existing ones. These should be enabled with tools and resources, not to forget legitimatization. The fifth and last lesson points out the importance of active and influential people. Managers should recruit these people to encourage others to share their knowledge.

4 KNOWLEDGE MANAGEMENT IN THE CASE COMPANY – PURPOSE AND CURRENT ACTIVITIES

4.1 Knowledge management cycle stages

The case company's existing knowledge management activities are presented in this chapter. The case company is large operator in the field of polymer business. In addition it has business in base chemicals and in fertilizers. Recently it has been actively developing also polymer recycling business opportunities. It has been operating since 1994 and currently operating in 120 countries. The knowledge management actions were initially launched in 2011 to minimize knowledge and time loss. And to support development organization to manage the existing resources. The house of Knowledge management is used in the case company for visualizing the basis of knowledge management. The six different stages: identify, capture, develop, share, acquisition and use are further chopped into different actions in the organization. (KM manager) Figure 10.

Identify stages consists of role descriptions and competence profiles. To get awareness of peoples skills through the organisation KM recommends to add personal skills and competencies to internal phonebook. This enables search for persons on the basis of their skills.

Capture stage has been covered by documenting different large-scale projects and the corporate management system. For managing different and programmes a separate programme and project management office has been established. The purpose is to provide guidance and governance through projects and ensure transparency by systematic reporting.

Develop stage covers actions such as individual development plan (written agreement for each employee to ensure that the person has the required skills to performs his/her job), talent management, idea management process, knowledge transfer (a structured process for

capture, document and transfer knowledge from a leaving or moving employee to the successor).

Share stage consists of making knowledge available and usable in the whole organization. It is recognized that people need be aware of the importance of efficient sharing to minimize lost time and improve quality. The case company provides several traditional tools for knowledge sharing such as intranet, SharePoint collaboration areas for internal and external sharing. In addition The Knowledge Management community provides a separate site "Knowledge Corner" with links to different databases and libraries. This site also contains link to Idea management tool and other KM-related activities.

Acquisition stage contains the acquired knowledge. This means for the case company for example licencing-in technologies, joint ventures, merger and acquisitions, co-operation with external parties and open innovation (use of external expertise and creativity to accelerate value creation through innovation). Also recruitment is regarded part of acquire stage.

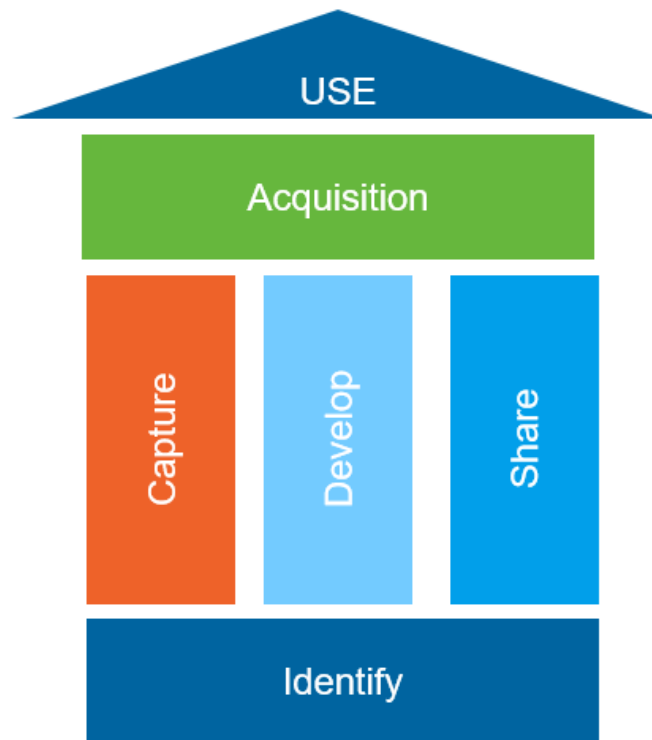**Use** is the whole purpose of knowledge management.

Figure 10. KM house of the case company

4.2 Knowledge management mandate and activities

The set mandate for the KM principles have been drafted as follows: KM supports the strategy through fostering innovation, improving business processes and operational excellence and maximizing learning across the entire organization. In addition: KM provides tools, processes and IT solutions to ensure structured, lean and compliant dealing with knowledge. It facilitates networking and learning opportunities to achieve a behaviour of knowledge sharing for each employees.

