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# **Enterprise Social Network: Capabilities, Key Enablers and Obstacles**

Call for changes within the digital age.

Master thesis 15 HEC, course INFM10 in Information Systems  
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## **Abstract**

Today's work environment is currently undergoing radical changes and although the awareness of social collaboration is growing within organizations, they still struggle with the digital transformation and thereby with the integration of Enterprise Social Network (ESN). Our study aims to investigate the role of ESN within the today's organizations. Specifically, it intends to build on previous research about social network technologies in a business' context, and to provide an understanding about the required capabilities in terms of organizational, cultural and structural readiness as well as the key enablers and possible challenges faced during the adoption of ESN and hindering a more efficient use. Our study shows, that ESN could foster information and knowledge sharing, organizational learning and social capital. It reveals, that implementing an ESN offers great advantages, reaching from transparent information and knowledge exchange, over a faster joint generation of new ideas to the possible containment of an ever-increasing e-mail flood. However, our study also outlines, that organizations still have to overcome barriers such as management and leadership support, cultural barriers, driving individuals engagement or integrating the ESN within existing business processes and infrastructure in order to reach the full potential and succeed with the adoption of the ESN. Nevertheless, we emphasise when an organization has recognised the significant benefits to be gained by incorporating an ESN within the business' context, the value and improvements in activities induced by the ESN will become visible and then, one would recognise that it has been worth the investment.

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# 1 Introduction

Today's work environment is currently undergoing radical changes. Not only growing global competition and technological changes puts pressure on many organizations, but also cultural and behavioural changes force organizations to reconsider existing processes, organizational structure and collaboration processes of the individual employees. Thereby, the digitalization of life and product areas and the IT consumerization enforce changes in how people work (Saldanha & Krishnan, 2012), where key terms as "Enterprise 2.0", "social collaboration" and "digital workplace" are gaining more and more popularity (Turban, Bolloju, & Liang, 2011).

Especially the growing number of digital natives<sup>1</sup> in the work environment are one of the key drivers for the digital transformation in organizations (Palfrey & Gasser, 2013). While this generation can be seen as the native speakers of digital language of computers, videogames and the Internet (Prensky, 2001), they are all born after 1980 and are characterised by a high reliance and affinity on information and communication technology (ICT) (Bennett, Maton, & Kervin, 2008). It is thereby not surprisingly, that online social networks (OSNs) like Facebook or LinkedIn has gained a wide popularity amongst people and especially by those digital natives (Cao, Gao, Li, & Friedman, 2013). At the same time, particularly in the past few years, the use of social software tools and herein enterprise social network (ESN) within organizations has been rapidly increased, where these tools foster social collaboration and interactions among employees.

Where in traditional enterprises, most information sharing and gathering is done via email (Bennett, 2012), the growing usage of ESN within organizations enables new forms of digital interaction among employees (Subramaniam & Nandhakumar, 2013). It provides the ability to enhance knowledge management, problems-solving, and experts identification (Liu, Chen, Ke, & Chen, 2014). Furthermore, it leverages information sharing between employees, for example about project progresses or system updates, which they otherwise would not be informed about (Donston-Miller, 2011). Thus, with the implementation of an ESN, organizations aim to achieve benefits such as connecting its employees more effectively, capturing and reusing valuable informal knowledge and delivering relevant information in the right time. In order to increase the business' efficiency, it is crucial in today's work environment, to establish relationships at the workplace, where employees should have knowledge about what is happening within the organization, keeping track on projects they are working on, and are connected to their colleagues (DiMicco, Geyer, Millen, Dugan, & Brownholtz, 2009). Employees have been using blogs, bookmarks, and wikis in order to share or search for information within the organization (DiMicco et al., 2009), and ESN can further assist increased efficiency in knowledge and information exchange (Cao et al., 2013).

