Bachelor Thesis

Organisational Knowledge Source Identification Opportunities and their Utilisation for Knowledge Sharing.

Julian Sotscheck

s1856022

University of Twente

ABSTRACT

This research paper contributes to a better understanding of organisational opportunities to identify knowledge sources within the organisation. It does so acknowledging the problem of individuals to engage in knowledge sharing beyond their immediate surrounding, as they lack the ability to identify other knowledge sources beyond their immediate surrounding. Furthermore, the paper investigates the engagement in knowledge sharing in organisations to describe the link between the organisational opportunity for knowledge source identification and the engagement in knowledge sharing. It focuses on the two knowledge sharing concepts knowledge transfer and collaborative help. To arrive at the descriptive results, a sample of medium and large sized organisations has been investigated by interviewing organisational members. Seven different opportunities for knowledge source identification can be described on the basis of the such interviews. Most of such utilise the same concept of communicating individual's attributes across the organisation. A different approach was found to focus on the reachability of knowledge sources based upon request. The personal network is described as number one location for knowledge sources. To venture beyond that, the opportunity for knowledge source identification that leads to most utilisation of knowledge throughout the organisation seems to be the use of People Portals and organisational wikis. Doing so knowledge transfer has been found to be the most present form of knowledge sharing, being utilised for both the operational task at hand and other demands such as for personal learning and a drive of personal interests.

INTRODUCTION

In today's markets organisations are pressured to continuously innovate (Lee & Peterson, 2000). To do so they must utilise the crucial organisational resource knowledge as effectively as possible (Alavi & Leidner, 2001; Hackbarth, 1998). The field of Knowledge Management investigates and describes how knowledge is utilised in organisations (Alavi & Leidner, 2001). Focusing on how individuals utilise the knowledge within organisations is a crucial element of Knowledge Management, and is defined as Knowledge Sharing (Amabile, Fisher, & Pillemer, 2014; Fahey & Prusak, 1998; Gupta & Govindarajan, 2000). Besides the theoretical description of Knowledge Sharing concepts, existing literature has identified two main problems: to engage in Knowledge Sharing and thus utilise knowledge, individuals have to be able to identify other individuals within the organisation as valuable knowledge source which they are rarely able to do (Kogut & Zander, 1996; Powell, 1998). While literature suggests some problems to tackle this issue, it at the same time acknowledges the second problem of having too little insights on how organisations actually approach this issue (Powell, 1998). To contribute to a better understanding of those questions this research investigates the organisational approach to identifying individuals as knowledge sources and how that impacts the engagement in knowledge sharing. Before investigating the organisational perspective, two common forms of Knowledge Sharing will be explored. Based on that understanding the organisational perspective will be investigated. To do so, qualitative interviews will be conducted with 12 medium to large sized organisations collecting understanding of the organisational perspective. The findings will be analysed conceptually describing the utilisation of knowledge in the organisation categorically and how knowledge source identification is not only addressed but how it is linked to that utilisation. The findings will be presented in a descriptive manner contributing to a better understanding of the organisational perspective.

THEORETICAL CONTEXT

Innovation Today and its Influence on Organisations

Today, innovation is one of the main topics among researchers, is taught at universities and is widely present in the markets and thus in the lives of the consumers (Hjalager, 2010). The development and rise of innovation has several reasons, such as the rapid technological development of our time. Through fast progresses in technological development, not only are new breakthroughs achievable, but technology is also much more accessible, allowing more people to venture about realising their own solutions, which in turn drives and contributes to the rise of innovation (Klofsten, 2000).

With the rise of individuals developing their own solutions, and hence the rise of today's start up scene, big corporations are pressured in their market position. Nowadays, start ups in all fields do not hold back to define and develop groundbreaking new solutions that compete with many established market leaders. Start ups make use of all the resources available to them, combine them with the right mindset and move noticeably faster than large organisations, by that pressuring established organisations that have developed some slack in their operations. Such organisations suddenly have to innovate in new ways to stay relevant and competitive (Lee & Peterson, 2000; Klofsten, 2000; Syrett & Lammiman, 1997; Tushman & O'Reilly, 1997).

Knowledge as Organisational Resource

An element identified as being crucial for not only firm performance but more so advancement of the firm to innovate and stay competitive is knowledge within the organisation (Alavi & Leidner, 2001). Hackbarth (1998), for example, shows that innovativeness of the firm stems from the body of knowledge of the organisation. Effective management of this resource is hence crucial to allow efficient use of it and thereby increasing the chance for innovation (van Krogh, 1998). This is especially the case for large organisations that compete with startups, and that hold a large body of knowledge entailing a lot of potential for innovation (Kogut & Zander, 1996; van Krogh, 1998).

In recent years, the research field of knowledge management (KM) emerged, aiming at understanding knowledge as organisational resource and helping organisations with its utilisation. It focuses on the exploration of knowledge in organisations, investigating amongst others its description, definition and integration to the organisations. As part of that it focuses on supporting the creation, transfer & application of knowledge in organisations (Alavi & Leidner, 2001).

Defining Knowledge
To understand KM and its theories, it is important to first understand knowledge as organisational resource. As Alavi and Leidner (2001) and Hackbarth (1998) have identified, knowledge is an organisational resource that can drive innovation. This perspective is based on the resource-based view introduced by Kor, Mahoney, Siemsen, and Tan (2016), which acknowledges the strategic usage of resources to drive competitive advantage. As such organisational resource, knowledge is embedded in and carried through the

organisation in various ways. It can take various forms ranging from culture and identity of the firm over routines, policies and systems to documents and of course insights of individuals (Grant, 1996a; Grant, 1996b). As such a complex resource, knowledge is hard to grasp and hence difficult to manage, presenting a crucial challenge to organisations. Organisations are often not fully aware of the knowledge they hold within them, and it is difficult if not impossible for them to clearly define and utilise it (Davenport & Prusak, 1998; Powell, 1998).

One widely established classification of knowledge sheds light on the concept of knowledge as organisational resource, making it easier to understand. Nonaka (1994) defines knowledge as being either *tacit* or *explicit*. Explicit knowledge describes any form of knowledge that is articulated, codified or communicated in symbolic form and/or natural language (Nonaka, 1994). Such explicit knowledge in the organisation can, for example, be any communicated message between coworkers or a written document. While explicit knowledge, after Nonaka's definition, describes the more tangible forms of knowledge, tacit knowledge describes the rather intangible forms of knowledge. Tacit knowledge defines the knowledge that is stored in the mind of individuals. It describes the knowledge that is neither articulated, nor codified or communicated, being the knowledge of an individual in its native form. It has a cognitive and technical aspect to it, further defining the knowledge of individuals. The cognitive aspect defines the mental modes of individuals, such as beliefs and view-points, while the technical aspect describes concrete know-how and skills of the individual (Nonaka, 1994).