To promote different knowledge management activities and to develop the KM work in the case company a dedicated network for KM has been established. The responsibilities of the network are to connect different KM related initiatives between different locations and departments. To promote knowledge management within and outside of the case company. To develop the "Knowledge Corner" the KM site mentioned earlier. To offer expertise of the different KM tools and services to other departments. To

develop existing KM functionalities. To ensure compliance with legal requirements, standards, certificates and internal rules. The KM network has a VP level sponsor. Its member are from KM related organizations such as HR, innovation, quality, ITS, technical development and project management. The members give their input to the development of KM activities. And

In addition to the clearly knowledge management related activities the case company has an active system of different communities of practice. For example a network for continuous improvement facilitators distributes up-to-date knowledge on the continuous improvement topics. Via this network it is possible to ask for a facilitator for a CI project from another department to get a new perspective to the subject.

5   RESEARCH

5.1   Research context

The research was initiated to investigate the cultural enabling factors in knowledge management. As described in chapter 2 the field of knowledge management is multidisciplinary and complex. To solve the research questions there was a need to draw a clear picture as possible of the case organizations current situation. Sachdeva (2008, 77) points out that researcher should know the background of the problem and highlights the significance of literature review, these have been conducted and summarized in chapters 2-3. He also defines that research is a systematic process of collecting and analysing data to solve the research problem.

No similar research has been made in the case company before. The knowledge management actions are being implemented further in the organization. New tools and processes are being implemented and to reduce waste and to maintain excellent quality there was a practical problem. Sachdeva (2008, 45) suggests that experience of practical problems is the most common source of research ideas.

The survey and interview data is qualitative, mainly open questions. This supports to draw an overall understanding of the topic. The data for evaluating the organizational culture is quantitative and it has been retrieved from employee survey.

First set of qualitative data is a survey conducted in an organization where the knowledge management activities have been implemented for five years. This part of the data is used for evaluating the knowledge management activities effectiveness in this pilot organization. Survey is conducted yearly basis and the results are used for development of knowledge management activities.

The second part of the qualitative research data consists of 28 interviews of another branch of the organization where the knowledge management activities are being implemented. This data is used for evaluating the

needs and expectations of organizations, where knowledge management activities have not been actively pursued. And also the existing knowledge usage cycles.

The target of the data evaluation is to find out the development points in the organizational culture to support the knowledge management. A proposal model for the organizational culture enablers is then drafted on the basis of the specific needs of the case company. Both the survey and interviews were performed internally in the case company. To support this study some organizational related questions were included to both.

Interviews between the researcher and the case company's knowledge management manager were also used as source of information. In addition internal results on employee survey were used for drafting a general understanding of the existing organizational culture. These multiple sources of data from different points of view formulate a reasonably reliable picture of the case company situation.

5.2   Research data and methods

Overall analysis of the current organizational culture was drafted from employee survey materials. The employee survey reflects the values of the company and organizational culture and management styles.

This survey was sent out to 900 persons and 138 answered. The organization consists of research and development, intellectual property rights, innovation projects and pilot plant departments. The 28 interviewees were senior manager level experts, who have been working for the case company for several years. They have good understanding of the case company's existing collaboration and communication methods and guidelines for managing information. The interviewed persons had a good briefing on the topic before the interview.

The survey was formed by following questions:

1. In 2016 we have updated our Knowledge Corner (Borena main page/useful links/Knowledge Corner) and a lot of new interesting and important tools can be found there.
2. Is there something you would like us to include in the Knowledge Corner?
3. How have you documented your own work during 2017? (select all relevant options)
4. How could knowledge flow be improved in your opinion?
5. How much time have you spent 2017 searching for documents/information in internal systems like SharePoint?
6. How does your organization support knowledge sharing?
7. What type of tools you prefer for knowledge sharing?
8. If you answered the question above with "Other" please describe here in detail.
9. Is there anything else regarding Knowledge Management you would like to tell us? (open question)
10. How often have you visited our Knowledge Corner?

The interview consisted of following discussion topics:

1. What is your vision of KM for future? What would make life easier in your area?
2. How do you get knowledge? Rating: 1. not existing - 5. Excellent
   a. What are the sources of knowledge internal & external?
   b. With whom do you cooperate and who are your internal and external partners?
   c. Where are you restricted?
   d. Do you always know whom to ask for help to find knowledge?
3. How do you store knowledge? rating: 1. not existing - 5. Excellent
   a. Where do you store information?
   b. Who do you give access to ?
   c. How do you structure the stored knowledge
4. How do you share knowledge? rating: 1. not existing - 5. Excellent

      a. Who are your target groups?

      b. Do you apply the external publishing rules?

