UNIVERSITY OF TWENTE.

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Knowledge-Sharing Intention in and outside an Enterprise Social Network: A study of IT-professionals in a health-tech organization

Master's thesis
Educational Science & Technology

Désirée Parren
24th of October 2016

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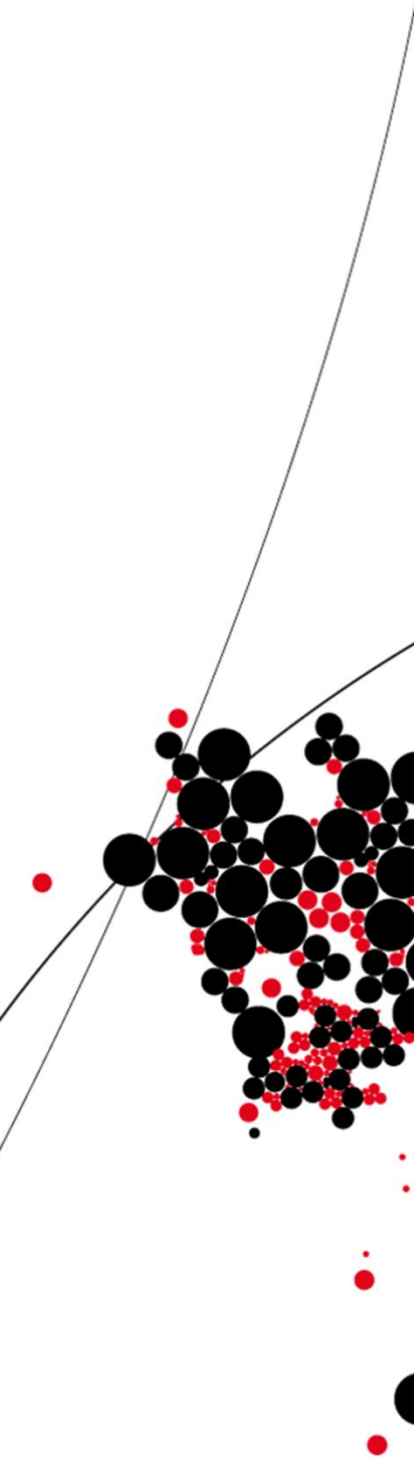

Acknowledgement

Whilst writing these words I think back of my days as an Educational Science & Technology student. I've learned a great deal in the past years, became a more critical thinker, gained lots of valuable experiences, and also new friends. Something I will treasure forever. The entire writing process of this thesis has not only taught me more about academic writing and methodology, but also about what I really want to do as a professional in HRD and educational design. It taught me my strengths and weaknesses, but also my perseverance. The person who played an important part in this learning process is my first supervisor, Dr. Maaike Endedijk. I would like to thank you for guiding and supporting me for as long as you have, and also for your patience, honest feedback and helping me find a solution for every thesis related problem. I admire your great work ethic; especially knowing you are responsible for guiding many Master's projects at once. I would also like to thank my second supervisor, Dr. Mireille Hubers for her excellent feedback and one-on-one guidance with some of the statistical analyses I had to do. I thank you both for your time, effort and dedication. Secondly, I would like to thank my external supervisors Herman and Fred, and colleague Sjoerd, for providing me the opportunity to conduct research within their department, and for helping me test my survey and organize my focus group interview.

On a personal level, I would like to thank my parents and stepfather for their on going support and for providing me with the opportunity to study. Joop, your strength and positive attitude during the most difficult time in your life inspired me to stay positive, grab every opportunity, and to make the most out of every day. I'm also extremely thankful for my partner Richard. Your love and support gave me the strength I needed in order to keep going and stay focused. Like no other, you understood what I was going through and helped me whenever I needed you most. I thank you for your patience and understanding. Last but not least, I would like to thank my study buddies and friends, Alieke, Marrit and Ilona for their support and the fun city trips we went on to clear our minds from work and thesis-related issues. I also would like to thank my friends Esther, Melanie and Jeroen for their words of encouragement and welcome distractions.

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Summary

Knowledge sharing is widely regarded as a vital resource for innovation and economic success. Organisations have increasingly invested in ways to improve and facilitate knowledge sharing in the workplace and in knowledge management systems, such as an enterprise social network (ESN). A significant challenge in facilitating knowledge sharing is knowing what motivates an individual to share in the workplace and in an ESN, and how to create a favourable knowledge-sharing climate for these environments. In other words, not much is known about how knowledge-sharing intention (KSI) is formed across the aforementioned contexts. This study seeks to provide a deeper understanding of the formation of KSI, both inside and outside an ESN, by investigating the factors that likely influence it in both contexts. To do this, Ajzen's (1991) theory of planned behaviour (TPB) is used. The TPB is a social psychological model that aims to investigate the relationship between specific variables and an individual's intention to engage in a behaviour (Ajzen, 1991). The factors used to examine the relationship with KSI are divided into three different domains: attitudinal, normative, and control beliefs. This research consists of a quantitative study, in which 153 information technology (IT) professionals of a health-tech company were surveyed, and a qualitative study (focus group interview), in which five professionals were interviewed. The first study was conducted to obtain insight into the main influencing belief factors that predict KSI. The second study consisted of a focus group interview whose goal was to examine how belief factors influence employee KSI in practice, and how belief factors could be facilitated to enhance knowledge sharing. The results of the quantitative study revealed that perceived usefulness, superior influence, and perceived behavioural control (PBC) predict KSI outside an ESN; and perceived usefulness, perceived compatibility, and PBC predict KSI inside an ESN context. Although more research is needed to confirm these results in other departments, organisations, and cultural contexts, they indicate that to improve knowledge sharing, a clear knowledge-sharing culture must be developed. To achieve this, managerial support is needed to initiate, facilitate, and encourage knowledge-sharing activities. The qualitative study confirms this notion because members expressed a need for additional time resources and managerial support to share knowledge. This study aims to fill a gap in the existing literature by investigating the belief factors that influence KSI both inside and outside an ESN context. The combination of qualitative and quantitative research methods provides an in-depth view on how to support and improve KS processes. Therefore, organisations should adapt their strategies to the belief factors that influence their employees' intention to share knowledge.

Keywords: knowledge sharing, knowledge-sharing intention, theory of planned behaviour, Enterprise Social Network

1 Introduction

The current expansion and innovation of medical technology and high-tech equipment has created immense competition on the health-tech market (Lee & Hong, 2014). The healthcare IT market is expected to reach 228.7 billion in profit by 2020, due to their growing need to comply with regulatory guidelines, government initiatives for eHealth, high returns on investment (ROI), and an increasing need to reduce rising healthcare costs (marketsandmarkets.com). In contrast, health-tech organisations are experiencing a lack of in-house IT-domain knowledge, which is expected to impede overall market growth from 2015 until 2020 (marketsandmarkets.com). It is because of these changes that health-tech organisations are increasingly considering knowledge as their main capital, in this case IT-domain knowledge. The perceived benefits of knowledge sharing are that it allows organisations to build on past experiences and knowledge, respond more efficiently to problems, develop new ideas and prevent the reinvention of the wheel, and effective problem-solving (Perik, 2014). According to Lee & Hong (2014), sustainable knowledge sharing and innovation are considered to be a firm's strategically crucial resources for economic success. It is therefore vital that IT professionals in a health-tech organisation engage in knowledge sharing and are able to retain and reuse valuable knowledge. As a result, many organisations have implemented systems that facilitate, codify, collect, integrate, and disseminate organisational knowledge. This overarching system is referred to as a knowledge management system (KMS) (Alavi & Leidner, 1999). Over the years, various versions of KMS have emerged, such as the enterprise social networks (ESN). Due to the growth of virtual teams and remote work arrangements, ESN became the go-to platform for internal knowledge sharing in said organisations (Leonardi & Treem 2012). According to previous research, collaborative technology, such as an ESN, may enable knowledge sharing within and among (virtual) teams (Ellison, Gibbs & Weber, 2014). There have been various claims that ESN might improve organisational effectiveness and performance. According to previous studies, however, many of the initiatives supported by ESN have failed (Figueroa & Cranefield, 2012). ESNs are seen as having the potential to support KMSs that pursue a knowledge management strategy (Michailova & Gupta, 2005). Nevertheless, significantly different perceptions about ESN might represent major barriers that may lead workers to not use or to stop using the ESN.

Alongside ESN, knowledge is shared through interpersonal contact (i.e. face-to-face) and other technology-aided communications, such as email, telephone, and Skype. In previous studies, researchers investigated how and why individuals share knowledge in diverse, professional, virtual communities, and the factors that shape knowledge-sharing intention (KSI) (Chen & Huang, 2007; Chen & Hung, 2010; Chiu, Hsu & Wang, 2006; Hung, Lai & Chou, 2015; Lin, Hung & Chen, 2009; Tseng & Kuo, 2010; Wasko & Faraj, 2005). Few studies, however, have indicated the different motives for KSI in different contexts, such as in an ESN compared with a non-ESN context (e.g. face-to-face interactions, email, telephone/Skype calls).

Overall, large multinationals, such as the studied healthtech organisation, face difficulties when it comes to knowledge sharing. For example, employees who are reluctant to request or share information with others, employees who fail to recognise the relevant expertise of colleagues, a lack of motivation or incentive to contribute more than task-related information, or uncomfortableness in asking questions publicly may hinder knowledge sharing (Ellison, Gibbs, & Weber, 2014). Therefore, it is important to investigate which belief factors influence KSI per context, in order to provide optimal knowledge-sharing facilitation for each environment.

In this study, the belief factors that influence KSI in the two different contexts, namely inside an ESN (by means of posting, commenting, and sharing documents etc.), and outside the ESN (face-to-face, telephone/Skype, email etc.) are investigated. The outcomes of this study will provide the Learning & Development (L&D) department with the necessary insights on how to facilitate knowledge-sharing activities within both contexts.

2 Theoretical framework

In this chapter, the definition of knowledge and knowledge sharing is clarified. Furthermore, the concept of an ESN, and a non-ESN context is explained. In order to investigate the belief factors that influence KSI, a research model is conceptualised. The research model is based on the technology acceptance model and the theory of planned behaviour (TPB). The factors predicted to have an influence on KSI are explained.

2.1 Knowledge sharing

According to Abdullah, Sahibudin, Alias, & Selamat (2005) knowledge is contextual, relevant, and applicable information. Information that can be considered as data (e.g. letters, images etc.) bears a particular meaning that humans are able to interpret. Furthermore, knowledge can be differentiated as various types, such as explicit and implicit, general and specific, and as individual and organisational knowledge (Alhalhouli, Hassan & Der, 2014). This study categorises knowledge into domain knowledge, in this case IT-domain knowledge. In this study, domain knowledge is defined as knowledge about IT-systems, and includes user workflows, data pipelines, business policies, configurations, and constraints, and is crucial in the development of a software application (Hjørland, & Albrechtsen, 1995). This study adopts the notion of Kim and Lee (2013), which states that knowledge sharing is an act of disseminating knowledge throughout an entire organisation. The process of knowledge sharing consists of mutually exchanging knowledge and collectively creating new knowledge (van den Hooff & de Ridder, 2004). This process involves at least two people, namely: (1) a sender who attempts to share knowledge, and (2) a recipient who intends to acquire it. Furthermore, the process of knowledge sharing involves both ‘bringing’ (i.e. donating) and ‘getting’ (i.e. collecting) knowledge (Kim & Lee, 2013). This study focuses on the sharing act, rather than the act of acquiring knowledge, because the goal of this study is to investigate which factors influence the intention to share inside and outside an ESN. With these insights, the KSI of employees could be stimulated in both contexts.