In addition to the distinction between explicit and tacit knowledge, one can further break down explicit knowledge into *data* and *information*. Data is defined as raw numbers, while information describes data in its processed form (Alavi & Leidner, 2001). This perspective suggests a somewhat hierarchical order from data to information to then tacit knowledge. This means, if raw numbers are being processed, which requires knowledge to do so, more meaning is added to them, transforming the data into information. To then transform information into tacit knowledge, that information has to be processed in the mind of an individual. This perspective introduces the idea that explicit forms of knowledge can tangibly display only a certain amount of tacit knowledge, via the use of data and information. Further, this perspective points out that the understanding of explicit knowledge in either data or information is dependent on each individual's tacit knowledge (Alavi & Leidner; Nonaka, 1994; Tuomi, 1999).

Knowledge Management & Knowledge Sharing
Building on such definitions the field of knowledge is concerned with understanding how knowledge is integrated to the organisation to enable its effective utilisation and maximising its value. Knowledge Management comprises four main processes: (1) the creation of knowledge, (2) the storage and retrieval of knowledge, (3) the transfer of knowledge and (4) its application (Teece, 1998). This research focuses on the link between the transfer and the application of knowledge in organisations, focusing on an aspect described as knowledge sharing. Knowledge Sharing describes a variety of activities in which knowledge is exchanged or utilised among people and communities (Serban & Luan, 2002).

On a daily basis organisational members engage in knowledge sharing by utilising and applying the knowledge available to them and are thereby contributing to the organisation's success. When engaging in new or difficult tasks, which often are tasks that are closely linked to firm advancement and thus relate to the innovativeness of the firm, organisational members often rely on the knowledge of others around them (Hackbarth, 1998; Davenport & Prusak, 1998). Doing so they mainly enact two concepts of knowledge sharing: direct knowledge transfer (Gupta & Govindarajan, 2000) and collaborative help (Amabile et al., 2014; Fahey & Prusak, 1998). Following these concepts the organisational members access and utilise the knowledge around them in different ways.

Knowledge Sharing is focused on a rather specific form and utilisation of knowledge. It focuses on the knowledge that is inherited within and communicated between individual members of the organisation. In the following part the two concepts of knowledge sharing are explained more thoroughly.

Knowledge Transfer and Collaborative Help
One form of the interaction between organisational members has been described as direct knowledge transfer (Gupta & Govindarajan, 2000). It describes the interaction between individuals when consulting one another. The interaction of direct knowledge transfer stems from one individual in the organisation having a certain need to gain additional insights. This could range from specific questions regarding the task at hand to a general interest and curiosity about a specific topic. Research has shown that consulting other organisational members in one's immediate surrounding is a widely established form of utilising the organisational knowledge. While the consultation in one's immediate surrounding is regularly occurrent in organisations, individuals tend to consult specific individuals beyond their immediate surrounding only if they know of them to be especially knowledgable in a certain field and if their immediate surrounding cannot provide the required knowledge (Davenport & Prusak, 1998).

To specify the process of direct knowledge transfer, Gupta and Govindarajan (2000) make a distinction between the individual desiring more knowledge and the individual providing the desired knowledge. The former is defined as the *receiving unit*, while the latter is the *source*. According to Gupta and Govindarajan (2000) the process itself consists of five elements: First, the receiving unit has to evaluate the value of the source's knowledge. Second, if that value seems to be sufficient for the receiving unit, a crucial aspect is the willingness of the source to share the knowledge with the receiving unit. The third aspect of the transfer process is the availability and opportunity of transmission channels. Transmission channels describe the various forms in which knowledge could be transferred from the source to the receiving unit, and range from digital impersonal contact to direct personal and informal contact. As fourth aspect of the knowledge transfer process Gupta and Govindarajan (2000) have identified the willingness of the receiving unit to acquire the communicated knowledge. While in most cases, the transfer process is triggered by the receiving unit, the willingness to acquire knowledge by the receiving unit is secured. Nevertheless, the transfer process can also be triggered by the source in which case the willingness of the receiving unit to acquire the knowledge is a crucial aspect for the effectiveness of the process. As fifth and last aspect, the absorptive capacity of the receiving unit has been identified, touching upon a critical aspect of knowledge sharing. The absorptive capacity of individuals describes the ability of the receiving unit to fully absorb, understand and apply the communicated knowledge. This aspect focuses on the discussion introduced by Tuomi (1999), that explicit knowledge can only display specific aspects of certain tacit knowledge and in turn requires tacit knowledge to be understood and eventually applied.

Tuomi (1999) argues that explicit knowledge cannot exist without tacit knowledge. While explicit knowledge stems from tacit knowledge, tacit knowledge is also required to process, understand and apply any form of explicit knowledge, such as the communicated knowledge

in the knowledge transfer process. This relation has a significant influence on the effectiveness of any knowledge transfer process, as the tacit knowledge of the receiving unit has to be sufficient to understand the communicated explicit knowledge of the source (Cohen & Levinthal, 1990).

While the knowledge sharing process as defined by Gupta and Govindarajan (2000) describes the transfer of communicated knowledge, thus being dependent on the receiving unit's tacit knowledge, another form of knowledge transfer, defined as personnel transfer or collaborative help, is more focused on the direct application of tacit knowledge without the need to communicate it between individuals (Amabile et al., 2014; Fahey & Prusak, 1998).

Fahey and Prusak (1998) describe the concept of personnel transfer that allows organisational members to utilise each other's tacit knowledge stock without the need to convert that tacit knowledge into explicit knowledge and hence eliminates the dependency on the receiving unit's tacit knowledge. Instead, the concept of personnel transfer is focused on integrating other individuals in one's workflow with the aim to indirectly utilise their tacit knowledge by letting them apply it themselves to the task at hand. In this case, the receiving unit could also be referred to as the task owner, while the source remains another individual of the organisation with valuable tacit knowledge for the task of the task owner.

This form of knowledge sharing is also defined by Amabile et al. (2014) as collaborative help. With that term the focus lies on the direct application of the source's tacit knowledge, whereby it is helping the receiving unit, instead of transferring any knowledge to the receiving unit. Nevertheless, the receiving unit can be described as such as it receives help from the source. For this paper we shall use the term collaborative help to refer to the behaviour that has been identified by both Amabile et al. (2014) and Fahey and Prusak (1998). While knowledge transfer presents a direct utilisation of knowledge, being formalised and communicated directly, individuals who engage in collaborative help utilise each others knowledge indirectly. Doing so, a certain spillover effect can occur. As the receiving unit observes the source applying its tacit knowledge, it can learn by observation (Howells, 2002). Such unconscious learning has been defined by Polyani (1996) as subception.

Overall, the reliance on other individuals is provenly a common and acknowledged form of utilising the knowledge in organisations. Both the concepts of direct knowledge transfer and collaborative help describe effective and common ways of doing so. Its positive effect on the organisation is undoubted, as both ways maximise the value of the overall knowledge of the organisation by increasing its utilisation and thus contributing positively to the advancement of the firm (Alavi & Leidner, 2001; Davenport & Prusak, 1998; Grant, 1996a).