5. What in KM sense is working well?

6. What would you like to improve?

7. How do you interact with other areas in the company? What are your interfaces?

8. Do you have good examples to share?

Questions in both survey and interview have partly been drafted on basis of Dalkir's (2011, 323-325) Questionnaire to identify missing knowledge and knowledge audit questionnaire. These are tool that are proposed to use when formulating for example a knowledge management strategy. Not all answers are evaluated in this research. The analysing focuses on data, which is related to the research question. All the research data is confidential and only for the company's internal purposes. The data was evaluated and analysed separately and the main findings are presented in the following chapters. Some open answers are added as quotes to draw a more concrete view on the data results.

6   RESULTS

6.1   Knowledge management activities

Both data sources; the survey and interview indicated similar issues. Underlying problems are specially recognized more in the environment and IT systems, than in the organizational culture.

Main knowledge management tools: Main point for improvement is clearly the use of SharePoint as collaboration and sharing tool and lack of sufficient user skills to utilize it effectively. This issue was addressed in the survey and in the interview results. Over half off the interviewed persons answered that there is a need to create SharePoint best practices and/or rules- to improve more disciplined way of working. In addition similar amount requested for more training for SharePoint key users. According to the findings in the survey data indicated similar issues. SharePoint is regarded as inconvenient and even a as "trash bin", where documents are dumped and cannot be find afterwards. SharePoint is experienced as complex, unintuitive and difficult to navigate. (9 answers in survey; question 4.) Another common issue in the results were the need for a Google-like search tool. This came up in 6-10 interviews and in 10 open texts comments in the survey (question 4.).

> *I hate to use SharePoint. It is inconvenient and cumbersome. Moreover SharePoint is widely abused as a trash dump, like for whole hard drives, when people leave the company and alike. This makes it hard to find anything.*

Complexity of existing systems and not finding the correct tools came up in three interviews and in several open comments in the survey (6 questions 4&6). Different type of information is stored in multiple different ITS system. Suggested improvement for this complexity is a "google"-like search functionality. The tools should search from all available locations. (5-8 open comments in survey and 6-10 interviews)

For me the overall Borealis search is the first tool I use!! This could also be improved with filters etc....'

Save in a system I can find later (like with Google) NOT in SharePoint. To save in SharePoint means to put into trash!

Knowledge management activities: Both survey and interview results indicate that there is need to push people to use different knowledge management related functionalities and lack to time to fulfil the existing requirements. SharePoint usage was among these as already indicated previously.

Having simple tools to share information. SharePoint is one tool but must be SharePoint site must be designed to gain time and to keep records of all information. Full access to all properties of polymers produced is a MUST, which simple and uniformed tools (not 20 different software, with 20 different way of using them). Time and giving time to people to do this is OBLIGATORY!!!!

How much time have you spent 2017 searching for documents/information in internal systems like SharePoint?

- 10min-1h per month
- I find the documents I need easily
- I'm frustrated not finding information easily
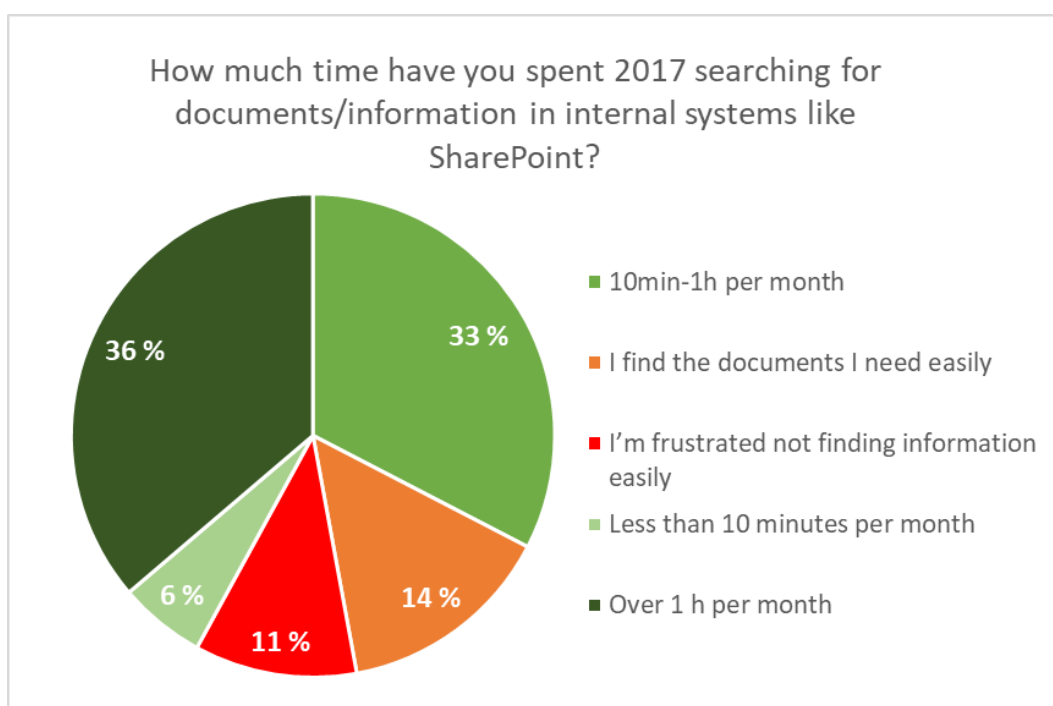- Less than 10 minutes per month
- Over 1 h per month