2.2 Knowledge-Sharing Context

If we look at the ways in which knowledge is shared, we can distinguish two different types, namely: written correspondence and face-to-face interactions (e.g. networking, documenting, organising, and capturing knowledge) (Cummings, 2004; Pulakos et al., 2003); and computer-mediated-communication (i.e. technology-aided communication), such as email, telephone, Skype, and online social networks (van den Hooff & de Ridder, 2004). In this study, two contexts for knowledge sharing are distinguished. The first context consists of interpersonal contact, such as face-to-face conversations and computer-mediated (or technology-aided) contact such as email and telephone/Skype calls. The second context is characterised by the use of an ESN, which is a selection of Web 2.0 technologies that facilitate communication, collaboration, and knowledge sharing among employees within an organisation (Chin, Evans, & Choo, 2015). This study hopes to uncover which belief factors influence KSI, and if there are differences per context in the types of factors that influence KSI.

2.2.1 Knowledge sharing in an ESN

In this study, knowledge sharing in an ESN constitutes the use of an ESN. According to McAfee (2006), an ESN is a compilation of Web 2.0 technologies that enable communication, collaboration, and knowledge sharing among workers within an organisation. The ESN of the healthtech organization is the Community, which consists of the following ESN tools: a social profile, activity streams, micro-blogging, groups and communities, instant messaging, content management system, enterprise search options, and ratings and reviews.

The main difference between knowledge sharing in an ESN, and knowledge sharing in an interpersonal or direct technology-aided manner (e.g. emailing, telephoning, or Skype-ing colleagues) is that knowledge is being shared with so-called weak ties. These weak ties occur because the ESN is used by globally dispersed employees, many of whom have no direct ties (Constant, Sproull & Kiesler, 1996). Also, when an individual decides to share knowledge on an ESN, they typically do not choose the recipients of the shared information, which is always the case during interpersonal or direct technology-aided communication with colleagues (e.g. telephone, email, Skype). Furthermore, the shared knowledge on an ESN is public and stored in a database for an extensive period of time, which makes it more permanent compared with knowledge sharing in a non-ESN context.

2.2.2 Knowledge sharing in a non-ESN context

Alongside the ESN context, knowledge is also shared in an interpersonal and technology-aided manner. Examples of knowledge sharing in a non-ESN context are: face-to-face conversations, and electronic conversations such as email, telephone, and Skype calls. In comparison with the ESN context, interpersonal contact and the aforementioned types of technology-aided contact offer true "social" communication, rich in social cues (Daft & Lengel, 1984). Furthermore, knowledge sharing in a non-ESN context is characterised by communication with strong collegial ties, which develop with physical proximity, group membership, a history of prior relationships, and demographic similarity (Constant, Sproull & Kiesler, 1996).

Prior research has shown that individuals prefer to share knowledge with direct colleagues, instead of weak ties. This means that employees tend to seek out other colleagues for advice and information instead of looking on an ESN because the interpersonal aspects of the non-ESN context provide opportunities for additional interpretation and clarification (Bordia, Irmer & Abusah, 2006). Moreover, the non-ESN context also facilitates the establishment of a sense of reciprocity and trust, which is crucial for the effective transfer of knowledge (Bordia, Irmer & Abusah, 2006).

2.3 Belief factors influencing knowledge-sharing intention

In order to investigate how knowledge sharing can be stimulated across both contexts, this study uses the TPB. The TPB is a social-psychological model used to study the relationship between certain variables (i.e. belief factors), and an individual's behavioural intention to engage in a targeted behaviour (Ajzen, 1991). The TPB suggests that an individual's intention controls his or her behaviour, and an individual's attitude, subjective norm (SN), and perceived behavioural control (PBC) determine his or her intention (Ajzen, 1991). This study investigates the belief factors that affect the KSI among IT professionals by applying the TPB (see Fig. 1.) (Hung, Lai & Chou, 2015). This theory suggests that belief factors related to attitude, subjective norms (SN), and PBC positively influence the KSI.

2.3.1 Attitudinal beliefs

Attitudinal beliefs refer to an individual's feelings of favourableness or unfavourableness towards performing a behaviour (Hung et al., 2015). In the TPB model, seven constructs are used to indicate attitudinal beliefs, namely: (1) Perceived usefulness – the extent to which a person believes that knowledge sharing or using a ESN for knowledge sharing, can enhance his or her work and/or learning performance; (2) Perceived ease of use – the extent to which a person believes that knowledge sharing or using a ESN for knowledge sharing, will be effortless; (3) Perceived compatibility – the degree to which information technology adheres to a user's needs, existing values, and past experiences; (4) Reputation – the perception that members can improve their reputation and image by contributing knowledge; (5) Reciprocity – a form of conditional gain whereby people have a general expectation of some future return for their efforts; (6) Enjoyment in helping others – the perception of enjoyment from helping others by sharing knowledge (Hung et al., 2015); (7) Attitude – an individual's feelings of favourableness or unfavourableness towards performing a behaviour (Ajzen, 1991). In several previous studies, attitude influenced the participants' behavioural intention to share knowledge (Bock, Zmud & Kim, 2002; Ho, Ting, Bau & Wei (2011); Lin & Lee, 2004; Tohidinia & Mosakhani, 2010).

2.3.2 Normative beliefs

The normative beliefs in the TPB model are the social norms that influence knowledge-sharing intentions. Normative beliefs refer to the perceived social pressure to carry out certain behaviour, wherein behaviour is subject to the influence of significant referents (Hung et al., 2015). The four constructs consist of: (1) Interpersonal trust – the level of trust between individuals; (2) Peer influence – the extent to which a person believes that a peer or colleague expects him or her to participate in knowledge sharing (Hung et al., 2015); (3) Superior influence – the influence of superiors on how they promote or discourage knowledge-sharing behaviour by means of their own behaviour (Taylor & Todd, 1995); (4) Social norms – the perceived social pressure to perform a certain behaviour, wherein behaviour is subject to the influence of significant antecedents (Taylor & Todd, 1995).

2.3.3 Control beliefs

The control beliefs in the TPB model apply to an individual's impression of internal and external restraints on his or her behaviour. The three constructs consist of: (1) Knowledge self-efficacy – belief in oneself to provide knowledge that is beneficial to others; (2) Resource availability – how a member perceives the factors that knowledge sharing requires, such as time resources and opportunity (Hung et al., 2015); (3) Perceived behavioural control – an individual's perception of internal and external constraints on his or her behaviour. If an individual perceives the ease of knowledge sharing, he or she will feel that knowledge sharing is completely under his or her control (Ajzen, 1991).

2.4 Research model

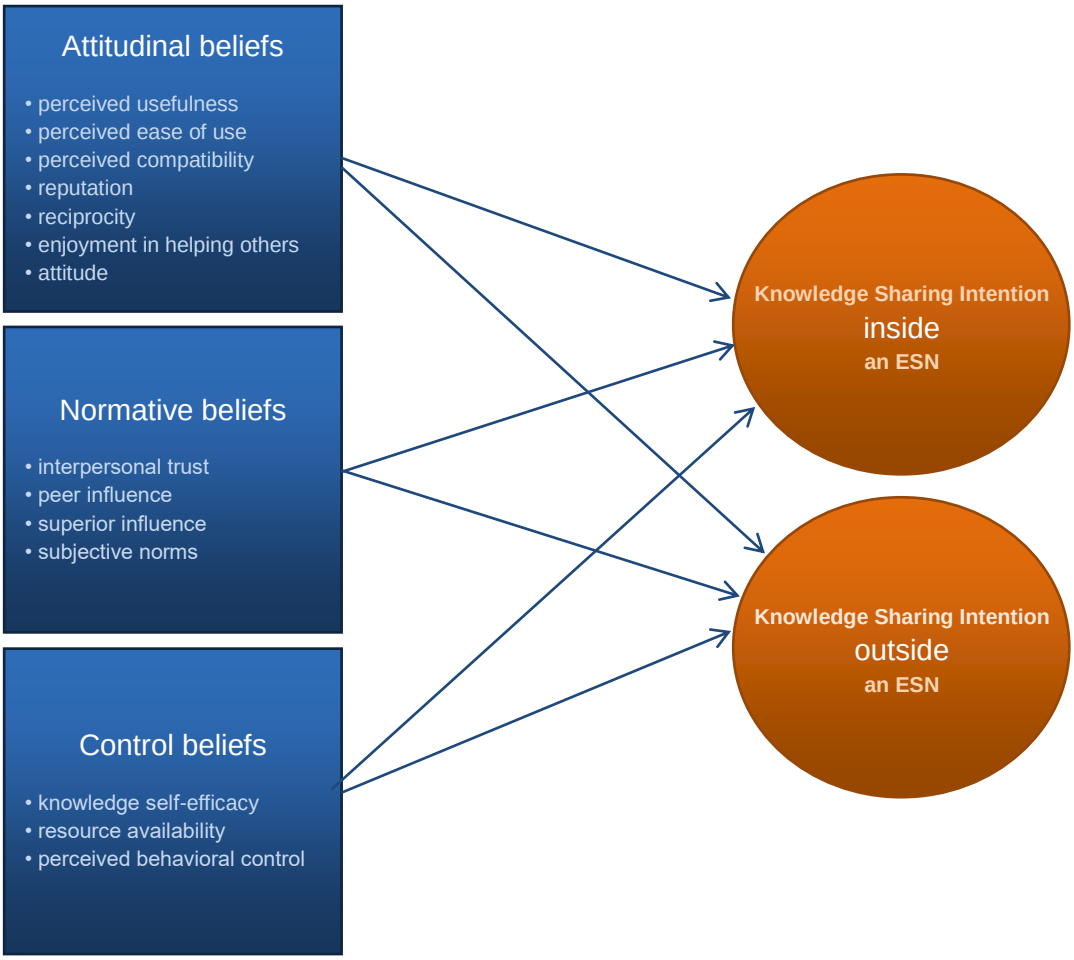

Fig. 1 Research model

2.5 Research question

The purpose of the present study is to investigate the factors that affect KSIs in a non-ESN and ESN context. With this information, we aim to further investigate how to stimulate knowledge-sharing behaviour within both contexts. The main research question of this study is:

"Which factors affect employee behavioural intention to share knowledge both inside and outside an ESN context?"

Furthermore, the sub-questions related to the quantitative study are:

1. *What are the main factors influencing KSIs within these two contexts?*

2. *What are the respective differences between the two contexts regarding the influence of belief factors?*

The qualitative study aims to shed light on possible improvements for knowledge-sharing facilitation in both the non-ESN and ESN context. Therefore, the sub-question related to the qualitative study is:

3. *How can the belief factors be facilitated in practice in order for employees to participate in knowledge sharing?*

3 Research methods

To achieve the research goals, an explanatory study was conducted with a sequential mixed method design. A sequential mixed methods design is characterised by the collection and analysis of quantitative data followed by a collection and analysis of qualitative data (Creswell, Plano Clark, Gutmann & Hanson, 2003). The benefit of this research design is that the use of qualitative results can assist in interpreting the findings of the quantitative study. For example, the outcomes of the quantitative analysis regarding the influencing belief factors on KSI were further interpreted by conducting qualitative research in the form of a focus group interview. Furthermore, the advantage of quantitative versus qualitative data is that the strength of the relationships between the belief factors and KSI could be measured, which was needed to answer the main research question of this study. KSI in an ESN context, and KSI in a non-ESN context were the dependent variables. Furthermore, perceived usefulness, ease of use, compatibility, reputation, reciprocity, enjoyment of helping others, interpersonal trust, peer influence, knowledge self-efficacy, resource availability, attitude, subjective norm (SN), and PBC are the independent variables.