Identification of knowledge sources
As we have introduced earlier, organisations are pressured by start ups to innovate at a rapidly increasing pace to deliver value in order to stay competitive, giving them a greater need to effectively utilise the knowledge available to them. As large organisations inherit a vast amount of knowledge it represents a lot of potential for innovation. The engagement of individuals in the previously introduced knowledge sharing concepts is a great contribution to the effective utilisation of the organisational knowledge but presents certain limitations (Kogut & Zander, 1996; Robertson, Swan, & Newell, 1996). In both cases the behaviour described by these concepts is limited to the immediate surrounding of individuals, thus failing to utilise the complete body of knowledge of the organisation (Robertson et al., 1996). While organisations have the problem to fully understand what they know, so face

individuals similar problems (Huber, 1991). Both of the introduced concepts of knowledge sharing describe the interaction between two individuals, in which the receiving unit makes use of the knowledge of the source. For both cases a crucial requirement to engage in this behaviour is that the receiving unit is able to identify a source with valuable knowledge (Amabile et al., 2014; Kogut & Zander, 1996).

An acknowledged problem with that requirement is the fact that organisational members don't know about their peers' qualifications outside their immediate surrounding. Based on their experience in the organisation they know about the qualifications of individuals in their immediate surrounding, but not beyond. Due to that they can only utilise the knowledge available immediately around them, missing out on other knowledge inherited in the organisation (Kogut & Zander, 1996). This, in turn, limits the utilisation of the overall knowledge within the organisation and thus considerably hinders the possibility to increase firm advancement and innovation. Improvement in knowledge source identification, on the other hand, is expected to increase the engagement in knowledge sharing, leading to better utilisation of the overall organisational knowledge. This would increase chances for enhanced firm advancement and innovation. Hence, it is of high importance to investigate the organisational approach to the identification of individuals as knowledge sources.

Research Goal
Existing literature has not only acknowledged this crucial aspect but also provides solution opportunities, such as knowledge mapping and organisational directories (Balaid, Rozan, Hikmi, & Memon, 2016). Problems with such provided solutions, however, are that the scientific body of knowledge has too little insights on how organisations approach this problem in practice. Questions arise if and how organisations are approaching the identification of knowledge sources, whether they are paying attention to this issue and if so, whether they are utilising suggested solutions by theory or making use of the plenty information technology solutions available, such as open platforms like LinkedIn (Balaid et al., 2016; Powell, 1998).

This research aims to contribute to the investigation of that identified problem, better understanding the organisational approach to identifying knowledge sources. It aims to answer the following question: *Are large organisations addressing the problem of knowledge source identification within the whole organisation and if so, how?*. To shed additional light on the organisational perspective on knowledge sharing it shall furthermore be explored *what impact the opportunities for knowledge source identification have on the engagement in knowledge sharing*. Answering this second question the research will focus on the two by literature presented forms of knowledge sharing describing natural employee behaviour. As these describe such natural behaviour of organisational members, it is interesting to see how they relate to opportunities of knowledge source identification.

The paper aims to arrive at such understanding through the investigation of several organisations with interviews of their organisational members. The interviews will explore the current situation at the given organisation, taking the perspective of the interviewed organisational member. The interviews shall not only answer the question if companies are addressing the knowledge source identification problem, but also aim to understand how their approach to it effects the engagement in knowledge sharing. As Powell (1998) and Balaid et al. (2016) have identified, the identification of knowledge sources is crucial to the engagement in knowledge sharing. This research aims to provide additional understanding by providing descriptive

analysis of the organisational perspective of those identified problems.

METHODS

Sample

As acknowledged by Hong Kong Paper (Yeung, 1995) organisational research is often presented with the challenge to find not only suitable subjects but to find subjects willing to support the investigation. Hence, opportunism is also for this research an underlying factor determining the sample size. Due to time and resource limitations, the research utilises a mix of purposeful and convenience sampling. In acknowledgement of this sampling procedure and the sample size, the research aims to descriptively provide insights into the stated research question for the given sample without providing generally applicable outcomes (Etikan, Musa, & Alkassim, 2016). For the question at hand, knowledge sharing is investigated at medium sized and large organisations, as a great body of knowledge comes with a greater number of employees, hence increasing the potential of and need for knowledge sharing (company size source; van Krogh; Kogut & Zander, 1996). Medium sized companies commonly employ between 50 and 250 employees, while large companies exceed the employee count of 250 (company size source).

The sample consists of 12 organisational members from firms with at least 100 employees (Appendix A). The employee size of these companies ranges from 130 to more than 100.000 employees. The companies are located in Europe (5) and the United States (7). The industries represented among the 12 companies are: Management Consulting, Information Technology, Computer Software, Research & Education, Design, Automotive Industry & Innovation Management. Of those 12 companies, organisational members were contacted directly by the researcher. One organisational member per organisation, who agreed to participate in the research, was scheduled for an interview. For this research the interview subjects where sampled by convenience with the only eligibility criteria of executing an operational role to the company. The 12 subjects perform different roles ranging from Data Scientist, over Innovation Evangelist to Purchasing Director. Similarly, their age group differs, being however not administered.

Research Design & Materials

For this research a qualitative research design is used. Not only is qualitative research well established in the field of organisational research, but it is especially suitable for this research to investigate the perspective of the organisation and its members. As there are no hypotheses to be tested, the qualitative investigation is suitable as it allows to gain additional understanding of the knowledge source identification in organisations, descriptively presenting the findings (Atteslander, 2010; Yeung, 1995). To execute that qualitative analysis, interviews are conduced with all 12 organisational members. As suggested by Mathers, Fox, and Hunn (1998), telephone interviews are conducted, increasing the chances of participation. Doing so, it is crucial to adopt an insider's role as researcher. To accomplish that as far as possible, the interview questions are focused on usual daily operations and behaviour of the interviewee, being questions that could be asked by new colleagues, for example. To make the interviewee feel comfortable during the interview and thus get valuable responses, describing the actual situation at the organisation, the researcher focused on several aspects: Before the interview the interviewee was informed about the context and goal of the research, giving him the opportunity to ask any questions. Furthermore, the interviewee was ensured that there are no right or wrong answers and the researcher aimed to make the interviewee feel to be in control. (Yeung, 1995)

For the interviews, a rather semi-structured approach has been used. Not only does the semi-structured approach allow flexibility to get the most out of the interviewee's responses, but by allowing the researcher to rather flexibly follow the dialogue, the interviewee feels to be in control (Yeung, 1995 & Mathers et al., 1998). The researcher prepared an interview scheme consisting of 12 questions that guided the interviews (Appendix A). The researcher asked all 12 questions during the interview, but gave the interviewee room to steer the dialogue which could lead to different orders of the questions. To cover the elements crucial for this research, the questions can be divided in two topic groups. One part of the questions was more focused on the ways of knowledge source identification, while the other part was focused on the current way of knowledge utilisation and knowledge sharing in the organisation. The interviews started with the latter part focusing on the current situation describing the general utilisation of knowledge in the interviewee's routine. With this first group of questions, the interviewee collected information on how individuals perform their roles, relying on their own knowledge or the ones of their peers. Furthermore, it was investigated how much knowledge is shared throughout the organisation, in what ways and on what occasions (e.g. Q2, Appendix B). After this first part gave a good understanding of the usage of knowledge by individuals in the organisation and how they utilise each others' knowledge, the interview narrowed down towards the opportunities one has in the organisation to identify others as knowledge source. Questions for this part where build upon the information collected in the first part, and further investigated how individuals identify other organisational members as knowledge sources. The questions focused on how individuals know about each others' qualifications, how they look for specific expertises among their peers and how such information is communicated throughout the organisation (e.g. Q12, Appendix B).