Figure 11. Usage of time in searching for knowledge

Answers to question 5 in survey indicate that only 14% of the responders (138) feel that they can find information easily. 11% feel frustrated on not finding the information they need.
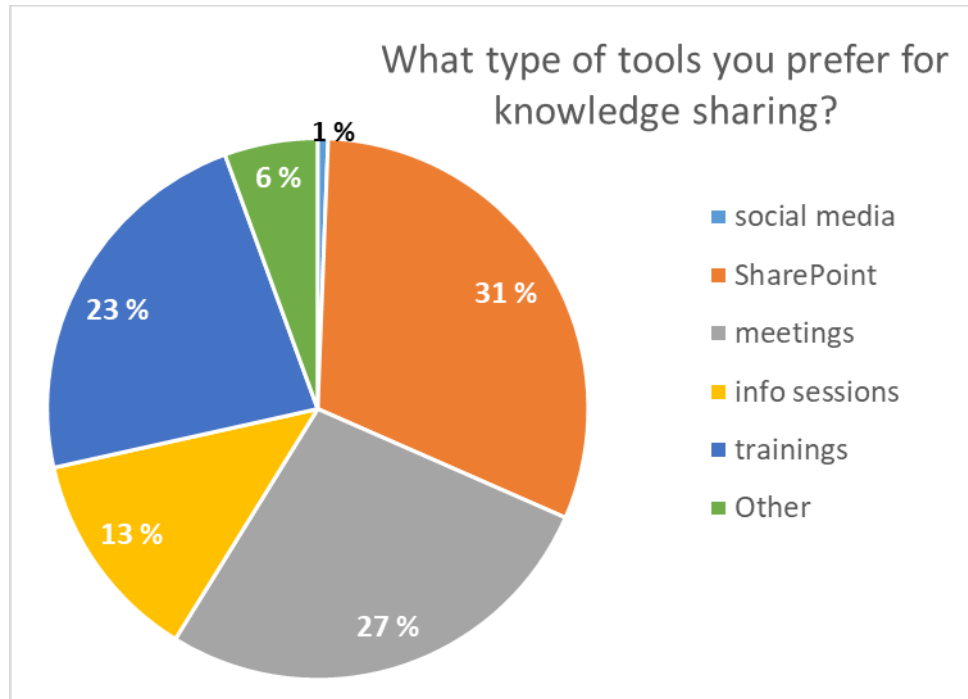

Figure 12. Preferred knowledge sharing platforms

Answers to survey question 7. Indicated that even SharePoint is experienced complex and difficult to navigate it still is the preferred tool for knowledge sharing. Meetings are second on the list with 23% answers. This is align with the theories discussed previously. People prefer face-to-face contact when searching for knowledge. Also trainings are valued as knowledge sharing tools.

Communication-related issues came up in 2-3 interviews. The case company has several different newsletters. Suggestion was that these all should be found in one place. Some departments were thinking to start a newsletter. There were also suggestion to have all available trainings in one newsletter. At the moment all trainings; classroom and e-learnings are available in a SAP learning environment. The survey open comment

indicated that sharing of scientific articles to interested groups, would also improve knowledge flow (1 open comment, question 4)

Learning from mistakes came up in two interviews. Suggestion was to create regular news learning from mistakes. Similar functions already exists in claim handling and in health and safety organizations. One proposal was to include learnings in the claim handling system. At the moment it includes only the decisions and actions. These type of best practise sharing and learning from mistakes could be implemented also into knowledge work.

> *Claim handling. New tool needed to replace synergy. Also connection to learning from claims to be included*
>
> *Best practise and learning sharing. Example: claim case learnings, project learnings. Sharing status of projects in team meetings*

KM activities as part of new employee introduction proposal came up in one interview. Suggestion included to have at least KM introduction as part of onboarding new employees.