While knowledge sharing between individuals, teams and units within organizations does not only become more critical, but also more difficult, as organizations are now located all around

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<sup>1</sup> A detailed description of the term digital natives can be found in Chapter 2.2 – Enterprise social network and its evolution (p.11)



the world, ESN might therefore improve these challenges by enabling a better flow of knowledge sharing (Ellison, Gibbs, & Weber, 2014). Incidentally, although ESN can be used in smaller organizations, its adoption has been spearheaded by larger, distributed multinational organizations (Ellison et al., 2014).

While it is true that the usage of ESN is growing, a recent survey by the global consulting firm McKinsey also indicates, that the depth of adoption of ESNs within organizations might increase even further in the future. Indeed, 72 percent out of over 1670 executives expect, that their organizations' investments in social tools will heavily increase within the next years (Bughin, Chui, & Harrysson, 2015).

The main content of this thesis is represented in 6 chapters. Where the first chapter deals with the problem area, the purpose and includes the research questions to be answered, the second chapter forms with the theoretical background and related theories of ESN, social collaboration and digital natives the basis for our research. The third chapter then discusses in detail the research methodology used for the study, followed by empirical findings, where data collected from interviews are explained. The fifth chapter deals with the discussion of our findings compared to the theoretical background, the sixth and final chapter of our study states the conclusion of our study.

## 1.1 Problem discussion

While a rapid diffusion of ESN can be recorded today, social technologies like ESN might be a key driver on the way to a digital work organization. However, many organizations still struggle with the efficient use and integration of ESN in existing business processes. Indeed, the target-oriented deployment of social tools are still in its infancy in most organizations (CeBit, 2015). Hence, many organizations might have deployed an ESN, but this can be seen as only one small step towards the digital transformation, which leads to important questions about the development and effects of this technology, including concerns about the process and effectiveness of its implementation.

**Integration in organizational processes.** It is a fact that the awareness of social collaboration is growing within organization, however, they still struggle with the digital transformation and thereby with the integration of ESN in existing business processes (Van der Meulen & Rivera, 2013). The critical success factor of an effective usage of ESN within organizations is thus the ability to recognize and compensate appropriate business processes to be integrated in the ESN, which calls for a significant structural and cultural change for many organizations (Riemer, Steinfield, & Vogel, 2009). Despite the increased adoption of ESN by organizations, the implications for organizational processes are yet not well understood (Treem & Leonardi, 2012). Moreover, organizations have a lack of understanding about the nature and context of the today's digital disruption and are not sufficient aware about where collaboration and engagement can help in order to stay competitive in this disruptive environment (Garcia, Tarbio, Bonnet, & Buvat, 2015).

**Information silos.** Today, there is a considerable amount of technologies and tools available, providing the opportunity to facilitate an organizations' business, support to achieve its business goals, and simultaneously allow access to an increasing pool of information. But at the same time, the resultant "information overload" is a growing problem and organizations have to find efficient ways for information filtering and information gathering. Thereby, ESN is

one possibility that can help address and prevent the challenges of information overload, by improving processes of creating, managing and using enterprise information (Simperl et al., 2010). Although many social networking success stories are documented by enterprises and vendors (Brynjolfsson & McAfee, 2007; D'Anselme, 2014; Krooß, 2012), the journey of digital transformation is difficult and challenges of enterprise information silos still exist today. Moreover, organizations still struggle to measure the impact and potential value of what ESN can bring to their business as a lack of tangible benefits that demonstrate how ESN add value to enterprise operation exists (Srinivasan, 2011).

**Inadequate leadership and employees' engagement.** Already in 2013, it was predicted by Gartner, that ESN has the power to become the primary communication channels for noticing, deciding or acting on information. However, they also estimated that many implementations of ESN would not reach the intended benefits as a result of inadequate leadership and too large of a focus on technology rather than relationships and the understanding of social networks (Van der Meulen & Rivera, 2013). In order to not just have another tool among many, organizations need to realize, that in contrast of previous technology deployments such as SCM or CRM systems, that are characterized by a “push” approach, the implementation of social collaboration tools like ESN follow a “pull” approach, where the engagement of employees is needed (DiMicco et al., 2008). Indeed, the possible power of ESN depends heavily on the full and enthusiastic participation of the employees, where it is needed for organizations to establish a culture of trust and become more open as well as more non-hierarchical (Chui et al., 2013).