3.1 Participants

3.1.1 Questionnaire

A non-probability sampling method (i.e. purposive sampling) was applied, as this study solemnly focused on IT-professionals inside the healthcare informatics department of a multinational healthtech organisation. This group of employees was selected due to their IT-domain knowledge, which is a valuable asset to the organisation and its competitiveness in the health-tech market. Due to voluntary participation, sample bias (e.g. positivity bias) could occur. To collect the quantitative data, a survey was sent out to 321 employees by email. In total, 153 employees filled in the survey, all of which were complete, yielding a response rate of 47.6%.

The sample consisted of 126 men (83%) and 26 women (17%). 6.6% were between 21 and 30 years old, the majority (45.1%) were between 31 and 40 years old, 23.5% were between 41 and 50 years old, and 22.2% of the respondents over 51 years old. The participant group worked in various IT-related functions, such as integration consultant, implementation consultant, project managers and team managers. The majority of the participants were located in Europe (79.1%), followed by South America (11.8%), the Middle East (5.9%), and Africa (2.9%).

Most respondents had obtained a Bachelor's degree (45.8%), followed by a Master's degree (22.9%), while 13.7% of the participants had received a secondary school degree, 10% a degree in vocational education, 5.2% a certificate (non-degree), and 0.7% of the participants had a Ph.D.. Furthermore, 5.2% of the participants had a degree other than the aforementioned type of degrees. Most participants (42.6%) had worked between 4 and 10 years for the organisation, 21.6% had worked between 1 and 3 years for the organisation, 16.4% for between 11 and 15 years, 13.3% for 20 years or more, and 6% for between 16 and 19 years.

The majority of participants (60.1%) perceived their level of knowledge as senior, 33.3% as intermediate, and 6.5% perceived their level of knowledge as junior. The greater part of the participants (78.4%) held a non-management position.

3.1.2 Focus group

A focus group interview was conducted in order to further investigate the relationship between the belief factors and the KSI, how they are reflected in practice, and how they could be increased and facilitated. Five respondents were selected to participate in the focus group interview based on the following criteria: (1) the participant must have completed the entire survey; (2) heterogeneity (variety in age, educational level, and function), and (3) high and low percentile scores on KSI per context.

3.2 Procedure

The respondents in this study were subjected to an online survey consisting of fifteen general questions, 49 statements regarding knowledge sharing in a ESN context, and 49 statements regarding KSI in a non-ESN context (see Appendix A). The survey was developed with the survey tool Verint EFM (Enterprise Feedback Management). A consent form was filled in at the beginning of the survey. This form indicated that a subject's participation in the study would generate data that would only be used for research purposes. Furthermore, all data was treated confidentially, and the ethical committee of the University of Twente provided the necessary ethical approval. The survey began on the 9th of November 2015, and finished on the 6th of December 2015. To increase participation rates, the organisation raffled 250 e-points among the participants, which could be spent in the company shop. Participants, who had not filled in the survey after a week, were e-mailed and reminded to do so. In total, four reminders were sent to stimulate the participants to complete the online survey. After the survey was finished, the data were gathered for analysis.

After the quantitative data analysis was performed, five respondents were selected to participate in a focus group interview on the basis of their individual scores on KSI. This was done by looking at each participant's percentile scores for KSI per context. For example, three participants were selected who scored in the upper percentile per context, and also three participants who scored in the lower percentile per context. Ultimately, five out of the twelve invited participants attended the focus group interview.

The outcomes of this study were shared with the employees through a summary report made available on the ESN platform of the organisation. Furthermore, a presentation was given to the L&D department with recommendations to improve knowledge sharing based on the outcomes of this study.

3.3 Instrumentation

3.3.1 Questionnaire

The survey used in this study (see Appendix A) was based upon a validated survey by Hung et al. (2015). The questions from the original survey were based on Taylor and Todd's (1995) version of the TPB, which divides the TPB belief structures into attitudinal, normative, and control beliefs (e.g. "I enjoy sharing my knowledge with others in the Community"). The original survey consisted of fifteen constructs (50 items) derived from the research model, as shown in Appendix A. The survey developed for this study contained 49 items about the attitudinal, normative and control beliefs per context. Additional questions were added to the survey to measure the construct 'superior influence', as this construct was not included in the original questionnaire. In Appendix E, a detailed description is given on the reliability of each scale.

Because this study aims to investigate the factors that influence the KSI of IT professionals in both contexts, it was necessary to construct questions that measure the factors that influence KSI in a non-ESN context. Therefore, all statements were asked twice: once about the non-ESN and once about the ESN context. All items were measured by a 7-point Likert scale (ranging from 1 = strongly disagree, to 7 = strongly agree). The survey in this study (see Appendix A) began with demographic questions (e.g. gender, educational degree, etc.). All of the items used in the survey can be found in Appendix A.

Content validity was ensured by using validated items from Hung et al. (2015). The questionnaire used in this study was pre-tested by four employees of the L&D department. Experts were asked to review the questionnaire design and to comment on the duration of the questionnaire, the user-friendliness of the survey, and the clarity of the questions. After the pre-test, the survey was conducted among 321 participants, using the survey tool Verint. The estimated time to complete the survey was 30 minutes.

3.3.2 Focus group

The focus group interview was based upon the outcomes of the quantitative study. The predictors of KSI were discussed with five participants by means of previously established questions (see Appendix C). Three significant factors that influence KSI were discussed in order to indicate the relationship of the factors with KSI. For example, *"How could a manager's influence be increased in order to support knowledge sharing inside the organisation?"* The goal was to determine why there was a relationship between the said factors and KSI. For example, why is superior influence an important predictor for KSI? How can the influence of a manager (i.e. superior) be improved? And, how could this factor be influenced so that employees feel more inclined to share their knowledge? Participants were asked what these results mean for their organisation, how the results are reflected in practice, and what the organisation could do with the results. In Appendix C, an open codebook used for coding and labelling various utterances, can be found. After the qualitative data was gathered, conclusions from the most meaningful comments per belief factors were drawn. These comments provide an important insight into the relationship with KSI, and how they impacted the daily practice of the employees.

A member check was conducted to establish the validity of the interpretations made after the transcript and codebook was developed. The moderator was asked to correct errors and challenge the interpretations and codes under which the utterances were listed. In other words, the moderator assessed the adequacy of the data and results, as well as confirming particular aspects of the data.

3.4 Data analysis

To ensure the reliability of the questionnaire, a reliability analysis was conducted. Cronbach's alpha (α) was used to measure whether the scales used in the questionnaire show internal consistency. Unreliable items and scales were deleted to increase the reliability. To answer the first sub-question, a paired t-test was conducted to investigate the respective differences between the belief factors in the two contexts. To answer the second sub-question, a multiple regression analysis was conducted to analyse the inhibiting factors that affect KSI within the two contexts. The regression coefficients were analysed in order to determine the three main predictors for KSI. The three predicting factors were discussed in the focus group interview to investigate possible solutions to facilitate knowledge-sharing behaviour. The qualitative data gathered from the focus group interview were transcribed and analysed. The answers of the participants were used as input for the advice regarding the facilitation of knowledge-sharing behaviour.

4 Results

4.1 Descriptive statistics & preliminary analysis

This chapter details the results of the data collected for this study. It presents in-depth analyses on the acquired data from the online survey and the qualitative data gathered from the focus group interview. Firstly, descriptive statistics and the paired samples t-test are described. Secondly, the multiple linear regressions to test the expected relationships of the variables in the non-ESN and ESN contexts are presented. For this study, various belief factors, which influence the intention to share knowledge in two different contexts, were studied. Appendix D provides an overview of the demographic profile of the respondents. Table 1 presents the paired samples t-test, in which an overview of the means and standard deviations per relative total score of each variable for both contexts is presented. The paired samples t-test reveals significant differences between the non-ESN and ESN context. Also, the significance of the difference between both contexts is presented by noting the degrees of freedom, t-value, and p-value. A multiple regression analysis (see Table 3 and 4) was conducted to reveal the significant predictors for KSI in the ESN and non-ESN context. The purpose of this study is to provide an understanding of the formation of KSI by analysing the influence of belief factors on the KSI of IT professionals within both a non-ESN and ESN context. With this information, we aim to further investigate how to stimulate knowledge-sharing behaviour within both contexts.

4.2 Respondents

As shown in Appendix D, the sample consisted of 127 men (83%) and 26 women (17%). 0.7% of the respondents were younger than 20 years, 5.9% were between 21 and 30 years old, the majority (45.1%) were between 31 and 40, 23.5% were between 41 and 50, and 22.2% of the respondents were 51 years old or more. 13.7% had received a secondary or high school degree, 10% had received a degree in vocational education, 5.2% a certificate (non-degree), and the majority of the sample (45,8%) had received a Bachelor's degree, 22.9% had received a Master's degree, 0.7% a Ph.D., and 5.2% a degree other than the aforementioned types. 21.6% of the respondents had worked between 1 and 3 years for , the majority of the sample (42.6%) had worked between 4 and 10 years for , 16.4% for between 11 and 15 years, 6% for between 16 and 19 years, and 13.3% for 20 years or longer. 6.5% of the sample perceived their level of knowledge as junior, 33.3% as intermediate, and 60.1% as senior. 21.6% of the sample held a management position and 78.4% held a non-management position.

Table 1

An overview of the means and standard deviations for each variable per context and significant differences between contexts (N = 153)

	Non-ESN context	ESN context			
Variable	M (SD)	M (SD)	df	t	p
Attitudinal beliefs					
1. Perceived usefulness	5.68 (1.00)	4.55 (1.34)	153	9.632	<.001
2. Perceived ease of use	5.23 (1.19)	4.46 (1.27)	153	5.954	<.001
3. Perceived compatibility	5.51 (1.03)	3.85 (1.40)	153	13.950	<.001
4. Reputation	5.44 (1.01)	4.05 (1.35)	153	12.234	<.001
5. Reciprocity	5.05 (1.23)	4.23 (1.34)	153	7.787	<.001
6. Enjoyment in helping others	5.91 (.90)	4.22 (1.36)	153	14.861	<.001
7. Attitude	5.83 (.90)	4.85 (1.06)	153	12.187	<.001
Normative beliefs					
8. Interpersonal trust	5.09 (1.02)	4.43 (1.16)	153	8.052	<.001
9. Peer influence	4.76 (1.18)	3.30 (1.34)	153	12.311	<.001
10. Superior influence	4.65 (1.34)	3.62 (1.38)	153	8.156	<.001
11. Social norms	4.94 (1.15)	3.70 (1.29)	153	10.297	<.001
Control beliefs					
12. Resource availability	4.87 (1.23)	4.59 (1.13)	153	3.692	<.001
13. Perceived behavioural control	5.39 (.98)	4.46 (1.25)	153	9.881	<.001
Dependent variable					
14. Knowledge-sharing intention	5.64 (.99)	4.26 (1.43)	153	11.643	<.001

Note. Variables are measured as relative total score. m= mean; sd= standard deviation; *t test is significant at a 0.05 level