With this structure the first part collected information on the general situation of how knowledge is used forming a good basis to further investigate the opportunities to identify other organisational members as knowledge source. Such questions, of the second part, could then build upon the information collected in the first part. Throughout the interview several questions were overlapping in the content they investigated while being differently phrased. By that the research aims to ensure a good understanding, as it is known that interviewees tend to give different answers to questions phrased differently although focusing on the same aspect (Mathers et al., 1998).

Data Analysis

For the analysis of the data the qualitative content analysis method will be used. As the research aims to describe the current situation at organisations, the qualitative content analysis is appropriate aiming at describing phenomena in both broad and condensed manners (Elo & Kyngäs, 2008; Kohlbacher, 2006). It is used to describe the current situation in organisations in a categorical or conceptual manner. To do so the collected data will be sorted and structured based on similarities and differences among the sample and insights from existing literature. Certain categories or conceptual aspects are used to describe aspects of the phenomenon based on the findings and the context of the phenomenon. If possible, those categories will be related to each other delivering a conceptual representation of the phenomena (Elo & Kyngäs, 2008; Flick, von Kardoff, & Steinke, 2004; Kohlbacher, 2006). This research applies such approach to gain additional descriptive insights in the

identification of knowledge sources in organisations and how such affect the engagement in knowledge sharing of organisational members. To effectively utilise the content analysis method, the categories and conceptual aspects used to analyse and describe the findings derive from the two main parts of the research question. They describe the current situation of how knowledge is utilised in the organisation as well as the opportunities for knowledge source identification within the organisation, acknowledging the close link between knowledge source identification and engagement in knowledge sharing. The basic foundation of these conceptual aspects for these two main fields of the research are based on the existing literature on knowledge sharing.

For the current situation, existing literature on knowledge utilisation and sharing highlighted the importance of (1) How is knowledge currently utilised in the organisation: Balanced reliance on personal knowledge or utilising knowledge of others too; And (2) The engagement in KS: do employees rather engage in Knowledge Transfer or Collaborative Help and in which cases do they do so and what form of knowledge do they utilise doing so. For each of these conceptual aspects categories will be applied to describe the findings in more detail. The categorisation of these aspects derives from the definitions and insights provided from literature. The current utilisation of knowledge will be categorised based on individual or communal utilisation of knowledge focusing on the source of knowledge utilised, stemming from the personal network or complete organisation (Hackbarth, 1998; Davenport & Prusak, 1998); Furthermore it will describe the form of knowledge sharing engagement, focused on either knowledge transfer or collaborative help, to utilise the knowledge of others (Gupta & Govindarajan, 2000; Amabile et al., 2014; Fahey & Prusak, 1998) and the form of knowledge that is utilised by the engagement, being either tacit knowledge, information or data (Alavi & Leidner, 2001; Nonaka, 1994) and for what purpose that form of knowledge is utilised.

For the analysis of the opportunities for knowledge source identification in the organisations the following aspects have been identified based on existing research: (1) Does the organisation provide opportunities that support the identification of other individuals as knowledge source; (2) How do these opportunities look like and (3) how are they utilised by the organisational members. These three elements derive from the questions existing literature poses. Among the findings, characteristics and similarities will be identified aiming to provide a better descriptive understanding of opportunities for knowledge source identification.

The goal of the research is to provide descriptive insights on how organisations address the identification of knowledge sources and how that affects the engagement in knowledge sharing. To do so, the findings will be presented in the previously introduced conceptual manner, focusing on several conceptual aspects and describing them in more detail with categories describing the findings.

RESULTS

Description of Opportunities for Knowledge Source Identification with Organisations

Among the investigated organisations, a variety of opportunities for knowledge source identification could be observed. Several are utilised more commonly while others are exclusively used by specific organisations. Table 1 presents the identified opportunities for knowledge source identification and their presence among the sample. It is important to note that such opportunities are not exclusive to each other. There is no limitation, other than obsolete effort, for organisations to the variety of opportunities they can use simultaneously. While in general some might at some point lead to similar results, the identified opportunities can all be used simultaneously by organisations adding additional value. Interestingly, the opportunities can play very different roles in the organisation. While one opportunity might present the sole and main resource for employees to identify knowledge sources, it can be a mere supportive resource for another organisation. In the sample, this applies mainly to the opportunities *Encouragement / Habit to meet other people* and *Team lead / Management referral*. For some organisations, those seem to be the main opportunities to identify individuals as knowledge source, while they are for others a supportive element in doing so.

Besides all the presented opportunities in Table 1, the most claimed source for individuals as knowledge source, across the whole sample, is the personal network of an employee. In all investigated organisations employees utilise their personal network to its full extent. To get best results and to make use of the best expertise employees utilise the identified opportunities to find additional knowledge sources in the form of individuals beyond their personal network. After presenting the findings, the paper will address this aspect again, discussing to what extent the opportunities are utilised to venture beyond the personal network. Before that, the found opportunities will be explored in more detail.

Organisational Directory
One of the most commonly identified opportunities for knowledge source identification is the personal directory. Nearly the whole sample (75%) utilises a personal directory to communicate and present employee information. Directories present information for every organisational member in an accessible form. The directory was found to be present in two variations: one being a minimal version and the other being extensive. While the minimal version only listed the employee contact information and the job title, the extensive directory furthermore included more in depth information both on the person, listing expertises and qualifications, and on the role of that person in the organisation, describing the position more thoroughly. Furthermore, the extensive directory also presented team structures.

In the sample the directory is found to be used by organisations rather often but is understood as rather limiting in its value, since the information in the directory displays only selected and rather superficial information, as mentioned by several interviewees. Hence, employees understand it as less valuable to get to know more about other persons. Although not all companies utilise directories, they can be described as the basic form of knowledge source identification opportunities. Organisations who do not use directories for knowledge source identification do not miss the information of the directory, as they use different opportunities including the directories' information and more.

People Portal
Being in essence very similar to the purpose of directories, the second most present opportunity for knowledge source identification can be described as People Portal. People Portals are platforms either custom build for the organisation or public platforms used and integrated in the organisational context. In general they serve the same need of presenting the organisational members and presenting information about them. The big difference to the directories lies in the information available and with that in the value and utilisation of the People Portals. The term People Portal was used several times by interviewees and is hence used to define this opportunity for this research.

Table 1

Identified opportunities for knowledge source identification and their presence in the sample.