Having the success stories on the one hand and potential difficulties on the other hand, reaching from the integration in organizational infrastructure, over a lack of active participation to the lack of senior manager support (DiMicco et al., 2009; Fulk & Yuan, 2013; Millen & Patterson, 2002), let organizations still wonder whether ESNs are the “next big thing” or simply a time waster (Turban et al., 2011).

## 1.2 Purpose

Although there is a significant body of research on how social software is used in a corporate environment (Ellison et al., 2014; Friedman, Burns, & Cao, 2014; P. M. Jones, 2001; Newell, 1999), there has been little comprehensive coverage of the opportunities, challenges and adoption considerations needed for a successful implementation of ESN. Consequently, this research attempts to fill this research gap by identifying opportunities and potential risks associated with ESN.

We aim to provide new insights in the field of Information Systems to gain a better understanding of the important topic of social networking in a corporate environment and stimulate the need for a greater focus on digital transformation and social collaboration. By providing insights about the usage of ESN and how organizations benefit, or face challenges, by utilizing ESN, we intend to uncover key performance indicators and capability patterns which are needed for a successful adoption of ESN, which in turn support the creation of strategies in Information Systems and future implementations of ESN.

The barriers to knowledge sharing in organizations are related to the use of the available systems, organizational interest in knowledge sharing as well as to the relationships between people and how information and knowledge are treated as assets (Hall & Goody, 2007).

Therefore, we will particularly analyse how ESN is integrated in existing business processes and how today's generation of digital natives and other employees perceive and make use of ESN, where we especially aim to explore if and how there are any differences in a way of how employees as individuals adopt an ESN in their work. Furthermore, we also want to explore possible differences between innovative-driven organizations as well as more standardized organizations, and based on these facts, derive capabilities needed in order to succeed with the adoption of ESN. Additionally, as it has become increasingly clear, that ESNs has both pitfalls and great potential (Bennett, 2012), it is essential that organizations assess the associated opportunities and risks of ESN in order to determine how it can improve its performance. Hence, we aim to provide new insights about the major opportunities and potential risks associated with ESN by analysing how organizations benefit or face challenges with the usage of ESN and how it leverages information seeking and sharing. Additionally, we aim to identify behaviour and capability patterns by exploring the employees' perception of an implemented ESN and its role in their everyday work. Thus, we further aim to enable the assessment of cultural, social and structural readiness with respect to a successful adoption of ESN and provide guidance for leveraging the efficiency of the ESN in a corporate environment.

Understanding the particular problem area and the overall goal of our research, the research questions of our thesis are as followed:

*Research question 1:* What capabilities in terms of organizational, cultural and structural readiness are needed in order to adopt ESN successfully?

*Research question 2:* What are the key enablers provided and the major obstacles hindering a more effective use of ESN?

### 1.3 Delimitation

Patton (1990) is surely right by stating that “*there are no perfect research designs. There are always trade-offs*” (p.162) – and therefore our thesis has its limitations too. The focus of the thesis lies on the adoption and implementation phase of ESN, where we aim to gain insights about already existing practices and processes enabled by ESN. Thus, we will limit our studies to organizations who have already implemented an ESN, rather than those organizations that plan or consider the adoption of ESN for the future. Furthermore, our research focuses on organizational and structural influences and thus, security concerns and specific technical requirements and aspects related to ESN will not be involved in the study.

## 2 Theoretical background

In order to tap deeper in to the topic of ESN and its usage in organization it is necessary to first provide an understanding of ESN in a broader context, distinguish it from other tools available in the area of Enterprise 2.0 and pointing out the evolution of ESN throughout the past. Thus, the main purpose of this chapter is to provide an overview of previous research related to ESN, where related topics and theories about enterprise social collaboration are discussed that in turn forms the basis for scoping out the key data collection requirements and designing the research strategy and process to be conducted. Moreover, by taking previous work in the area of ESN into account and transfer the extant literature into a structured review, this supports the development and maintenance of a sense of the topic's perspective throughout the research. Thereby, the following chapter comprises the following topics: the evolution of ESN including associated subject areas such as Web 2.0, Enterprise 2.0 and digital natives, determinants of the role of ESN in organizations and associated challenges as well as selected theories, i.e. diffusion of innovation model and socio technical system theory, that are needed for reaching our research goal.