6.2   Organizational culture

The core values of the case company reflect the industry and its requirements. Responsibility in all health and safety issues is the key priority, as well as high ethical standards. Collaboration and respect as corporate value highlight the importance of open communication and respectful and timely manners. Continuous improvement and delivering beyond expectations is also pursued. Last corporate value is to be fast and flexible in all operations and to encourage decision making in all levels of organization. Also value respect was evaluated just to the industry's average. There clearly lies a certain amount of hesitation in feeling of being respected as a team member. The employee survey results indicate that main part of the values are truly incorporated in the organizational culture. (Employee survey of the case company)

However the engagement rate of the personnel is in the average area when comparing to other companies in the industry. The values are well understood by the personnel and they have a clear sense of responsibility in all its subcategories. In addition company's flexibility and ability to implement new ideas got the lowest scores in the survey. Similarly need for improvement is recognized in areas of motivation, executive role models, encouragement in innovative solutions, feedback and open atmosphere. These also got lower score than the average in the industry. (Employee survey of the case company)

6.3   Limitations and uncertainties in the study

Limitation to the research is that no separate survey or interview of the organizational culture could be performed. More targeted set of questions could have brought valuable insight regarding the state of the culture in knowledge management perspective. However the analysed data gives a reliable picture of the current state of the knowledge management activities and the improvement needs.

The both sources of research data were consistent and indicated similar issues. The questions in the survey could have been also more informative. For example question about KM tools can be easily understood differently. The person answering does not necessarily have understanding what social media in KM context means.

The employee survey results gave only an overview on the organizational culture. More detailed analysis of the affecting factors in knowledge sharing effecting factors would need a more thorough research. The organizational culture can differ significantly between departments. So it is difficult to draw conclusions of the whole company's culture on the basis of interviews.

7 MODEL AND PRACTISES FOR KNOWLEDGE MANAGEMENT

7.1 Proposal model for the study

The proposal model for the study was developed from the house of KM (chapter 2.7) that is currently in use in the case organizations. The visual framework stays similar and it is recognizable. In addition it can be utilized for example in KM-related presentations without changing the original presentation layout. The proposed model increases the number of building blocks with two factors. The model answers the research question "How can knowledge management be supported with organizational culture?" by showing that indeed the culture has impact on the KM. It also gives practical suggestions what aspects in the culture could be developed further in the case company.
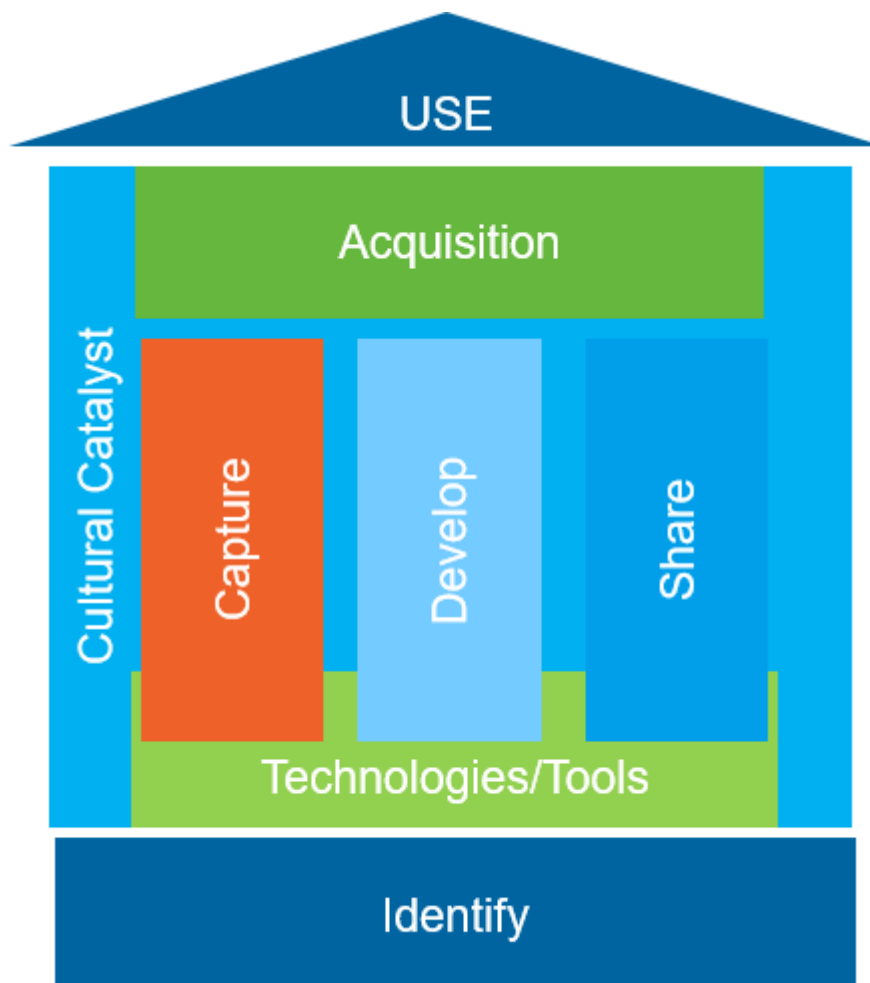
Figure 13. Proposal model for Knowledge management house