4.3 Contextual differences in the belief factors

A paired sample t-test was conducted to compare the attitudinal, normative, and control beliefs factors in the two contexts. Overall, the differences between the two dependent variables KSI in the ESN and non-ESN context are significant, with (M = 5.64, SD = .99) in the non-ESN context and (M = 4.26, SD = 1.43) ESN context, as seen in Table 1. This indicates that on average, the respondents report a higher KSI in the non-ESN context compared to the ESN context. These results show that participants are more likely to share their knowledge outside an ESN. Furthermore, the analysis indicated that all the constructs in the non-ESN context differ significantly from the factors in the ESN context. Firstly, there was a significant difference in the mean scores for perceived usefulness between the non-ESN context (M = 5.68, SD = 1.00) and for the ESN context (M = 4.55, SD = 1.34); t (153) = 9.63, $p < .001$. This shows a difference of 1.13 between the mean scores for the respective contexts. For perceived compatibility, there was a significant difference in the mean scores between the non-ESN context (M = 5.51, SD = 1.03) and the ESN context (M = 3.85, SD = 1.40); t (153) = 13.95, $p < .001$. This shows a difference of 1.66 between the mean scores for the respective contexts. For reputation, there was a significant difference in the scores for the non-ESN context (M = 5.44, SD = 1.01) and the ESN context (M = 4.05, SD = 1.35); t (153) = 12.23, $p < .001$; showing a difference of 1.39 between the mean scores for the respective contexts. For enjoyment in helping others, there was a significant difference in the scores for the non-ESN context (M = 5.91, SD = 0.90) and the ESN context (M = 4.22, SD = 1.36); t (153) = 14.86, $p < .001$; showing a difference of 1.69 between the mean scores for the respective contexts. For the constructs related to normative beliefs, there was a significant difference in the scores for peer influence in the non-ESN context (M = 4.76, SD = 1.18) and the ESN context (M = 3.30, SD = 1.34); t (153) = 12.31, $p < .001$; showing a difference of 1.46 between the mean scores for the respective contexts. For construct social norms, there was a significant difference in the scores for the non-ESN context (M = 4.94, SD = 1.15) and the ESN context (M = 3.70, SD = 1.29); t (153) = 10.29, $p < .001$; showing a difference of 1.24 between the mean scores for the respective contexts. For the constructs related to the control beliefs, resource availability showed a significant difference in the scores for the non-ESN context (M = 4.87, SD = 1.23), and the ESN context (M = 4.59, SD = 1.13); t (153) = 3.69, $p < .001$; showing the smallest difference between the two mean scores for the two contexts, namely 0.28.

In conclusion, all the constructs in the non-ESN context showed a higher mean, indicating that, on average, participants gave a higher score to items related to attitudinal, normative, and control beliefs in the non-ESN context, compared with the ESN context. Large differences can be seen between the independent variables related to attitudinal beliefs in both the non-ESN and ESN context. This indicates that participants may perceive the act of knowledge sharing in a non-ESN context to be more useful, easy, and compatible with their habits and values compared with an ESN context. Moreover, the score for enjoyment in helping others is significantly higher in the non-ESN context. This indicates that, on average, employees experience more enjoyment in helping others by sharing knowledge in the non-ESN context. Other large differences can be seen between the independent variables related to the normative beliefs, e.g. peer and superior influence. On average, the influence of colleagues and managers in relation to knowledge sharing is higher compared with the ESN context, indicating that peers and superiors have more influence on participants in the non-ESN context. Finally, in relation to the control beliefs, participants appeared to be more positive about their available resources to share knowledge, and sense of ability, time resources, and knowledge in general, compared with the ESN context.

Table 2

Pearson Correlations for all measures. Above the Diagonal the Correlations for the ESN context are Presented, Below the Diagonal Correlations for the Non-ESN context are Presented.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age		-.189*	-.057	.217**	-.166*	-.147	-.261**	-.094	-.058	.195*	-.242**	-.128	-.078	-.127	-.269**	.340**
2. Perceived Usefulness	-.105		.426**	.620**	.665**	.529**	.685**	.693**	.583**	.531**	.565**	.524**	.583**	.573**	.733**	-.105
3. Perceived Ease of Use	.126	.431**		.441**	.371**	.226**	.389**	.429**	.342**	.205*	.270**	.198*	.436**	.534**	.471**	.126
4. Perceived Compatibility	-.043	.678**	.609**		.641**	.425**	.707**	.537**	.433**	.571**	.515**	.471**	.411**	.502**	.705**	-.043
5. Reputation	-.135	.645**	.382**	.631**		.472**	.708**	.592**	.595**	.583**	.562**	.601**	.492**	.537**	.685**	-.135
6. Reciprocity	-.064	.548**	.316**	.462**	.522**		.582**	.454**	.383**	.420**	.416**	.411**	.378**	.396**	.495**	-.064
7. Enjoyment in Helping Others	-.161*	.754**	.447**	.706**	.685**	.520**		.610**	.582**	.600**	.597**	.530**	.548**	.665**	.710**	-.161*
8. Attitude	-.143	.800**	.458**	.765**	.650**	.510**	.831**		.636**	.459**	.530**	.561**	.690**	.658**	.648**	-.143
9. Interpersonal Trust	-.022	.484**	.437**	.586**	.450**	.428**	.468**	.471**		.492**	.474**	.464**	.559**	.560**	.542**	-.022
10. Peer Influence	-.051	.529**	.380**	.585**	.613**	.443**	.526**	.525**	.589**		.784**	.778**	.438**	.501**	.571**	-.051
11. Superior Influence	-.130	.416**	.162*	.381**	.440**	.321**	.431**	.403**	.390**	.605**		.763**	.498**	.561**	.610**	-.130
12. Social Norms	-.155	.610**	.394**	.632**	.673**	.520**	.540**	.602**	.498**	.756**	.529**		.453**	.492**	.591**	-.155
13. Resource Availability	-.111	.558**	.485**	.625**	.511**	.335**	.576**	.582**	.549**	.568**	.481**	.535**		.662**	.522**	-.111
14. PBC	-.097	.657**	.531**	.699**	.559**	.437**	.678**	.698**	.575**	.512**	.433**	.569**	.707**		.653**	-.097
15. KSI in a non-ESN context	-.229**	.762**	.434**	.691**	.602**	.495**	.760**	.763**	.475**	.525**	.539**	.576**	.637**	.750**		-.229**
16. Work experience	.340**	-.105	.126	-.043	-.135	-.064	-.161*	-.143	-.022	-.051	-.130	-.155	-.111	-.097	-.229**	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

4.4 Pearson's correlations in both contexts

According to the Pearson correlation analyses for the ESN and non-ESN context, KSI significantly correlates with all model variables included in this study, see Table 2. The control variables *age* and *work experience* were also included in this analysis. Age was included in the analysis with all model variables related to the ESN context.

Age negatively correlated with the independent variables perceived usefulness $r(153) = -.189$, $p = .019$, perceived compatibility $r(153) = -.217$, $p = .007$, reputation $r(153) = -.166$, $p = .041$, enjoyment in helping others $r(153) = -.261$, $p = .001$, peer influence $r(153) = -.195$, $p = .016$, superior influence $r(153) = -.242$, $p = .003$, and the dependent variable KSI in an ESN context $r(153) = -.269$, $p = .001$. Age and perceived compatibility in the ESN context were significantly negatively correlated $r(153) = -.217$, $p = .007$, revealing that older workers report a lower perceived compatibility with the ESN in relation to their knowledge-sharing habits and values. Other significant negative correlations were also found for enjoyment in helping others $r(153) = -.261$, $p = .001$, superior influence $r(153) = -.242$, $p = .003$, and KSI in the ESN context $r(153) = -.269$, $p = .001$. These results show that, as age increases, enjoyment in helping others by sharing knowledge, the perceived influence of managers on knowledge sharing, and overall KSI, decreases.

Work experience and enjoyment in helping others in the non-ESN context were negatively correlated $r(153) = -.161$, $p = .046$. This reveals that more experienced workers report a lower enjoyment in helping others by sharing knowledge outside an ESN. Furthermore, work experience and KSI in the non-ESN context were negatively correlated $r(153) = -.229$, $p = .004$, implying that more experienced workers report a lower KSI.

Table 3

Multiple linear regression analysis for the predictors on the dependent variable Knowledge-Sharing Intention in a non-ESN context (N = 153)

Model 1	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	b	SE	β	t	p	Lower Bound	Upper Bound
(Constant)	.485	.334		1.450	.149	-.176	1.145
Work experience	-.138	.053	-.114	-2.595	.010*	-.243	-.033
Attitudinal beliefs							
Perceived Usefulness	.260	.075	.261	3.450	.001*	.111	.409
Perceived Ease of Use	.010	.046	.011	.206	.837	-.082	.101
Perceived Compatibility	.101	.076	.105	1.323	.188	-.050	.251
Reputation	-.029	.065	-.029	-.442	.659	-.157	.100
Reciprocity	.036	.043	.045	.849	.397	-.048	.121
Enjoyment in Helping Others	.175	.093	.160	1.893	.060	-.008	.358
Attitude	.102	.101	.093	1.011	.314	-.098	.302
Normative beliefs							
Interpersonal Trust	-.060	.056	-.062	-1.064	.289	-.171	.052
Peer Influence	-.030	.063	-.035	-.472	.638	-.154	.094
Superior Influence	.141	.041	.191	3.478	.001*	.061	.221
Social Norms	-.038	.065	-.044	-.582	.562	-.166	.090
Control beliefs							
Resource Availability	.050	.052	.061	.946	.346	-.054	.153
Perceived Behavioural Control	.265	.073	.263	3.621	.000*	.120	.410

Note. KSI in non-ESN context. R^2 = .766, F = 32.274, p <.001

*. Significant at the 0.05 level

Table 4

Multiple linear regression analysis for the predictors on the dependent variable Knowledge-Sharing Intention in a ESN context (N= 153)

Model 2	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
	b	SE	β	t	p	Lower Bound	Upper Bound
(Constant)	.114	.455		.251	.802	-.786	1.014
Age	-.259	.131	-.094	-1.983	.049*	-.517	-.001
Attitudinal beliefs							
Perceived Usefulness	.265	.081	.248	3.284	.001*	.105	.424
Perceived Ease of Use	.077	.064	.068	1.205	.230	-.050	.204
Perceived Compatibility	.254	.074	.247	3.426	.001*	.107	.400
Reputation	.110	.079	.104	1.399	.164	-.046	.267
Reciprocity	.039	.060	.037	.644	.521	-.081	.158
Enjoyment in Helping Others	.031	.092	.029	.336	.737	-.151	.213
Attitude	.057	.108	.042	.526	.600	-.157	.271
Normative beliefs							
Interpersonal Trust	.019	.081	.015	.236	.814	-.141	.179
Peer Influence	-.090	.093	-.085	-.967	.335	-.275	.094
Superior Influence	.056	.086	.054	.653	.515	-.114	.226
Social Norms	.173	.093	.155	1.849	.067	-.012	.357
Control beliefs							
Resource Availability	-.085	.087	-.068	-.986	.326	-.257	.086
Perceived Behavioral Control	.221	.086	.193	2.576	.011*	.051	.391

Note. KSI in ESN context. R^2 = .726, F = 26.158, p <.001.

*. Significant at the 0.05 level

4.5 The influence of belief factors on knowledge-sharing intention

A multiple regression analysis was conducted to test which belief factors predicted KSI per respective context. The results of the regression indicated that the first model explained 76.6% of the variance of predictors in the non-ESN context (R^2 = .766, R^2 *adjusted* .742, F (32,274), p < .001), as seen in Table 3. Four predictors showed significant associations with KSI in a non-ESN context. It was found that work experience significantly negatively influenced KSI (β = -.114, p < .001. This result indicates that more experienced workers will show a lower intention to share knowledge outside an ESN. Furthermore, perceived usefulness (β = .261, p < .001), superior influence (β = .191, p < .001), and PBC (β = .263, p < .001) positively influenced the KSI in the non-ESN context. These results reveal that when the perceived usefulness of knowledge sharing in the non-ESN context increases, the KSI of workers will also increase. This is also the case for superior influence and PBC. For example, if employees report a higher managerial influence regarding knowledge sharing, their intention to share will increase. Also, if employees report a higher ability, amount of time resources, and knowledge possession, and thus feel more in control of their knowledge sharing, their intention to share will also increase. The predictor enjoyment in helping others approached near significance (β = .160, p > .060).