### 2.1 Enterprise Social Network (ESN) and its evolution

Social collaboration, Enterprise 2.0, and digital natives are all terms to be associated with ESN. In order to understand the context of ESN, it is firstly needed to define these associated terms and analyse its evolution of the terminology, from the definition of ESN, over the raise of Web 2.0, Web 3.0 and Enterprise 2.0 to the impact of digital natives on the today's corporate environment.

#### 2.1.1 Definition of ESN

*“Social Networking involves the creation of a virtual community where users can share, discuss, collaborate, and even argue about topics of common interest.” (Bernal, 2009, p. 14)*

While well-known social networks as Facebook, Twitter or LinkedIn are used for external or private communication, ESN platforms are technologies, replicating the features of these social networks and are used for internal communication and social collaboration within organizations (Richter & Riemer, 2013). An ESN facilitates interaction and information sharing among employees (Aoun & Vatanasakdakul, 2012) and enables the creation of business value by allowing people to create groups of specific topics, post things, conduct surveys and add announcements and thereby connect members of an enterprise through profiles, updates and notifications (Li, 2012). This means that ESN leverages the establishment of social relationships, interactive communication and ad-hoc information sharing and further puts emphasis on user generated content (Riemer, Scifleet, & Reddig, 2012).

There are various ESN platforms available on the market such as Yammer, Tibbr, Jive or IBM Connections. As an enabler of social workflows and by facilitating the work-related commu-

nication and collaboration, ESN comprises components such as activity streams, wikis, microblogging, blogs, discussion forums, groups, recommendation engines, tagging and secure communities (McAfee, 2009a; Stocker, Richter, Hoefler, & Tochtermann, 2012).

Another question, which arises, is if there are any differences between an intranet and ESN and what distinguishes an ESN platform from a traditional intranet. Is it just a term in new clothes? – There is indeed a difference as argued by Young (2015), intranets are seen as a central hub of official content, for spreading officially curated information to employees in a streamlined manner. On the other hand an ESN platform is primarily the enabler of human relationships flow in the workplace, where it is structured and completed by the relationships and designed to connect employees (Richter & Riemer, 2013). Thereby the information, which is at the first glance visible for an individual, varies depending on the relationships, interests and subscriptions to content and groups. Thus, ESN can be seen as a real-time stream of ideas, opinions and conversations, characterized by dynamic interactions (Young, 2015). Although the boundaries can become blurry, since intranets of today can be enhanced with social layers adding collaborative features to the software itself (Tredinnick, 2006), it is still a fact that an intranet has a stronger focus on document management and primarily follows a push approach (Neal, 2015), where organizations “push” official content and information to the employees, whereas ESN is characterized by a pull approach, where all employees have a chance to contribute with ideas and information (DiMicco et al., 2008). Another important difference is that the adoption of intranets are normally costly to implement and requires a complex configuration, where ESN platforms are mainly lightweight SaaS technologies based in the cloud, which enables a quicker implementation and makes them less costly to implement and maintain (Decsey, 2012; Saldanha & Krishnan, 2012; Zinck, 2012)

Hence, ESN platforms leverages at the one hand the visibility of information and communicative actions, which are persistent over time and on the other hand allows to expand the reach of people, networks and available information, which may lead simultaneously to an increase of the efficiency of information management and social learning.

But at the same time, it has to be acknowledged that having this set of features does not automatically lead to an increased level of social collaboration and value of information management in an organization. Riemer et al. (2009) found a good description of this nature, by stating that “... *the true nature and potential of such technologies does only manifest when people make sense of and incorporate them in their day-to-day work routines*”(p. 186). Thus, it depends heavily on the employee’s involvement, where the technologies need to be appropriate for the users in their particular contexts and integrated in their work practices in order to become a useful tool in a corporate environment.