Opportunity for knowledge source identification	Occurrence in the sample
Organisational Directory	75 %
People Portal	42%
Custom systems	25%
General Approach	17%
Organisational Wiki	42 %
Central Communication Channels	33 %
Team lead / Management referral	33 %
Encouragement / Habit to meet other people	33 %
Public Platforms (not company specific)	8 %

While the interviewees who's organisations used directories seemed not impressed by the directories, the interviewees who described their organisations People Portal seemed to not only value them but seemed proud of them. A significant factor in this might be, that organisational members draw a close relation to the People Portal, as they maintain the information themselves. Not only are People Portals meant to entail a lot of information about individuals, but they are also maintained by the individuals themselves, in contrary to the directory. Hence, a People Portal can also be described as profile collection of all organisational members. They present elaborate information about all employees on their qualifications, expertise, interests & skills. With different variations of the portals come slightly different information. In the sample, cases have been found where employees continuously keep their profile updated extensively, also in regard to their projects and tasks, as it is used as internal CV and is required every time an employee wishes to join another project. As a result the profiles, and with that the People Portals, are rich of information and often utilised by organisational members giving a great amount of information on their peers. In this given case, the interviewee described the People Portal not only as valuable to find people who can help but described it as generally used resource to learn more about peers. Other cases show that certain information on the people profiles can be based on standardised measures. In one case, all employees conducted a skills tests, which's results where presented in their profile. Beyond that all profiles where organised in a matrix structure based on the skill. While these two cases present custom build People Portals, public tools, such as *Confluence*, are used as well, presenting a great deal of information not only about the people but also about their ongoing projects.

Organisational Wiki
Different from the directory and the People Portal is the third opportunity that has been identified as commonly used among the sample. Organisational Wikis are focused on accumulating and presenting all sorts of organisational knowledge in one place. They are an extensive catalogue of all kind of information ranging from organisational best practices to topics of employee's interests. Not only are they accessible to everyone, but all organisational members build

and maintain the wiki themselves, being free to contribute. In this aspect it is similar to the People Portal that is maintained by organisational members too. Interestingly, several interviewees showed that, here too, organisational members seem to value the information provided and maintained by themselves and their peers. Several interviewees expressed this by highlighting the importance of maintaining the information and contributing to it. The wikis present thus all kind of information of the overall body of knowledge of the organisation always acknowledging the owner and thus linking to the source of the information. They are found to be utilised often when employees look for a specific answer: Employees search the wiki pages and if they cannot find any concrete answer, they are able to reach out to a person who seems to be experienced in the field or a connected field. Furthermore, the wikis are also used for general curiosity among the organisational members to learn more about certain topics. Both cases are supported by several interviewees describing this utilisation. In organisations in which the utilisation of knowledge and the engagement in knowledge sharing was found to be high, organisational wikis were utilised alongside a People Portal presenting extensive information not only on the organisational members but also on selected parts of the overall organisational wisdom.

Central Communication Channels
A further interesting opportunity that was found among the sample is the use of central communication channels. In contrary to the previously identified opportunities that present the information at all time, communication channels describe a rather different approach. Across the whole organisation several communication channels, open to everyone, exist based on specific topics. Members who are interested in those topics join channels thus forming groups of interest and expertise around topics. To utilise the knowledge of a group, the communication channel is used to pose questions or discussions. If in need of information, organisational members identify the channel closest to their questions and pose that question to all people who are somehow related to the specific topic, connected by that communication channel. The interviewees showed that this opportunity of knowledge source identification is a very effective mean to reach relevant individuals throughout the whole organisation, as multiple interviewees highlighted this as valuable characteristic of the communication channels. Different to the previously identified opportunities, where information exists in written forms at all times, in this case explicit knowledge is only communicated upon request. The communication channel as tool supports organisational members in always reaching all knowledge sources who might be able to help, presenting an interesting, rather different, approach. Again, this approach was found to be used alongside both the People Portal and the organisational wiki's.

Further opportunities
While the above mentioned opportunities presented the most tangible forms of knowledge source identification opportunities presented by organisations, further opportunities can be described. The following, however, are different in that they are less tangible and present significant differences in role and impact among the organisation. These opportunities are used by some organisations as sole and crucial opportunity for knowledge source identification, while they serve other organisations as supportive factor.

     With similar frequency to the use of the central communication channels, the *Team lead / Management referral* has been found as common opportunity for knowledge source identification among the sample. Team leads and managers keep each other updated continuously about their teams efforts and expertises. In cases where

additional knowledge is required or could be helpful, the team leads or managers refer their reports to a knowledge source, if possible. Similarly to an employee's personal network it builds on the concept of referral between organisational members, but specifically acknowledges the role of team leads and managers in this process. The interviewees further described the opportunity of turning to a manager/team lead when additional expertise as needed, having the manager/team lead mostly refer them to a person who can help further. Explaining this, the interviewees highlighted the importance of the personal network of the manager or team lead.

A further often used opportunity for knowledge source identification has been described as the *Encouragement to meet other people*. In several cases interviewees described the encouragement and urge to meet other people as source for identifying other knowledge sources. It describes mainly a habit of interacting with unknown people on a daily basis, continuously building one's network within the organisation thereby learning more about other organisational members. While, as previously acknowledged, some of these opportunities play supportive roles in other organisations, this one has been described in several cases as necessity to utilise other present opportunities for knowledge source identification.

At last, a case within the sample presented the usage of public resources, namely the platform *LinkedIn,* for internal knowledge source identification. In such case, the organisational members mostly utilised the publicly available platform to identify knowledge sources within their organisation. While LinkedIn presents information on a person, similarly to the People Portals, its use for internal reasons is rather limited as employees engagement of that resource cannot be as ensured as with internal solutions, which has been acknowledged by the research subject.

Description of the Engagement in Knowledge Sharing
To better understand the organisational perspective on knowledge sharing and knowledge source identification, the goal of this research was not only to investigate opportunities to identify knowledge sources, but also to understand them in relation to the organisational engagement in knowledge sharing. Based on the by theory suggested forms of knowledge sharing: Knowledge Transfer (Gupta & Govindarajan, 2000) and Collaborative Help (Amabile et al., 2014; Fahey & Prusak, 1998), those forms of knowledge sharing were investigated among the sample. Table 2 to presents the engagement in knowledge sharing, its proportion of occurrence among the sample as well as its purpose and which form of knowledge was utilised.

The findings show that throughout the whole sample all organisations engaged in knowledge transfer. As knowledge transfer describes the exchange of communicated knowledge between individuals, it thus utilises the explicit form of knowledge (Gupta & Govindarajan, 2000; Nonaka, 1994). While all of the organisations engage in knowledge transfer to exchange information, not all of them engage in knowledge transfer of data. With a slight decrease to 92%, compared to the 100% for information knowledge transfer, the transfer of data is the less popular form of knowledge transfer. Compared to the engagement in collaborative help this number is nevertheless still significantly higher. In only 67% of the sample could the behaviour, described as collaborative help, be found. Compared to the 100% engagement in knowledge transfer, "outsourcing" a specific task to a fellow organisational member to utilise his or her tacit knowledge and thus engaging in collaborative help, seems rather low. Overall this concludes that organisational members mostly utilise explicit knowledge of the organisation.