Term cultural catalyst will be used to point out the different elements that are related to organizational culture. Technologies term point to the different KM tools. The literature research suggests that these both are crucial part of successful knowledge management. According the research results, especially the ITS environment requires more attention in the case organization. At the moment the case company's KM activities does not include any aspects related to organizational culture. ITS tools have been covered by offering different types of databases and services in the current activities. (Described in chapter 4.) Adding these two blocks to the KM house would help to identify all the related features of knowledge management. The background of term catalyst comes from the industry, where it is widely used. Choosing familiar terminology is tied with McDermott's and O'Dell's (2001, 9) proposals to tie the communication on knowledge management activities to the existing style of the organization. This model includes both people and technologies. It combines the soft side with hard. Cultural catalyst block covers the whole background and visualizes the fact that it is the culture that makes everything happen. The following chapters clarify the meaning and the implementation of the proposal model.

7.2   Cultural Catalyst

With upcoming further rollouts of KM the KM house helps to present the different building block of knowledge management. By adding the culture block on the knowledge management house it is easily visualized that the organizational culture has an impact on the knowledge management activities.

The employee survey results indicate that the organizational culture truly reflects the core values of the corporate. Improvement need can be recognized in open atmosphere and communication. Several different researches (Dalkir 2011, DeLong and Fahey 2000) draw attention to these same issues. In that sense it would be beneficial also for knowledge

sharing practices to improve the open discussion. The case company has had many different campaigns on opening the discussion atmosphere before. These campaigns have focused on improving mainly other areas such as safety. To benefit knowledge management the connection between open atmosphere and knowledge sharing activities should be emphasised. This can be part of the knowledge management activities; to emphasize the importance of open discussion and sharing.

Sharing and rewarding of success stories and best practices- how effective knowledge sharing helped in solving business problems. At the moment the KM network has a VP level sponsor and the company has a yearly excellence award ceremony. Here success stories in different categories are rewarded. As an improvement proposal the KM functionalities could plan rewarding and recognizing resources to the yearly budget. This could be used to reward the active knowledge sharing networks, individuals or teams. It does not necessarily need to be combined to the corporate excellence award event, but with smaller scale campaigns. Smaller scale campaigns are widely used in other functions i.e. in health and safety. By entering different success stories during the campaign the employees get a small prize. Similar campaigns could be used in KM to support active knowledge sharing. Recognizing the KM successes was widely recommended in the different theoretical frameworks (Dalkir 2011, 234, McDermott & O'Dell 2001, 9).

The cultural element includes also sharing the best practices in collaboration. The organization is large and the flooding of different messages is a challenge. Getting messages through can be difficult. By sharing collaboration best practices and cross-departmental communication, KM can encourage others as well. This could be done with cross-departmental communication i.e. with newsletters and internal social media platform. At the current moment, social media is not in use in the case company, but it is being piloted in some organizations. KM could take an active role to support build this tool to effective open communication forum.

7.3   Technologies Tools:

Ties the different ITS tools to the KM activities. By adding this block to the KM house it helps draw attention to the effective usage of the tools. And that one function of the KM is to support and help the different teams and departments the best practices for their purposes.

Due to a major focus on new digital tools, the old are left with only minimal support and attention. The research finding clearly indicates that there is a need for more support with the one main data and knowledge storing system SharePoint. With proper user support and training the existing tools could be utilized more effectively. It would reduce time in searching for knowledge. Most likely better-trained employees would also be less frustrated in using the systems and could support each other to find the best practices. The reduced time consumption releases time to value-creating activities and in simple words saves costs. Underlying risk is that also the new technologies will be implemented without sufficient user training, support and change management.

Dalkir (2011, 269) points out that the younger generations adapt faster to new IT tools. These faster adapters could be used as change agents in the organization. Figures 3 and 4. Show that facilitating conditions and social influences are also key elements in creating knowledge sharing behavior. According to the results, these factors have been overlooked in some parts in the case company with SharePoint usage.