By specifying the different purposes for which ESN platforms can be used, Riemer and Richter (2012) developed a useful framework, grounded on a cross-side comparison of several ESN case studies: the so-called S.O.C.I.A.L. framework of ESN. While this framework facilitates the understanding of the main communication genres of an ESN, it indicates that an ESN is used in particular for six different actions: socialising, organising, crowd sourcing, information sharing, awareness creation, and learning and linkages, which further comprise several sub actions (Figure 2-1).

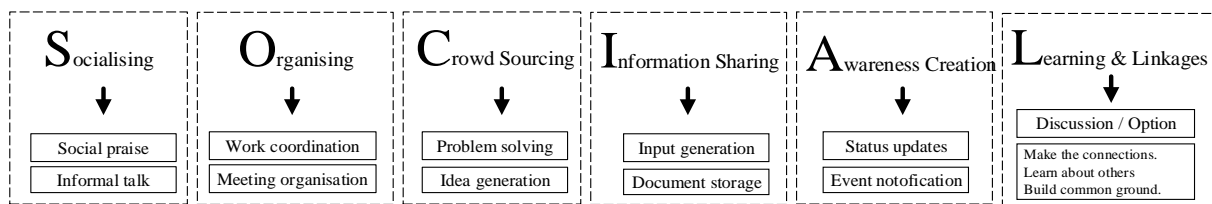


Figure 2-1. S.O.C.I.A.L. framework of ESN use cases (according to Riemer and Richter (2012))

On that account, ESN provides a place for *socialising*, supporting the creation of social connections, where employees can recognise each other, enabled to provide feedback for the works of others and get engaged in informal conversations. By taking the aspect of *organising* into account, ESN enables the coordination of tasks, decision making, the management of meetings and other project-related topics. At the same time, ESN provides a place for *crowd sourcing* by leveraging ad-hoc and internal crowd sourcing, allowing the formation of topic-related groups and enabling employees to gather inputs and ideas from a wider group of co-workers. Specifically, it enables, e.g. joint sourcing of solutions for a particular work problem referring to a project or work process allowing individuals to obtain various ideas and opinions or leveraging online brainstorming in order to generate new ideas. According to the authors, the probably most common use of ESN platform is *information sharing*, where ESN can be applied for sharing various forms of information such as URLs referring to information found in the Internet, articles interesting for others or other files. Simultaneously, these information sources and documents are stored in the ESN, used as a document storage in order to make it available for future references. Furthermore, ESN supports the *creation of awareness*, while it enables users to inform others about status updates and events and thereby raises the awareness of activities of other employees throughout an organization. Lastly, ESN provides a *learning and linkage platform*, by giving the ability to create groups of common interests, gathering and exchanging knowledge and thereby leveraging the learning from other employees. (Riemer & Richter, 2012)

One could argue, that an ESN is not ultimately needed since there are already technologies available for performing certain activities illustrated in the framework. Accordingly, some activities could also be carried out by other communication technologies, e.g. e-mails can be used for communicating messages and data repository systems enable the sharing of files. However, what makes an ESN platform particularly unique is, that it integrates all these activities in one place simultaneously and thus, leverages the accessibility of information and knowledge stored in the ESN from anyone else within the organization at any time (Leonardi, Huysman, & Steinfield, 2013). By integrating short messaging with other features such as data repository systems, users profiles, wikis, news feeds and document systems, ESN indeed allows the record, storage and availability of the content consistently in an organizational setting (Treem & Leonardi, 2012).

### 2.1.2 Evolution of ESN

Although social collaboration tools have already been used over a long period in organizations (Williams & Schubert, 2007), ESN became particularly popular with the emergence of Web 2.0, Web 3.0, the rise of Enterprise 2.0 and the influence of digital natives entering the workforce (Terrar, 2015). Particularly, it can be said, that the two major forces, Enterprise 2.0 and digital natives enforces the changes towards a digital transformation in organizations

(Saldanha & Krishnan, 2012). Thus, because it is crucial to have an understanding of these terms, each of those will be described and related to ESN in the following.