Furthermore, it could be identified for what general purpose the organisational members engage in knowledge sharing. While the 67% percent engagement in collaborative help are solely utilised for a given task at hand, the engagement in knowledge transfer is not only utilised for a task at hand, although this remains its most common utilisation. Throughout the sample, similarities were found that organisational members engage in knowledge transfer for two main reasons other than for the task at hand: (1) For the purpose of learning something new and to still their personal interest and (2) for a general awareness (applies only for the exchange of information). Engaging in knowledge transfer to learn something is the more popular one of the two, being present in 83% of the sample. Mostly, such engagement roots in the exchange of information (75%) and only very rarely in the exchange of data (8%).

Connection between knowledge source identification and knowledge sharing
As pointed out by Robertson et al. (1996), Powell (1998) and Kogut and Zander (1996) to utilise the overall knowledge of the organisation, with respect to knowledge sharing, individuals have to be able to identify other individuals as knowledge sources across the whole organisation and not just within their immediate surrounding. When investigating this problem and researching what opportunities organisations provide for knowledge source identification it is also particularly interesting to take a first look at the opportunities' impact on the actual engagement in knowledge sharing. While the findings on the types of knowledge sharing have been discussed previously it is interesting to investigate not only what engagement roots in what form of knowledge source identifcation, but to what extent the knowledge sharing engagement roots in the personal network or in the whole organisation. The findings in Table 3 suggest that the importance of the personal network should not be underestimated, as all forms of knowledge sharing root to some extent in the personal network. Beyond that, only 58% of knowledge sharing engagement roots beyond the personal network within the whole organisation, across all identified opportunities of knowledge source identificaiton.

The opportunities *People Portal* and *Organisational Wiki* seem to be the most promising in stimulating knowledge sharing across the whole organisation: Interviewees in who's organisations these opportunities exist have shown that the knowledge they utilise lies not only within but beyond the personal network throughout the whole organisation (Table 3). Comparing the insights collected from the interviews, the utilisation of these opportunities is linked to organisational members regularly utilising knowledge throughout the whole organisation in various forms for multiple purposes, thus being identified by this research as most advisable opportunities for knowledge source identification. Although the *Encouragement / Habit to meet other people* has previously been described as rather intangible and often supportive opportunity for knowledge source identification, it too suggests promising stimulation for knowledge sharing across the whole organisation: In 75% of the cases this opportunity has been utilised by organisations in the sample, the sources of knowledge lie within and beyond the personal network. Equal observations could be made for the use of *communication channels*.

In contrast, the least stimulating opportunity appears to be the utilisation of public platforms, for which the sources of knowledge lie only within the personal network of individuals, when utilised among the sample. Interestingly, regardless of its widespread application, the use of *organisational directories* seem to be not much stimulative for knowledge sharing across the whole organisation either: In only 44% of its utilisation within the organisations using directories, the sources of knowledge lie

Table 2

Engagement in knowledge sharing

Knowledge sharing (KS) engagement	Form of knowledge subject to KS	Purpose of KS	Occurrence in the sample
Knowledge transfer (KT)	explicit		100 %
KT of information	explicit	for task at hand	100%
		learning/interest	75%
		general awareness	25%
KT of data	explicit	for task at hand	92%
		learning/interest	8%
Collaborative help	tacit	for task at hand	67 %

Table 3

Relations between knowledge source identification opportunity and engagement in knowledge sharing

Knowledge sharing (KS) engagement	Opportunity for knowledge source identification						
	Direct-ory	People Portal	Wiki	Encourage-ment / Habit	Public Resources	Communi-cation Channels	Team lead / Managem-ent
Knowledge transfer (KT)	100 %	100 %	100 %	100 %	100 %	100 %	100 %
KT of information							
- for task	100 %	100 %	100 %	100 %	100 %	100 %	100 %
- learn/interest	78%	100 %	80%	100 %	100 %	50%	60%
- general awareness	22%	40%	40&	25%	-	25%	-
KT of data							
- for task	88%	100%	80%	100 %	100 %	75%	100 %
- learn/interest	11%	20%	20%	-	-	25%	-
- general awareness	-	-	-	-	-	-	-
Collaborative help	55 %	100 %	80 %	100 %	-	50 %	80 %
Source of knowledge							
personal network	100 %	100 %	100 %	100 %	100 %	100 %	100 %
complete organisation	44 %	100 %	100 %	75 %	-	75 %	60 %

within and beyond the personal network, making the directory the second least favourable opportunity for the utilisation of the overall body of knowledge of the organisation.

DISCUSSION

As Kogut and Zander (1996), Powell (1998) and Amabile et al. (2014) describe, engagement in knowledge sharing between individuals in organisation is common to utilise the organisational knowledge available. However, individuals struggle to identify other individuals as knowledge source beyond their immediate surrounding, thus only utilising the organisational knowledge available in their immediate surrounding (Davenport & Prusak, 1998; Kogut & Zander, 1996; Robertson et al., 1996). When investigating this problem and developing theories that suggest solution possibilities, the research body has acknowledged too little understanding of the organisational perspective on this

issue. This research contributes to such better understanding investigating several opportunities of knowledge source identification. Seven of such opportunities could be described that are utilised among a variety of different organisations ranging from at least 100 to over 10.000 employees in size (Appendix A).

Knowledge Source Identification Opportunities within Organisations
From the identified opportunities, most (86%) focus on communicating the organisational members as knowledge sources across the whole organisation, instead of connecting individuals to knowledge sources only based on request. That majority of organisations utilises resources and behaviour to stimulate the awareness about others as knowledge sources. While some of such approaches focus on the systemised communication of employee skills, qualifications, expertises & interests (e.g. People Portal), others have a rather unsystemised approach focusing on the interaction between individuals aiming at awareness about each others qualifications as side effect (e.g. encouragement to meet other people). Such approaches are not at all exclusive to each other. The organisations in which the most engagement in knowledge sharing was found across the whole organisation tend to utilise a variety of such opportunities utilising both the systemised communication of skills etc. and the unsystemised focus on interaction between individuals. For the effectiveness of these approaches the depth of information seems to be crucial, as the interviewees communicated very different levels of engagement in knowledge sharing and thereby utilisation of knowledge throughout the organisation while utilising the same type of knowledge source identification opportunity. Based on the collected insights form the interviewees the research identified the depth and density of information available as decisive factor in regard to the engagement in knowledge sharing. Interviewees communicated that the information available about individuals and their qualifications as well as information on the overall body of knowledge of the organisation is the more useful the more depth it has and the more extensive it is. The opportunities delivering such kind of information and thereby being found to be the most supportive forms of knowledge source identification opportunities are the *People Portal* and *Organisational Wikis*. Both are platforms that communicate plenty of information about the organisation's knowledge in detail. What seems to apply is the more information is available, the more value do the opportunities hold. This aspect is supported by the comparison of *People Portal* and *Organisational Directory*. Both are focused on the communication of individuals' attributes, while the latter presents much less information and at the same time seems to stimulate much less engagement in knowledge sharing across the whole organisation.