The second model explained 72.6% of the variance in the ESN context (R^2 = .726, R^2 *adjusted* .699, F (26,158), p < .001), as seen in Table 4. Four predictors showed significant associations with KSI in an ESN context. According to the analysis, age had a significantly negative influence on the KSI in the ESN context (β = .256, p < .001), revealing that older employees will show a lower intention to share knowledge. Perceived usefulness (β = .248, p < .001), perceived compatibility (β = .247, p < .001), and PBC (β = .193, p < .001) had a significantly positive influence on KSI in the ESN context. Revealing that when the perceived usefulness of knowledge sharing in the ESN context increases, the KSI of workers will also increase. This is also the case for perceived compatibility and behavioural control. If the needs, values, and knowledge-sharing habits of workers are compatible with the use of the ESN, KSI will increase. Finally, if employees report a higher ability, amount of time, resources, and knowledge possession, and thus feel more in control of their knowledge sharing, their intention to share inside an ESN context will also increase.

4.6 Qualitative analysis

The results indicate that perceived usefulness, superior influence, and PBC have a significant influence on KSI in the non-ESN context. In the ESN context, the factors perceived usefulness, compatibility, and behavioural control formed the most important components for KSI. All the significant belief factors were discussed in the focus group, whose goal was to determine why there was a relationship between the said factors and KSI. For example, why is superior influence an important predictor for KSI? How can the influence of a manager (i.e. superior) be improved? And how could this factor be influenced so that employees feel more inclined to share their knowledge. The five participants of the focus group were subjected to open-ended questions about each belief factor during a semi-structured interview. For example: "*What are the important aspects in which managers can support your knowledge-sharing activities?"*. In Appendix C, an open codebook used for coding and labelling various utterances, can be found. After the qualitative data was gathered, conclusions from the most meaningful comments per belief factor were drawn. These comments provide an important insight into the relationship with KSI, and how they impacted the daily practice of the employees.

Perceived usefulness in a non-ESN context

All five participants were asked to reflect on the perceived usefulness of knowledge sharing by giving their opinions and sharing experiences. Overall, the participants noted that sharing knowledge is a useful act. The context within which this happens appears to be of importance. Most participants said

they prefer to share knowledge in a non-ESN setting. This means they prefer to share their knowledge directly with colleagues in the workplace. For example, one participant said: *"For me it would be for projects. I want to be directly involved with my colleagues and the people I do work for. I don't need the Community in that respect."* Two other participants disagreed, however, and noted that it could be more useful for others when knowledge is also shared in an ESN, instead of only outside an ESN. As one participant said: *"The advantage of the Community (ESN) is that when you share knowledge, people in Australia can know about it as well."* Another participant disagreed with the usefulness of an ESN, saying that his work is very specialised, and he therefore only feels the need to share knowledge with direct colleagues. He does this by emailing them, and thinks it is useless to share his knowledge in a ESN context, such as the Community, because only a select group of colleagues need to be informed. Overall, the usefulness of knowledge sharing could increased by organizing knowledge-sharing meetings, and appointing an (experienced) employee as a mentor.

Enjoyment of helping others in a non-ESN context

For this subject, participants were asked to voice their opinions on how their enjoyment in helping others by sharing their knowledge can be increased. The opinions on this subject varied, which means that some participants experienced joy in helping others, while other participants were more neutral. Overall, the participants were towards helping colleagues with questions. For example, as one participant indicated: *"I don't mind sharing knowledge with anyone, but people have to ask questions first. I very rarely get asked questions"*. Participants noted that, in order for their enjoyment to increase, some obstacles must be addressed. For example, one participant noted that a lack of time and a high workload often works against him. Another participant disagreed with this statement and believed knowledge sharing can be planned. Participants also raised concerns about the recent developments inside the organisation regarding remote working. As one participant said: *"We (colleagues) don't work in the same office space, we work from home, also internationally. We don't see each other very often, so the personal contact reduces, and this is not a good development."* Another participant agreed, saying: *"It makes it much more difficult. I know that with someone you've met you're more likely to help than someone with a blank face who is sending you an e-mail."* Personal contact with colleagues also appeared to be an important factor when it comes to enhancing enjoyment in helping others. The participants were enthusiastic about the idea to plan more extensive weekly meetings to share knowledge with colleagues, and thus increase the personal contact.

Superior influence in a non-ESN context

For this subject, participants were asked to reflect on how their managers could influence their knowledge sharing. Overall, the participants stated that a manager does not directly influence their KSI. To increase their KSI, however, participants noted that a manager should facilitate and sometimes initiate knowledge-sharing activities. For example, the first participant indicated that his manager does not influence his decision to share knowledge, but thinks a manager could facilitate him by creating more time to share knowledge with others. Another participant noted that a manager could influence knowledge sharing when certain team members do not share their knowledge with other colleagues. When asked about the role a manager should have, most participants agreed on the notion that facilitating leadership would best be suited when it comes to stimulating knowledge sharing. Some participants disagreed, however, and believed that an authoritative leadership style could help solve issues within teams when one or more team members do not participate in knowledge-sharing activities. He said: *"Many initiatives to share knowledge fall flat because of the lack of availability of team members. Most team members do not show up for knowledge-sharing meetings, and it seems that people easily disregard such meetings. A manager could intervene and make those meetings mandatory."* Therefore, suitable leadership practices, which stimulate knowledge sharing, must be further investigated in order to enhance knowledge sharing among workers. When asked what a manager could do specifically, participants voiced ideas about organising meetings to stimulate employees to engage in knowledge sharing, and rewarding knowledge-sharing efforts.

Perceived usefulness in an ESN context

The perceived usefulness of knowledge sharing in the ESN was discussed among the participants. Participants were asked about how the ESN could enhance its usefulness for knowledge-sharing activities. Because participants also commented on the usefulness of knowledge sharing in a non-ESN context, they are also included in this section. Overall, participants noted that an ESN is useful for sharing knowledge with indirect colleagues, who work abroad or in other regions. They do not actively use it yet, however. To increase the usefulness of such a platform, one participant indicated that a demonstration, or training, could help. Another participant agreed, and said: *" should implement a mandatory training on the use of the Community. That could increase the participation and teach people how to use it."* In contrast, another participant said: *"The user interface of the Community should speak for itself, it should be easy to use."* Overall, the members of the focus group agreed on the way an ESN platform should be presented and how its usefulness could be increased. Opportunities for employee training on the use of a ESN should thus be studied.

Perceived compatibility in an ESN context

For this subject, participants were asked how the ESN would better fit their needs regarding knowledge-sharing activities. Participants were asked to think about their personal habits, values, and necessities regarding knowledge sharing in an ESN. Overall, the participants stated that for their KSI to increase, the ESN must be compatible with their specific needs and values. This means that technical information must be easy to share on such a platform. For example, one participant said: *"The majority of us are involved in such technical aspects that is difficult to share. Unless you know that someone needs it, you wouldn't do it."* This indicates that IT-professionals deal with complex work information (IT processes) that are hard to share on an online platform. Moreover, participants also mentioned that ESN use should mostly be for business purposes only, as some employees tend to use it for social purposes. The focus group participants viewed the ESN as a platform that should be used for discussing and sharing knowledge, and feel that the organisation should make this clear and help organise the content placed on an ESN.

Perceived behavioural control in both contexts

The PBC regarding knowledge sharing in both contexts was discussed. Participants were asked how they could increase their opportunities to engage in knowledge-sharing activities, and raise possible barriers that could be problematic for knowledge sharing. The participants were asked to reflect on this and talk about possible solutions regarding this matter. Overall, participants stated that, regarding the ESN context, the organisation appeared to have many knowledge-sharing related platforms. The participants felt a touch overwhelmed by this, and tended to stick to platforms solely used for document sharing. For example, one participant stated: *"I think there should be fewer platforms on which we can share knowledge, there are too many platforms, this restrains me from sharing knowledge."* Another need for the increase of behavioural control is the need for work-specific knowledge-sharing groups within an ESN. As one participant said: *"If there was an certain group related to my work or project, maybe that would be of an benefit to us."* In addition to creating work-specific knowledge-sharing groups, participants added that they find it difficult to find relevant information in the Community. As one participant stated: *"There is a lot of information on the Community that is not relevant to me."* In conclusion, work-specific knowledge and more clarity on which platform to use for knowledge sharing is needed. With regards to the non-ESN context, participants stated that adequate time to share is necessary for them to engage in knowledge-sharing activities in the workplace. Therefore, opportunities to increase time resources for knowledge-sharing purposes must be further investigated.

5 Discussion

The main purpose of this research is to study the belief factors that influence the intention of IT-professionals to share knowledge inside and outside an ESN. Perceived usefulness, superior influence, and PBC appear to be the main influencing belief factors that predict KSI in a non-ESN context. Employees who perceive knowledge sharing as an advantageous activity (i.e. perceived usefulness), show a higher intention to share knowledge. This finding is supported by a previous study by Davis (1989), which indicated that the more useful a person perceives a system (or in this case an act) to be, the more favourable the individual's attitude towards knowledge sharing will be. Therefore, it is important for the organisation to support the perceived usefulness of knowledge-sharing efforts. Furthermore, during the focus group interview, various participants indicated that they prefer to share knowledge in a non-ESN context, i.e. directly with colleagues. It is possible that employees perceive the act of knowledge sharing in a non-ESN context to be more useful compared with an ESN context due to the opportunities to communicate directly and by receiving social cues. Support from supervisors and co-workers could also encourage knowledge sharing, enhance employee knowledge transfer, and their impression of the usefulness of knowledge sharing as a whole (Wang & Noe, 2010).

Secondly, superior influence has a positive influence on KSI, which is in line with the findings of Ho et al. (2011). This means that the more a manager expects an employee to share knowledge, the more an employee feels inclined to participate in knowledge sharing. Furthermore, the influence of a superior is a proven success factor in enhancing knowledge sharing (Damodaran and Olphert, 2000; Fliaster, 2004; Akhavan, Jafari, & Fathian, 2006; Lin, 2007; Gagné, 2009). During the focus group interview, some participants indicated that managers should take the lead in organising knowledge sharing activities and voiced a need for more opportunities and time resources in order to increase knowledge sharing with others.

The positive influence of PBC in the non-ESN context indicates that when participants are confident about their knowledge, ability to share, and time resources, the more they intend to share knowledge with colleagues. This finding is in line with Ho et al. (2011); Lin & Lee (2004); and Tohidinia & Mosakhani (2010). The results on PBC indicate a necessity in investing in the development of self-efficacy regarding knowledge-sharing abilities among employees because self-efficacy is strongly related to PBC. Moreover, having more time to spend on knowledge sharing could also have an enabling and positive effect on employee KSI. In relation to PBC, the focus group participants indicated that a lack of time could form an obstacle to knowledge-sharing activities. It was also mentioned that if managers would allow them more time, some would be more able to share knowledge with other colleagues. In contrast, one focus group participant believed that knowledge sharing did not require extra time, but rather planning. It is noteworthy that when professionals are facilitated with more time to engage in knowledge-sharing activities, the intention to share knowledge could increase.