The research also gave valuable proposal to include the KM introduction to onboarding processes. This type of introduction could focus in addition to the main targets of the KM activities on the different KM tools, their purpose and where they can be located.

Already existing activities such as updating and developing the existing knowledge sharing platforms are now tied to the model with the Technologies and Tools building block. The KM responsible should also together with ITS department evaluate the newly emerging tools and their possible suitability and benefits to the organization. At the moment an

internal social media platform is being piloted in some teams. KM and ITS together should take an active role by building up the facilitating conditions and social influences. In addition to showing the benefits that can be obtained by active use of such tool. Research by Leonardi (2017) points out that social media platform are useful for sharing knowledge. He uses the term leaky knowledge to demonstrate the style how knowledge flows in social media.

7.4   Implementation

One of the additional benefits of the study was to improve awareness on the softer side of knowledge management. How the organizational culture influences collaboration and knowledge sharing? The proposal model combines these features. It can be used to raise awareness when the KM activities are further rolled out to the organization. It can be added as such to presentation materials. These materials are used for example in board meetings to present the benefits and importance of knowledge management. The already existing knowledge management network members have a reoccurring task to take KM related current issues to their own teams and departments. Presenting the updated KM house can be added to this sharing package.

8 CONCLUSIONS AND RECOMMENDATIONS

The case company's organizational culture is heavily influenced by the industry. Of course there was no thorough research made on the existing organizational culture and thus cannot do more than assumptions on the basis of the available data. According to Grousberg et al's (2018) characteristics in petrochemicals and polyolefin business, safety and order are key elements to ensure a safe working environment; even little mistakes can cause catastrophic events. There are such risks as explosions and many different chemicals that are hazardous to environment and health. Furthermore, the procedures and process descriptions have been implemented to all levels in the organization. Work is well guided and instructed. In my view from this, a conclusion could be drawn that everything is well documented and communicated- keys to successful knowledge management. This clearly is also aligned with the corporate strategy. A proposal for future research could be to study the organizational culture in different departments. This would give insight on the organizational culture status and would support building even stronger knowledge management strategy.

The results highlight the complexity of ITS systems and the user knowhow level and adaptation. At the moment the case company's challenges are that the data is stored in many systems and there is no search functionality that covers all systems. Current SharePoint consists of over 32 000 sites. New ones are created and the old ones are buried and forgotten.

There was also an indication to a general attitude that the existing ITS tools for collaboration and data storing are disliked. If the respondee was familiar and competent with the tool the attitude was clearly more favorable. So one on the key problems is the knowhow level of users. Considering this, the case company could improve the situation possible just putting more focus on ITS training for end-users as proposed. Challenge is to find the resources to fulfill these training needs. At the same time as the study has been conducted the ITS organization of the case company has undergone an organizational change. The updated

focus areas are new digital services. This, unfortunately, means that the old existing systems like SharePoint get even fewer resources. The situation is a threat for managing knowledge in structured way. Since the existing ITS practises fail to support the knowledge sharing behaviours.

Some type of social intranet could offer benefits for the company. It could combine the collaboration and the processes- i.e. all project communication and documents would be in the same cloud base service, not in someone's inbox. All members would have access to all written communication related to the topic. For example, Hailer is this type of tool and it was originally designed for managing large projects, but there are many other alike. As social intranets encourage also informal discussions, the team building would be easier even with teams in different long distance location; a virtual coffee corners. Benefits of the Hailer-type platform is that all data is available in one source; documents and communication. A clear challenge for the case company is the long history and enormous amount of documents, and data- how can these be transferred securely into a new platform? Whether this type of tool could be implemented in such a large organization, needs further research.

Another benefit of more informal collaboration platform is the informal discussions that happen. These discussions help to identify knowledge holders. Employees also get to know other people with the same interests, who might be relevant at some point. In my view, the innovation and new business development teams could be a fruitful organization to test this type of tool (I.e. Hailer). There is a lot of different knowhow that is dispersed between different locations. In more informal platform the different communities of practice would have more free discussions. The communities could form and grow naturally based on interests. This might boost employee engagement and innovation. It could also help to support communication flow to all directions. Recognition of good work, by commenting in an online platform –so that others can see it, could also help to build a team spirit and encourage further collaboration, which is possibly inhibited to some extent by the corporate culture. This type of

platform could be piloted for example in some innovation project to evaluate the suitability.