In contrary to the approach focused on the presentation of information at all times stands the identified approach focused to ensure the reachability of a valuable knowledge source. *Central Communication Channels* are grouping organisational members across the whole organisation in communication channels based on topics. If a question or need for additional insight occurs, one poses this in the relevant communication channel reaching all the people somewhat related to this topic. The people who can help will then get in touch with one in need of additional insights. Although this approach might seem quite inefficient it is well utilised by organisational members and leads to a high engagement of knowledge sharing across the whole organisation (75%).

Further important findings are that, while some of the opportunities are used by specific organisations as only opportunity for knowledge source identification, they are understood by other organisations, using multiple opportunities, as essential supportive factor. Such applies for the encouragement to meet other people. While some organisations seem to rely solely on this aspect for knowledge source identification, other organisations utilising for instance an organisational wiki and People Portal, described the encouragement to meet others as necessary supportive element to get the most out of the other resources. Moreover, some specific opportunities, that seem to be linked to a great engagement in knowledge sharing across the whole organisation, are particularly interesting. Such are two specific cases of People Portals. In one of the researched organisations, the interviewee shared that employees are encouraged to continuously update their people page and provide rich information on it, as it is continuously used as internal CV. Every time an employee would like to join a project or is evaluated by his supervisor, the people page will give insights on the accomplishments of the employee. This very case seems to be a great approach to stimulate and support the engagement in knowledge sharing as rich information on peers' qualifications is provided and the information is kept relevant to the employees, as they constantly maintain it themselves. Another specific promising case of People Portals added another layer to the portals information by using standardised skills tests for all employees. Based on the results of such tests, the organisation provides a matrix overview of all employees based on their skills. Both of these cases describe the utilisation of unique opportunities that lead to great engagement in knowledge sharing across the whole organisation. A third case that seems particularly interesting describes similar results of great knowledge sharing engagement to the previous ones without the usage of unique opportunities. Characteristic for the third case is the extensive usage of a variety of opportunities complementary to each other, which seemingly can lead to such great engagement in knowledge sharing too.

Description of the relations between knowledge source identification opportunity and the engagement in knowledge sharing
This research does not only provide descriptive findings on various opportunities of knowledge source identification but also explores their relation to the engagement in knowledge sharing across the whole organisation. Doing so it contributes to a better understanding to the situation of knowledge sharing in organisations (e..g Kogut & Zander, 1996; Powell, 1998). To understand the organisational engagement in knowledge sharing, the research focused on the two common forms of knowledge sharing engagement, collaborative help and knowledge transfer, as described by Amabile et al. (2014), Fahey and Prusak (1998) and Gupta and Govindarajan (2000), respectively. To further understand the engagement in these forms of knowledge sharing the research focused on the utilisation of different forms of knowledge as defined by Nonaka (1994), Tuomi (1999) and Alavi & Leidner (2001). It was found that knowledge transfer of information is the most common form of knowledge sharing engagement, utilised across the complete sample. Equally, knowledge transfer of data was found to be highly present with 92% utilisation across the whole sample. Both forms of knowledge transfer are used to contribute to the task at hand of the employee. Furthermore, knowledge transfer of information is commonly used to learn from each other and to still personal interest (75% of the sample). Collaborative help is merely used in 67% of the sample to contribute to the employees task at hand. In respect to the opportunities for knowledge source identification, both organisational wikis and the People Portal link to the most engagement in knowledge sharing. Utilisation of the People Portal leads to the engagement in knowledge sharing across the whole sample for both learning and personal interest as well as the task at hand,

while at the same time engaging in collaborative help for the task at hand. The organisational wiki does not show equal results as it leads to less engagement in collaborative help and less utilisation of knowledge sharing for learning and personal interest.

Limitations and recommendations
Although this research provides interesting insights into the topic, it bears some limitations. First, the sample size is rather small, thereby limiting the generalisability of the results. Second, sampling was based on convenience, leading to a sample consisting of organisations from different fields. Hence, this study provides only limited insights for a specific form of organisation. Further research should utilise a larger sample, based on purposeful sampling, to focus on a specific industry or organisation type to achieve a good understanding of that specific population. Furthermore, additional research could focus on measuring the effectiveness of innovation at organisations and could relate such back to the used opportunity of knowledge source identification.

Besides such general remarks for further research, the findings and conclusions of this research provide great opportunities as basis for further research. Certain findings can be tested or used to develop deeper understanding. This research suggest the following findings, that provide better understanding of the organisational perspective, for further research to not only test and validate them but to deepen the understanding: (1) This research found that the more information provided about the organisation's body of knowledge and especially the more information provided on individual's qualifications, the more do organisational members engage in knowledge sharing and thereby utilise the overall body of knowledge. All cases across the sample support that more information about peers' qualifications available, the more valuable that knowledge source identification opportunity becomes for knowledge sharing engagement. Furthermore, analysing the complete engagement in knowledge sharing across the whole sample showed that the opportunities providing comparably deep and extensive information lead to higher engagement in knowledge sharing. To test this further research could utilise a greater sample to quantitatively compare opportunities providing deep and superficial information about peers qualifications and their relation to knowledge sharing engagement; Furthermore, (2) this research describes the relations between the opportunities of knowledge source identification and the form of engagement in knowledge sharing. The findings on this matter can be investigated by further research with larger samples; At last, (3) it is to assume that the identified opportunities for knowledge source identification between individuals are not the only existing ones. Further research could aim to extent the understanding of such, identifying further opportunities. It could also build on previously suggested further research that investigates the effectiveness of opportunities to investigate the classification of opportunities and whether they can be sorted by type and effectiveness.

Conclusion
This study has provided a descriptive understanding of organisational opportunities for knowledge source identification and their link to the engagement in knowledge sharing across the whole organisation. Doing so it contributes to a better understanding of this aspect on organisation-level. Such is useful for further research and at the same time provides valuable insights for organisations. Not only can they reflect their approach to the findings of this study, but the findings clearly suggest several implications for management. A wide variety of opportunities for knowledge source identification seems to be closely linked to a great engagement in knowledge sharing across the whole organisation. Equally the depth and extensiveness of the utilised opportunities seem to be influential, as greater depth and extensiveness of the information provided seems to lead to greater knowledge sharing engagement across the whole organisation. A variety of such opportunities was classified providing an understanding of various opportunities for knowledge source identification. Their differences in type and detail is described and seems to lead to different forms of knowledge sharing engagement. Among the identified opportunities two different types, the provision of information at all times and the opportunity to be connected to a knowledge source, where identified classifying the opportunities. While the research focuses on individual opportunities it is important to note that some of the identified opportunities might rely on other, less obvious and less tangible opportunities as supportive factor. Furthermore, the importance of individual's personal network has been acknowledged by this study. Although the goal is to encourage knowledge sharing across the whole organisation, individuals heavily rely on their personal network. It is crucial not to neglect this aspect for successful knowledge sharing in the organisation.