Alongside the aforementioned influencing factors, enjoyment in helping others had a near significant positive influence on KSI in the non-ESN context, which could indicate that employees who have a strong intrinsic motivation to help others will also have a higher intention to share knowledge. The overall findings for the non-ESN context indicate that the organisational culture should be addressed to facilitate knowledge sharing and encouraging knowledge-sharing behaviour among professionals. Furthermore, it is possible that management efforts could significantly increase KSI and eventually increase knowledge-sharing activities. Some focus group participants indicated that participation in knowledge-sharing activities gives them joy, knowing that they have helped a colleague.

Perceived usefulness, perceived compatibility, and PBC were revealed as factors positively influencing KSI in the ESN context. The finding regarding perceived usefulness is supported by Davis (1989), who indicated that the more useful a person perceives a system (in this case, the Community) to be, the more favourable the individual's attitude towards knowledge sharing will be. Therefore, it is important for the organisation to support the perceived usefulness of the Community, e.g. by supporting employees with guidance on the use of an ESN for knowledge-sharing purposes. This

notion was supported by most of the focus group participants, indicating that specific training (e.g. e-learning or live training) could increase their use of the ESN because they would then know how to use it. Perceived compatibility positively influences KSI in the ESN context, which indicates that if employees perceive knowledge sharing as being compatible with their individual needs and values, they have a higher intention to share knowledge in an ESN. This finding is supported by Lin, Hung & Chen (2009). According to Hung et al. (2015), ESN usage that is similar to an employee's earlier (positive) experience with a system, produces a sense of familiarity that, in turn, could make the ESN user feel that the system is consistent with his or her habits and needs. The focus group participants noted that in order to use an ESN, it must be suited to their specific work, meaning that their expertise must be worth sharing with others. Lastly, the PBC factor has a positive influence on knowledge sharing in an ESN context. This finding is in line with Ho et al. (2011); Lin & Lee (2004); and Tohidinia & Mosakhani (2010). The results on PBC indicate the importance of knowledge-sharing encouragement and facilitation when it comes to ESN use for knowledge-sharing purposes. Important aspects, such as more time to share, could enable more knowledge-sharing behaviour.

5.1 Limitations and suggestions for future research

This study has several limitations that require further examination and research. First, the sample was drawn from 153 employees from various international locations of the healthtech organisation. Based on the sample, several significant results have been acquired. A larger sample that brings more statistical power would have brought forth a more robust statistical analysis. The findings should therefor be verified with a larger sample to increase generalizability. Second, the majority of the sample consisted of European nationalities (mostly Dutch, British, and German), with significantly smaller samples from Australia, Peru, the Middle East, and African countries. Therefore, the research model should be tested further using more equally distributed samples from other countries, because cultural differences could influence the perceptions of employees regarding knowledge sharing, and further testing would provide a stronger analysis.

Third, this study focused on IT-related professions, such as an integration consultant, implementation consultant, project managers, support engineers, and programmers. Therefore, it does not represent the entire healthtech organisation. Moreover, the large majority of the sample consisted of male employees. Future research should consider a broader sample of male and female workers with more diverse occupations, such as sales consultants, HR professionals, administrative personnel, etc. Furthermore, due to the small sample it was not possible to run a reliable factor analysis. Also, desirability and favourability could have influenced the respondents' answers, notably on the topic of intention to share knowledge. The questions related to this construct could trigger the respondent to offer a desirable answer. Therefore, it raises the question of whether the respondents answered how they actually perceive their KSI to be, or how believe they are supposed to perceive their KSI.

Moreover, the survey was conducted twice, once for the non-ESN context, and then for the ESN context. This could cause response bias because respondents have to fill in the same questionnaire twice. Also, future studies could investigate how personal traits (such as age, educational level, and work experience) may moderate the relationships between motivation factors and employee KSI. Furthermore, due to practical reasons and time constraints, the focus group could only be conducted with employees who work in the region where the study was conducted. And, due to their busy schedules, only five participants were able to attend. Future research could incorporate more elaborate qualitative research by conducting further focus groups to gather more qualitative data to support quantitative findings. Lastly, future studies should gather longitudinal data to examine the causality and relationships between the predictors and KSI. Further research into the belief factors could significantly enhance our understanding of the critical determinants for KSI and behaviour, and how a specific context, such as an ESN, impacts an individual's KSI.

5.2 Implications for practice

This study proposes the following implications for L&D professionals who intend to initiate and encourage knowledge-sharing practices within the organisation. The results showed that perceived usefulness, superior influence, and PBC impact employee KSI in the non-ESN context; and perceived usefulness, compatibility, and behavioural control influence employee KSI in the ESN context. These outcomes indicate one common incentive: managerial support. In relation to the perceived usefulness of knowledge sharing, it is important to provide employees with managerial support in the form of clear communication. Managers should thus stress the importance of knowledge sharing and the perceived benefits of a knowledge-sharing culture. Previous research by Cabrera et al. (2006) and Kulkarni et al. (2006) showed that managerial support promotes the perceived usefulness of knowledge sharing. Managerial direction, in the form leadership and clearly communicating the benefits and values of a knowledge-sharing culture, could significantly enable knowledge sharing (Riege, 2005). Second, in relation to superior influence, senior and middle management plays an important role in encouraging a knowledge-sharing culture among their staff because active employee participation is needed to promote effective and valuable knowledge sharing. Efforts to foster interpersonal and ESN interactions of employees are fundamental for creating and maintaining a favourable knowledge-sharing culture in the organisation. Since top management support is known to have a positive effect on the level and quality of knowledge sharing by influencing employee commitment to KM (Lee, 2006), it is advisable to initiate KM from the top-down. Senior management should set the strategic goals for KM, while middle management should set clear tactical goals for their staff in terms of knowledge sharing. This means that middle managers should focus on providing workers with the information and contacts necessary to perform well. Instilling a knowledge-sharing culture at this level could include providing more accessible information, planning knowledge-sharing activities, and encouraging inter-group communication and feedback (Smith & McKeen, 2003). Furthermore, training and value-adding knowledge-sharing activities, such as integrating knowledge management tools and techniques into business processes and practices, could further support various knowledge-sharing processes (Smith & McKeen, 2003).

Third, in relation to PBC, managers could support their staff by sanctioning sufficient time for training and knowledge sharing. Also, according to Lin (2007) management efforts should also focus on increasing the knowledge self-efficacy among experienced employees by emphasizing that knowledge sharing contributes to the success of the organisation. Moreover, the healthtech organisation could invest in building a highly self-efficacious staff by recruiting and selecting employees who are intrinsically motivated to share knowledge, proactive, and who have high cognitive aptitude and self-esteem (Lin, 2007). Fourth, in relation to perceived compatibility, managers could consider the usability of the ESN and how it could be more in sync with the existing needs and values of workers. For example, incorporate ESN usage into daily work by posting information, ‘best practices’, or questions, and thus make ESN a part of their staff’s working habits. Employees must be given autonomy on the how they want to participate in knowledge sharing on an ESN platform. Finally, since enjoyment in helping others has a near significant influence on employee KSI, managers need to boost the positive mood state of employees regarding social exchange, which precedes knowledge-sharing behaviours.

5.3 Overall conclusion

This study aims to provide a better understanding of how various attitudinal, normative, and behavioural control belief factors influence the intention of IT-professionals to share knowledge both inside and outside of an ESN. The findings from this study indicate the importance of a clear communication and understanding of the usefulness of knowledge sharing in both contexts. The quantitative and qualitative results both confirm the notion that a clear knowledge-sharing culture should be developed. The role of the manager in this knowledge-sharing culture is crucial. Both studies indicate an explicit need for senior and middle management action in facilitating a favourable environment for knowledge-sharing activities. Furthermore, this study shows that ESN usage could be increased by paying more attention to the specific needs, values, and sharing habits of employees, and by providing more time to share. This way, knowledge sharing in an ESN will become easier. Multinational healthtech organisations trying to make the shift towards a knowledge-sharing culture should therefore focus on those belief factors, as well as including and motivating older, more experienced workers to share their knowledge. More research is needed to fully understand the critical determinants for KSI and behaviour, and how a specific context, such as an ESN, impacts an individual's KSI.

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Appendices

Appendix A. Survey

Introduction
Welcome to the survey on knowledge sharing.
We invite you to participate in this survey set out by the L&D department to help us investigate knowledge sharing intentions and attitudes in the workplace and in the Community.

Based on your current function in the department you have been selected to participate in this survey to share your valuable input about knowledge sharing regarding processes, services and/or solutions.

Why should you fill in this survey?
We would like to gain more insight about your intentions and attitudes regarding knowledge sharing as an employee. The survey results will help us understand how to better meet the needs of employees and to make information more accessible so that employees can increase their work productivity and learning performance. Improving knowledge sharing also benefits our customers by increasing the quality and efficiency of our service.

Furthermore, when you participate and complete the entire survey you will be entered for a chance to win 250 Recognition Points, which will be awarded to 5 participants through a random drawing after the survey has closed. Your opinions are very valuable to us! Thank you for sharing them with us.

Kind regards,
Desirée Parren
Education & Clinical Programs

About this survey
This survey consists of 15 general questions and 104 questions regarding knowledge sharing intentions in the workplace through personal interactions (face-to-face conversations, telephone or Lync/Skype for Business calls, and e-mail) and knowledge sharing intentions in the Community.

About your privacy
When you participate in the survey, we commit not to mislead you in any way about the nature of our research, the way that the data are collected and how the survey results will be used. We treat all of the information you provide confidentially; it will be used only for research purposes. We will combine your comments with those gathered from other survey participants, and analyze them as part of a group.

We do not use any of the information you provide for other non-research activities. If we ask you for personal information that enables you to be identified (e.g., your name and e-mail address), we will clearly state why we are asking for it and for your permission to use it for that purpose. Personal information, such as an e-mail address, will only be used to inform the winner of the drawing or to contact you for follow-up research. Your participation is voluntary. You are entitled to ask that part, or all, of the record of your involvement in the survey be deleted or destroyed.

Consent
Please read the following information before participating in the survey:

- This survey will take about 30 minutes to complete.
- There are no wrong answers.
- Please fill in the survey based on your personal opinion and intuition.
- Some questions are very similar, but it is still important to carefully read and answer them.
- Your data will be treated confidentially.
- Due to anonymity we cannot provide you insight into your own personal answers and results.
- By completing this survey you agree to participate in this study,
- Please provide any questions, remarks and/or suggestions about this survey or this study in the comment section at the end of this survey.

By agreeing to the below statement you give permission to use the data obtained from this survey for research purposes:

"'I hereby state that by participating in this survey I agree to the nature, methods and purpose of this study. I understand that my data will be used for research, treated confidentially, and will not be used for any other purpose. I voluntarily give my permission to participate in this study. I understand my right to ask that part, or all, of the record of my involvement in the survey can be deleted or destroyed."