Alternative for the separate platform would be to develop the existing SharePoint. The case company has chosen to enable only some parts of the functionalities provided by Microsoft. So basically it currently offers only storing and simple search functionalities. In addition, the problems with SharePoint relate in my view to the complex organization and long history of storing documents. The existing document libraries contain a huge amount of documents. As the number of documents build up the expired documents are buried in the mass. As the research data indicates it is problematic to recognize the expired documents from the valid ones. The interviews also indicated that the employees prefer team sites that are built totally different than the standard SharePoint team site. Basically, the site is visually more like a traditional webpage than a SharePoint site. To formulate these more attractive and intuitive sites requires more work and know-how from the site administrators. In my opinion, the ideal knowledge management tool would be an ecosystem that enables communication, storing and searching data. As proposed earlier it would be important to recognize the success stories and similarly learn from mistakes also in knowledge management.

It is possible that in the future the tools for KM are advanced and more intuitive to use. The important fact is to keep the focus also on the soft side; knowledge work does not grow naturally. To succeed in creating and sustaining a collaborative environment requires more than just functional IT tools. It requires a shared purpose, where each member of the group contribute and are respected and valued for their input. The cultural characteristics that support knowledge management are the same ones that form a strong organizational culture.

REFERENCES

Dalkir, Kimiz. Knowledge Management in Theory and Practice (2nd Edition). MIT Press, 2011

De Long, D. W., & Fahey, L. (2000). Diagnosing cultural barriers to knowledge management. Academy of Management Perspectives, 14(4), 113-127.

Gorman G, Pauleen D. Personal Knowledge Management: Individual, Organizational And Social Perspectives [e-book]. Farnham: Routledge; 2011. Available from: eBook Collection (EBSCOhost), Ipswich,

Grousberg, B. Lee, J. Price, J. & Cheng, J. The Leader's guide to corporate culture; How to Manage the eight critical elements of organizational life. 2018 Harward Business Review

Kaschig, A. Maier, R. Sandow, A. The effects of collecting and connecting activities on knowledge creation in organizations. 12/2016. The Journal of Strategic Information Systems. ScienceDirect.

Von Krogh, G., Ichijo, K., & Nonaka, I. (2000). Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation. Oxford University Press on Demand.

Kuusela, Sari. 2015 Organisaatioelämää. Kulttuurin voima ja vaikutus. Alma Talent oy.

Lee, H. Byounggu, C. Knowledge management enablers, processes and organizational performance: an integrative view and empirical examination. Journal of Management Information Systems 20/2003.

Leonardi, Paul M., The Social Media Revolution: Sharing and Learning in the Age of Leaky Knowledge (June 28, 2017). Information and Organization, Vol. 27(1), p. 47-59, 2017.

Li, W., Downey, S., & Wentling, T. (2007). Online knowledge sharing in a multinational corporation: Chinese versus American

practices. Proceedings of the American Society for Information Science and Technology, 44(1), 1-13.

Malhan, I, & Rao, S 2008, *Perspectives On Knowledge Management*, Lanham, Md: Scarecrow Press, eBook Collection (EBSCOhost)

McDermott, R., & O'dell, C. (2001). Overcoming cultural barriers to sharing knowledge. Journal of knowledge management, 5(1), 76-85.

Microsoft: retrieved from https://products.office.com/fi-fi/microsoft-sharepoint-2013

Nieminen, Jaakko 2018. Sales Director. Hailer Oy, Porvoo. Interview. 19.06.2018.

PROBST, Gilbert JB. Practical knowledge management: A model that works. PRISM-CAMBRIDGE MASSACHUSETTS-, 1998, 17-30.

Sachdeva, J.K.. Business Research Methodology, Global Media, 2008. ProQuest Ebook Central, https://ebookcentral-proquest-com.aineistot.lamk.fi/lib/lamk-ebooks/detail.action?docID=3011363.

Digital sources:

Kataja, Elina.. Megatrends 2016 The future happens now. 14.1.2016 Retrieved from: https://www.sitra.fi/en/topics/megatrends/#materials

Rinta-Tassi, M. Töitä tarjolla: Empatiaan ja vuorovaikutukseen kykenevä saa paikan. 15.1.2018 YLE Retrieved from: https://yle.fi/uutiset/3-10020310

Salmi, S. Tulevaisuuden työelämässä menestyy se, jolla on hyvät tunnetaidot, sanoo psykologi- Näin kehität tunnetaitojasi 14.1.2018 Helsingin Sanomat Retrieved from: https://www.hs.fi/hyvinvointi/art-2000005521510.html

Qualitative research

https://koppa.jyu.fi/avoimet/hum/menetelmapolkuja/en/methodmap/strategies/qualitative-research

ISO-standards

https://www.iso.org/iso-9001-quality-management.html