The findings of this study provide a good understanding of the organisational perspective of using knowledge source identification opportunities and how that relates to the engagement in knowledge sharing. First conclusions can be drawn from this research offering a great opportunity for further research to further test and deepen this understanding.

REFERENCES

Atteslander, P. (2010). *Methoden der empirischen Sozialforschung*. Berlin, Deutschland: Erich Schmidt Verlag.

Alavi, M., & Leidner, D. E. (2001). Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS quarterly*, 107-136.

Amabile, T., Fisher, C. M., & Pillemer, J. (2014). IDEO's Culture of Helping. *Harvard business review*, *92*(1), 54-61.

Balaid, A., Rozan, M. Z. A., Hikmi, S. N., & Memon, J. (2016). Knowledge maps: A systematic literature review and directions for future research. *International Journal of Information Management*, *36*(3), 451-475.

Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social psychological factors, and organizational climate. *MIS quarterly*, *29*(1), 87-111.

Clifford, N., Cope, M., Gillespie, T., & French, S. (Eds.). (2016). *Key methods in geography*. Sage.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative science quarterly*, *35*(1), 128-152.

Davenport, T. H., & Prusak, L. (1998). Working knowledge: How organizations manage what they know. Harvard Business Press.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, *62*(1), 107-115.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, *5*(1), 1-4.

Fahey, L., & Prusak, L. (1998). The eleven deadliest sins of knowledge management. *California management review*, *40*(3), 265-276.

Flick, U., von Kardoff, E., & Steinke, I. (Eds.). (2004). *A companion to qualitative research*. Sage.

Grant, R. M. (1996a). Toward a knowledge−based theory of

the firm. *Strategic management journal*, *17*(S2), 109-122.

Grant, R. M. (1996b). Prospering in dynamically-competitive environments: Organizational capability as knowledge integration. *Organization science*, *7*(4), 375-387.

Gupta, A. K., & Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic management journal*, *21*(4), 473-496.

Hackbarth, G. (1998). The impact of organizational memory on IT systems. *AMCIS 1998 Proceedings*, 197.

Howells, J. R. (2002). Tacit knowledge, innovation and economic geography. Urban studies, 39(5-6), 871-884.

Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization science*, *2*(1), 88-115.

Iivari, J., & Linger, H. (1999, January). Knowledge work as collaborative work: A situated activity theory view. In Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers (pp. 10-pp). IEEE.

Klofsten, M. (2000). Training entrepreneurship at universities: a Swedish case. *Journal of European Industrial Training*, *24*(6), 337-344.

Kogut, B., & Zander, U. (1996). What firms do? Coordination, identity, and learning. *Organization science*, *7*(5), 502-518.

Kohlbacher, F. (2006). The use of qualitative content analysis in case study research. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 7, No. 1, pp. 1-30). Institut für Qualitative Forschung.

Kor, Y. Y., Mahoney, J. T., Siemsen, E., & Tan, D. (2016). Penrose's the theory of the growth of the firm: an exemplar of engaged scholarship. *Production and Operations Management*, *25*(10), 1727-1744.

Mathers, N. J., Fox, N. J., & Hunn, A. (1998). *Using interviews in a research project*. NHS Executive, Trent.

McQueen, R. (1998). Four views of knowledge and knowledge management. *AMCIS 1998 Proceedings*, 204.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science*, *5*(1), 14-37.

Polanyi, M. (1966). The logic of tacit inference. Philosophy, 41(155), 1-18.

Powell, W. W. (1998). Learning from collaboration: Knowledge and networks in the biotechnology and pharmaceutical industries. *California management review*, *40*(3), 228-240.

Robertson, M., Swan, J., & Newell, S. (1996). The role of networks in the diffusion of technological innovation. *Journal of Management Studies*, *33*(3), 333-359.

Serban, A. M., & Luan, J. (2002). Overview of knowledge management. *New directions for institutional research*, *2002*(113), 5-16.

Spender, J. C. (1996). Making knowledge the basis of a dynamic theory of the firm. *Strategic management journal*, *17*(S2), 45-62.

Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California management review*, *40*(3), 55-79.

Tuomi, I. (1999, January). Data is more than knowledge: Implications of the reversed knowledge hierarchy for knowledge management and organizational memory. In *Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers* (pp. 12-pp). IEEE.

Von Krogh, G. (1998). Care in knowledge creation. *California management review*, *40*(3), 133-153.

Yeung, H. W. C. (1995). Qualitative personal interviews in international business research: some lessons from a study of Hong Kong transnational corporations. *International Business Review*, *4*(3), 313-339.

APPENDIX A

Table 4
Information on organisations of the sample.

Interview	Industry	Location	Company size
1	Research & Education	US	Large
2	Computer Software	EU	Large
3	Research & Education; Design	EU	Large
4	Management Consulting	US	Large
5	Information Technology; Research & Education	US	Large
6	Design; Management Consulting	US	Medium
7	Automotive Industry	EU	Large
8	Information Technology	EU	Large
9	Information Technology	US	Large
10	Information Technology	US	Large
11	Research & Education; Design	US	Large
12	Management Consulting	EU	Medium

APPENDIX B

Interview

Current Situation

Q1 Are you mostly relying solely on your own knowledge when conducting your job and are you applying it alone?

Interviewee response

Q2 Are you often interacting with other people to conduct your job (regular tasks) and relying on their expertise and inverse?

Interviewee response

Q3 How do you see your personal qualifications within the firm: are they unique to yourself and crucial for the organisation? Not in terms of departmental differences but of your personal contribution to the firm.
* *Same for your colleagues: are their individual contributions & qualifications especially important or does the focus lie on groups & departments?*

Interviewee response

Q4 Do you often engage with people beyond your immediate surroundings (team & department colleagues)?
* *How do you interact with those people? (exchange of knowledge, information, data; personal/impersonal; formal/informal)*

Interviewee response

Q5 Are there certain "highly knowledgeable" people in your organisation? (People known for their special expertise & qualifications)
* *Are these people consulted by others for their expertise?*
* *How did you know of these especially qualified people?*

Interviewee response

Q6 Do you consult other people in any occasions?
* *To get their help on a given case?*
* *To learn from them?*

Interviewee response

Efforts for identifying knowledge sources

Q7 Do you know about other individual's qualifications and expertises?
* *If so, how?*

Interviewee response

Q8 Do teams & colleagues regularly share or give updates about their undertakings or qualifications?
* *Purpose / clear goal or general awareness?*

Interviewee response

Q9 Where and how do you meet other people in your organisation (not your immediate surrounding)?

Interviewee response

Q10 Are you encouraged to meet other people and to interact with them?
* *How are you encouraged and what benefit does/should it bring?*

Interviewee response

Q11 Do you feel empowered to make use of the overall body of knowledge of the organisation?
* *For both your tasks but also beyond*
   (For any need: any job at hand, project idea or other matters)

Interviewee response

Q12 How would you look for colleagues/organisational members with different qualifications?
* *What possibilities do you have to do so?*
* *Different goals different ways? (learning or getting help)*

Interviewee response