Questionnaire

Variable	Question	Range
Age	What is your age?	20 years or younger 21-30 years 31-40 years 41-50 years 51 or older
Sex	What is your gender?	Male Female
Country of citizenship	What is your country of citizenship?	n.a.
Country of employment	What is your country of employment?	n.a.
Educational degree	What is your highest obtained educational degree?	Secondary education or high school Vocational education Certificate (non-degree) Bachelor's degree Master's degree Ph.D Other
Work experience in total	How many years of working experience do you have?	n.a.
Work experience	How many years have you been working for this organisation?	n.a.
Current position	What is your current position?	Integration Consultant Implementation Consultant Project Manager Technical Consultant Application Consultant Migration Consultant Client Service Manager Technical Account Manager
Years working in position	How many years have you been working in this position?	n.a.
Management or non-management?	Is this a management or a non-management position?	Management Non-management

Department or Team	For which department or team do you work for?	Center of Expertise EI Center of Expertise CAI CARE Benelux organization Other, please specify
Perceived level of knowledge	What is your perceived level of knowledge in this function?	Junior Medior Senior
Amount of participation in the ESN (Community)	How often do you share knowledge in the Community?	Five times or more per week Three or four times per week Two or three times per week Once per week Once per month Once per quarter
Amount of participation in the non-ESN context	How often do you share knowledge in the Community?	Five times or more per week Three or four times per week Two or three times per week Once per week Once per month Once per quarter
Type of Knowledge (Explicit)	The type of knowledge I share can be best described as: formulas, processes, and/or routines	Strongly disagree Disagree Somewhat disagree Neither agree or disagree Somewhat agree Agree Strongly agree
Type of Knowledge (Implicit)	The type of knowledge I share can be best described as: sharing experiences and/or know-how.	Strongly disagree Disagree Somewhat disagree Neither agree or disagree Somewhat agree Agree Strongly agree

Questions regarding KS in non-ESN context	Questions regarding KS in ESN-context	Answers
Perceived usefulness (Taylor & Todd, 1995)	**Perceived usefulness (Taylor & Todd, 1995)**	
Participating in knowledge sharing through personal interactions in the workplace will be of no benefit to me.	Participating in the Community for knowledge sharing will be of no benefit to me.	1= strongly disagree 7= strongly agree
Participating in knowledge sharing through personal interactions in the workplace will improve my work/learning performance.	Using the Community for knowledge sharing will improve my work/learning performance.	1= strongly disagree 7= strongly agree
The advantages of participating in knowledge sharing through personal interactions in the workplace outweigh the disadvantages.	The advantages of using the Community for knowledge sharing outweigh the disadvantages.	1= strongly disagree 7= strongly agree
Overall, participating in knowledge sharing through personal interactions in the workplace is advantageous	Overall, using the Community for knowledge sharing is advantageous.	1= strongly disagree 7= strongly agree
Perceived ease of use (Taylor & Todd, 1995)	**Perceived ease of use (Taylor & Todd, 1995)**	
It is difficult to participate in knowledge sharing through personal interactions in the workplace.	The Community tool for knowledge sharing is difficult to use.	1= strongly disagree 7= strongly agree
It is difficult to learn how to participate in knowledge sharing through personal interactions in the workplace.	It is difficult to learn how to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
It is easy to participate in knowledge sharing through personal interactions in the workplace.	It is easy to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
Perceived compatibility (Taylor & Todd, 1995)	**Perceived compatibility (Taylor & Todd, 1995)**	
Sharing knowledge in the workplace through personal interactions fits well with the way I share knowledge.	Using the Community for knowledge sharing fits well with the way I share knowledge.	1= strongly disagree 7= strongly agree

Sharing knowledge in the workplace through personal interactions fits into my habits.	Using the Community for knowledge sharing fits into my habits.	1= strongly disagree 7= strongly agree
Sharing knowledge in the workplace through personal interactions is compatible with the way I share knowledge.	The Community is compatible with the way I share knowledge.	1= strongly disagree 7= strongly agree
Reputation (Wasko & Faraj, 2005)	**Reputation (Wasko & Faraj, 2005)**	
I earn respect from others by sharing my knowledge through personal interactions in the workplace.	I earn respect from others by sharing my knowledge in the Community.	1= strongly disagree 7= strongly agree
I feel that knowledge sharing through personal interactions in the workplace improves my status in the profession.	I feel that knowledge sharing in the Community improves my status in the profession.	1= strongly disagree 7= strongly agree
Through knowledge sharing by personal interactions in the workplace, I can improve my reputation in the profession.	Through knowledge sharing in the Community, I can improve my reputation in the profession.	1= strongly disagree 7= strongly agree
Reciprocity (Kankanhalli et al., 2005)	**Reciprocity (Kankanhalli et al., 2005)**	
When I share my knowledge in the workplace through personal interactions, I believe that I will receive an answer for giving an answer.	When I share my knowledge through the Community, I believe that I will receive an answer for giving an answer.	1= strongly disagree 7= strongly agree
When I share my knowledge in the workplace through personal interactions, I expect somebody to respond when I need information.	When I share my knowledge through the Community, I expect somebody to respond when I need information.	1= strongly disagree 7= strongly agree
When I share knowledge in the workplace through personal interactions, I expect to get back knowledge when I need it.	When I share knowledge through the Community, I expect to get back knowledge when I need it.	1= strongly disagree 7= strongly agree
When I share my knowledge in the workplace through personal interactions, I believe that my	When I share my knowledge through the Community, I believe that my requests for knowledge will be answered.	1= strongly disagree 7= strongly agree

requests for knowledge will be answered.		
Enjoyment in helping others (Kankanhalli et al., 2005)	**Enjoyment in helping others (Kankanhalli et al., 2005)**	
I enjoy sharing my knowledge with others through personal interactions in the workplace.	I enjoy sharing my knowledge with others through the Community.	1= strongly disagree 7= strongly agree
I enjoy helping others by sharing my knowledge through personal interactions in the workplace.	I enjoy helping others by sharing my knowledge through the Community.	1= strongly disagree 7= strongly agree
It feels good to help someone else by sharing my knowledge through personal interactions in the workplace.	It feels good to help someone else by sharing my knowledge through the Community.	1= strongly disagree 7= strongly agree
Sharing my knowledge with others in the workplace through personal interactions gives me pleasure.	Sharing my knowledge with others through the Community gives me pleasure.	1= strongly disagree 7= strongly agree
Interpersonal trust (Kankanhalli et al., 2005)	**Interpersonal trust (Kankanhalli et al., 2005)**	
I believe that my colleagues in the workplace give credit for others' knowledge where it is due.	I believe that people in the Community give credit for others' knowledge where it is due.	1= strongly disagree 7= strongly agree
I believe that my colleagues in the workplace use others' knowledge appropriately.	I believe that people in the Community use others' knowledge appropriately.	1= strongly disagree 7= strongly agree
I believe that my colleagues in the workplace share the best knowledge they have.	I believe that people in the Community share the best knowledge they have.	1= strongly disagree 7= strongly agree
Peer influence (Taylor & Todd, 1995)	**Peer influence (Taylor & Todd, 1995)**.	
My peers/colleagues think that I should participate in knowledge sharing through personal interactions in the workplace.	My peers/colleagues think that I should use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
My peers/colleagues influence me to participate in knowledge sharing through personal interactions in	My peers/colleagues influence me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree

the workplace.		
My peers/colleagues prompt me to participate in knowledge sharing through personal interactions in the workplace.	My peers/colleagues prompt me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
Superior influence (Taylor & Todd, 1995) My manager thinks that I should participate in knowledge sharing through personal interactions in the workplace.	**Superior influence (Taylor & Todd, 1995)** My manager thinks that I should use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
My manager influences me to participate in knowledge sharing through personal interactions in the workplace.	My manager influences me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
My manager instructs me to participate in knowledge sharing through personal interactions in the workplace.	My manager instructs me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
Knowledge self-efficacy (Kankanhalli et al., 2005) I have confidence in my ability to provide knowledge that others consider valuable through personal interactions in the workplace.	**Knowledge self-efficacy (Kankanhalli et al., 2005)** I have confidence in my ability to provide knowledge that others in the Community consider valuable.	1= strongly disagree 7= strongly agree
I have the expertise to provide valuable knowledge through personal interactions in the workplace.	I have the expertise to provide valuable knowledge to the Community.	1= strongly disagree 7= strongly agree
It does not really make any difference whether I add to the knowledge that others are likely to share through personal interactions in the workplace.	It does not really make any difference whether I add to the knowledge that others are likely to share through the Community.	1= strongly disagree 7= strongly agree
Other colleagues can provide more valuable knowledge through personal interactions in the workplace than I can.	Most other community members can provide more valuable knowledge in the Community than I can.	1= strongly disagree 7= strongly agree

Resource availability (Kankanhalli, Tan, & Wei, 2005) I have access to the resources I need in order to share knowledge through personal interactions in the workplace.	**Resource availability (Kankanhalli, Tan, & Wei, 2005)** I have access to the Community to share knowledge.	1= strongly disagree 7= strongly agree
I have opportunities to participate in knowledge sharing through personal interactions in the workplace.	I have opportunities to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
I have time to participate in knowledge sharing through personal interactions in the workplace.	I have time to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
Attitude (Taylor & Todd, 1995) Participating in knowledge sharing through personal interactions in the workplace is a good idea.	**Attitude (Taylor & Todd, 1995)** Using the Community for knowledge sharing is a good idea.	1= strongly disagree 7= strongly agree
Participating in knowledge sharing through personal interactions in the workplace is a foolish idea.	Using the Community for knowledge sharing is a foolish idea.	1= strongly disagree 7= strongly agree
I like the idea of participating in knowledge sharing through personal interactions in the workplace.	I like the idea of using the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
Participating in knowledge sharing through personal interactions in the workplace is a pleasant experience.	Using the Community for knowledge sharing is a pleasant experience.	1= strongly disagree 7= strongly agree
Subjective norm (Taylor & Todd, 1995) People who influence my behavior would expect me to participate in knowledge sharing through personal interactions in the workplace.	**Subjective norm (Taylor & Todd, 1995)** People who influence my behavior would expect me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree
People who are important to me would expect me to participate in knowledge sharing through personal interactions in the workplace.	People who are important to me would expect me to use the Community for knowledge sharing.	1= strongly disagree 7= strongly agree

People I daily work with prompt me to participate in knowledge sharing through personal interactions in the workplace.	People I daily work with prompt me to participate in knowledge sharing in the Community	1= strongly disagree 7= strongly agree
Perceived behavioral control (Taylor & Todd, 1995)	**Perceived behavioral control (Taylor & Todd, 1995)**	
I feel able to adequately participate in knowledge sharing through personal interactions in the workplace.	I feel able to adequately share knowledge through the Community.	1= strongly disagree 7= strongly agree
Participating in knowledge sharing through personal interactions in the workplace is entirely within my control.	Using the Community for knowledge sharing is entirely within my control.	1= strongly disagree 7= strongly agree
I have the knowledge and ability to share knowledge through personal interactions in the workplace.	I have the knowledge and ability to share knowledge through the Community.	1= strongly disagree 7= strongly agree
KSI (Venkatesh, Morris, Davis, & Davis, 2003)	**KSI (Venkatesh, Morris, Davis, & Davis, 2003)**	
I intend to share knowledge through personal interactions in the workplace.	I intend to share knowledge through the Community.	1= strongly disagree 7= strongly agree
I will try to share knowledge through personal interactions in the workplace.	I will try to share knowledge through the Community.	1= strongly disagree 7= strongly agree
I plan to share knowledge through personal interactions in the workplace.	I plan to share knowledge through the Community.	1= strongly disagree 7= strongly agree

Appendix B. Focus Group Discussion Template

Focus group discussion template

Welcome and Introduction
• Introduction of officers and explanation of why the session has been organized, the format of the session and how their views will be used.

Rules
Please speak one at a time, we want to ensure that everyone has an opportunity to give their views

Respect the opinions of others - everyone's views are valid although you might not agree with them

There are no right or wrong answers – we just want to know what you think
Notes will be taken but everything that is said will be kept confidential – no names will be put against comments

If anyone has any specific questions that do not relate to the discussion, there will be an opportunity at the end of the meeting.

End Time: 12.30 p.m. If you need to leave earlier, please notify us.

Focus group questions

ENJOYMENT IN HELPING OTHERS (non-ESN context):

What could stimulate your motivation for sharing knowledge?
Keep in mind what enables and/or hinders your motivation to share knowledge with others

SUPERIOR INFLUENCE (non-ESN context):

What are important aspects in which managers can support your knowledge sharing activities?

PERCEIVED BEHAVIORAL CONTROL:

How could your opportunities to participate in knowledge sharing be increased?
(Related to both contexts)

Keep in mind the opportunities and/or hindrance for knowledge sharing (for example: time, resources, knowledge, ability)

PERCEIVED USEFULNESS (both contexts):

How can the Community enhance its usefulness for knowledge sharing activities?
How can the organisation enhance the usefulness of knowledge sharing activities in the workplace?
Follow-up: What are the benefits of using the Community for knowledge sharing? And what are the disadvantages?

COMPATIBILITY (ESN context):

How would the Community best fit your personal needs and values concerning knowledge sharing?
Follow-up: What needs to change and/or stay the same so that you can share knowledge in the Community

Keep in mind your personal habits, values, needs, and/or wishes when it comes to knowledge sharing

Any questions from the group?
Summing up

Summarizing main points

Thank you and close session

Appendix C. Open codebook Focus Group Interview

Nr.	Topic	Question	Keywords	Confirmatory comment	Explanatory comment	Recommendations
1	Perceived usefulness (non-ESN)	*"How can the organisation increase the usefulness of knowledge sharing activities in the workplace?"*	Direct contact Meeting Mentor	*"We once had a knowledge sharing meeting with various teams to discuss work processes and share knowledge, and this is very useful, but someone has to initiate and plan it and also get an okay from the manager"*	*"I want to be directly involved with my colleagues and the people I do work for"*	*"Organize a meeting, bring people together and appoint someone as a mentor, then you have the focus"*
2	Enjoyment of helping others (non-ESN)	*"What could the organisation do to stimulate your motivation for sharing knowledge?"*	Personal contact Satisfaction	*"It satisfies me to help others and to teach them things, yes, it gives me a good feeling"*	*"I know that someone you've met you're more likely to help than someone with a blank face who is sending you an e-mail".*	*"People are not sitting together anymore (remote work, international locations), so the interpersonal contact decreases, and this is not a good development. More personal contact would be better (for knowledge sharing)."*
3	Superior Influence (non-ESN)	*"What are important aspects in which managers can support your knowledge sharing activities?"*	Meetings Responsibilities Rewards	*"We have managers who organize standing meetings in which we share knowledge, this is helpful"*	*"When a manager gives everyone certain responsibilities, then it turns out good"*	*"Knowledge sharing must be stimulated. People who share knowledge could be rewarded more. This could motivate people to share knowledge"*
3.1	Superior Influence (non-ESN)		Manager intervention Self-initiative Stimulate Team	*"You need a manager when your colleagues do not share knowledge"*	*"I take the initiative myself to share knowledge, it's not like a manager facilitates me with that.*	*"Organizing meetings, something that stimulates people to engage"* *"Many initiatives to share knowledge fall flat because of the*

			availability Mandatory meetings Time			*lack of availability of team members. It seems that people easily disregard such meetings. A manager could intervene and make those meetings mandatory".* *"Maybe with time, he (manager) could provide me with more space to share knowledge"*
4	Perceived usefulness (ESN)	*"How can the Community enhance its usefulness for knowledge sharing activities?"*	Mandatory training Easy	*"The user interface of the Community should speak for itself, it should be easy to use".*	*"They only sent an email (on the introduction of the Community). Here's the link and get to it, but then I think, why not organize a meeting?"*	*"The organization should implement a mandatory training on the use of the Community. That could increase the participation and teach people how to use it"*
5	Perceived compatibility (ESN)	*"How would the Community best fit your personal needs and values concerning knowledge sharing?"*	Technical aspects Difficult Added value	*"The point is, there are so many newsletters, you have SharePoint, Community and those platforms haven't proven themselves yet. It doesn't have the added value that we are waiting for. Not for me at least"*	*"The majority of us are involved in such technical aspects that is difficult to share. Unless you know that someone needs it, you wouldn't do it"*	*"It (the Community) should be used for business purposes only, not social activities. The organization should make that clear"*
6	Perceived Behavioural Control (ESN)	*"How could your opportunities to participate in knowledge sharing be increased?"*	Less platforms Restrains Information overload Function specific	*"When I receive an overload of information, I don't know what to do with it, and then I'm less likely to share"*	*"For me it has to be very function specific, its even very project specific, its about qualifications or developments"*	*"I think there should be less platforms on which we can share knowledge, there are too many platforms, this restrains me from sharing knowledge"*

Appendix D. Demographic profile of respondents

Demographic profile of the respondents

Variables	Numbers and Percentages
Gender	
Male	127 (83%)
Female	26 (17%)
Age	
21 – 30 years	9 (5.9%)
31 – 40 years	70 (45.8%)
41 – 50 years	36 (23.5%)
51 years or older	34 (22.2%)
Educational degree	
Secondary or high school degree	21 (13.7%)
Vocational education degree	10 (6.5%)
Certificate (non-degree)	8 (5.2%)
Bachelor's degree	70 (45.8%)
Master's degree	35 (22.9%)
Ph.D.	1 (0.7%)
Other	8 (5.2%)
Years working for	
1 to 3 years	33 (21.6%)
4 to 10 years	65 (42.6%)
11 to 15 years	25 (16.4%)
16 to 19 years	9 (6%)
20 years or longer	20 (13.3%)
Perceived level of knowledge	
Junior	10 (6.5%)
Medior	51 (33.3 %)
Senior	92 (60.1%)
Management or non-management position	
Management	33 (21.6%)
Non-management	120 (78.4%)

Note. Numbers and percentages of the different genders, ages, educational degrees, years of experience, perceived level of knowledge and management or non-management position.

Appendix E. Reliability analysis

The survey consisted of 98 items spread across three sections: attitudinal, normative, and control beliefs. The complete survey can be found in Appendix A. A reliability analysis was conducted to assess the reliability of each construct and item. Below, a detailed description is given on the reliability of each scale.

Perceived usefulness: the scales for perceived usefulness in the non-ESN and ESN context are measured with four items per context (e.g. *Using the Community for knowledge sharing will improve my work/learning performance,* 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .70) after item one was deleted to increase Cronbach's alpha. For the ESN context, the reliability analysis showed a high reliability score (α = .87).

Perceived ease of use: the scale for perceived ease of use in both contexts is measured with three items per context (e.g. *It is easy to participate in knowledge sharing through personal interactions in the workplace,* 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed a minimally acceptable reliability score for the non-ESN context (α = .60), and an acceptable score for the scale related to the ESN context (α = .73).

Perceived compatibility: the scale for perceived compatibility in both contexts is measured with three items per context (e.g. *Using the Community for knowledge sharing fits well with the way I share knowledge,* 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed an acceptable reliability score for the non-ESN context (α = .78), and a high reliability score for the scale related to the ESN context (α = .91).

Reputation: the scale for reputation in both contexts is measured with three items per context (e.g. *I earn respect from others by sharing my knowledge through personal interactions in the workplace,* 1 = strongly disagree, 7 = strongly agree) (Wasko & Faraj, 2005)**.** Reliability analysis showed an acceptable reliability score for the scale in the non-ESN context (α = .73), and a high reliability score for the scale related to the ESN context (α = .89).

Reciprocity: the scale for reciprocity in both contexts is measured with four items (e.g. *When I share knowledge through the Community, I expect to get back knowledge when I need it)* (Kankanhalli, Tan & Wei, 2005, 1 = strongly disagree, 7 = strongly agree). Reliability analysis showed a high reliability score for the non-ESN context (α = .81), and also a high reliability score for the ESN-context (α = .91).

Enjoyment of helping others: the scale for enjoyment in helping others in both contexts is measured with four items (e.g. *I enjoy helping others by sharing my knowledge through personal interactions in the workplace,* 1 = strongly disagree, 7 = strongly agree) (Kankanhalli, Tan & Wei, 2005). Reliability analysis showed a high reliability score for the scale related to the non-ESN context (α = .87), and also a high reliability score for the ESN-context (α = .93).

Attitude: the scales for attitude in the non-ESN and ESN context are measured with three items per context (e.g. *Using the Community for knowledge sharing is a good idea,* 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). After item 2 was deleted to increase the Cronbach's Alpha, reliability analysis showed a high reliability score for the scale related to the non-ESN context (α = .82), and an acceptable reliability score for the scale related to the ESN context (α = .72).

Interpersonal trust: the scales for interpersonal trust in the non-ESN and ESN context are measured with three items per context (e.g. *I believe that my colleagues in the workplace use others' knowledge appropriately,* 1 = strongly disagree, 7 = strongly agree) (Kankanhalli, Tan & Wei, 2005). Reliability

analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .72), and also for the scale in the ESN-context (α = .77).

Peer influence: the scales for peer influence in the non-ESN and ESN context are measured with three items per context (e.g. *My peers/colleagues think that I should use the Community for knowledge sharing*, 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .74), and a high reliability score for the scale related to the ESN context (α = .88).

Superior influence: the scales for superior influence in the non-ESN and ESN context are measured with three items per context (e.g. *My manager influences me to participate in knowledge sharing through personal interactions in the workplace*, 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed a high reliability score for the scale related to the non-ESN context (α = .81), and also a high reliability score for the scale related to the ESN context (α = .91).

Subjective norms: the scales for subjective norms in the non-ESN and ESN context are measured with three items per context (e.g. *People who are important to me would expect me to use the Community for knowledge sharing*, 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .74), and a high reliability score for the scale related to the ESN context (α = .88).

Knowledge self-efficacy: the scales for knowledge self-efficacy in the non-ESN and ESN context are measured with four items per context (e.g. *I have confidence in my ability to provide knowledge that others in the Community consider valuable*, 1 = strongly disagree, 7 = strongly agree) (Kankanhalli, Tan & Wei, 2005). Reliability analysis showed a low reliability score for the scale related to the non-ESN context (α = .50), and an exceptionally low reliability score for the scale related to the ESN context (α = .34). Both scales were therefor excluded from further analysis.

Resource availability: the scales for resource availability in the non-ESN and ESN context are measured with three items per context (e.g. *I have access to the resources I need in order to share knowledge through personal interactions in the workplace*, 1 = strongly disagree, 7 = strongly agree) (Kankanhalli, Tan & Wei, 2005). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .74), and a minimally acceptable reliability score for the scale related to the ESN context (α = .64).

Perceived behavioural control: the scales for perceived behavioural control in the non-ESN and ESN context are measured with three items per context (e.g. *I feel able to adequately share knowledge through the Community*, 1 = strongly disagree, 7 = strongly agree) (Taylor & Todd, 1995). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .72), and also an acceptable reliability score for the scale related to the ESN context (α = .82).

Knowledge sharing intention: the scales for knowledge sharing intention in the non-ESN and ESN context are measured with three items per context (e.g. *I intend to share knowledge through personal interactions in the workplace*, 1 = strongly disagree, 7 = strongly agree) (Venkatesh, Morris, Davis, & Davis, 2003). Reliability analysis showed an acceptable reliability score for the scale related to the non-ESN context (α = .78), and also a high reliability score for the scale related to the ESN context (α = .92).