## Web 2.0

While the dot-com bubble burst in 2001 a new era of the web, seen as the second version of the Internet, begun (Kreitzberg, 2009). By this means, a set of Web 2.0 technologies marked a significant shift in the way, Internet users and software developers interact and participate throughout the web (O'Reilly, 2007). The term Web 2.0 itself initially evolved out of a brainstorming session by discussing what organizations surviving the burst had in common and was subsequently introduced in 2004 from Tim O'Reilly as a name for a series of conferences held by Tim O'Reilly and Media Live International (Levy, 2009).

On that account, Musser and O'Reilly (2007) identified eight core patterns, describing the changes in internet applications and the characterizations of Web 2.0, where these include among others collective intelligence, rich user experiences and the leverage of the long tail<sup>2</sup> (Table 2-1).

**Table 2-1. Eight core patterns of Web 2.0 (Musser & O'Reilly, 2007)**

Principle	Description
<b>Harnessing Collective intelligence</b>	Internet applications should harness the collective intelligence of all internet users. In principle, it demands the creation of an architecture of participation, where simple and user-friendly operation support user-generated content, which in turn leverage the network effect, where the software gets better the more user contributions taking place.
<b>Data is the next "intel inside"</b>	One of the key aspects of differentiation in the era of Web 2.0 is collected data, where it demands for the use of unique and hard-to-replicate data sources.
<b>Innovation in assembly</b>	The creation of platforms to foster innovation in assembly, where rearrangements of data and services are creating new opportunities and markets.
<b>Rich User experiences</b>	Going beyond traditional web-page metaphors in order to deliver rich user experiences combined with the best of desktop and online applications.
<b>Software above the level of a Single device</b>	The creation of software enabling the visualization on multiple devices connected through the Internet, building on the growing pervasiveness of online experience.
<b>Perpetual Beta</b>	Moving away from old software development models and adoption in terms of online and continuously updated, software as a service (SaaS) models.
<b>Leveraging the long tail</b>	By enabling a broad reach and low-cost economics by the Internet, Web 2.0 leverages the capture of niche markets profitably.
<b>Lightweight Models and Cost-effective Scalability</b>	In order to establish products and businesses in a short time and cost-effectively, the usage of lightweight business- and software development models are required.

Having these core patterns, Web 2.0 is seen as a new and improved Web as a platform, where Web 2.0 applications and services are characterized as enabler of (1) the reuse and recombina-

<sup>2</sup> Popularized by Chris Anderson, the term long tail refers to the capturing of niche markets, where an organization follows a retailing strategy of selling various unique products in small quantities and thereby unveils a previously untapped demand (Elberse, 2008)

tion of functionalities and data, (2) flexibility in terms of design, updates and adaptability, (3) collaborative content creation and modification, and (4) responsive, rich and simple user interface (De Hertogh, Viaene, & Dedene, 2011). Examples of Web 2.0 technologies are social networking, Wikis, blogs or RSS (Table 2-2).

**Table 2-2. Overview of Web 2.0 technologies (derived from Anderson (2007); Chui, Miller, and Roberts (2009))**

Web 2.0 technologies	Description
<b>Wikis, commenting, shared workspaces</b>	Simplifies the co-creation of content/applications across large, distributed set of participants
<b>Blogs, podcasts, video casts, peer to peer</b>	Provides the ability for individuals to communicate or share information with a broad set of other individuals
<b>Prediction markets, information markets, polling</b>	Leverages the collective power of community and the generation of a collectively derived answer
<b>Tagging, social bookmarking/filtering, user tracking, rating, RSS</b>	Adds additional information to primary content to enrich or prioritize information
<b>Social networking</b>	Encourages connections and collaboration between people

In sum, Web 2.0 technologies enable a large amount of users not only to consume information, but moreover to generate and co-design content, by leveraging a two-way and interactive mode of action, where the user's role changes from passive information consumers to active information suppliers; which in turn could automatically lead to a stronger direct and indirect communication (M. R. Lee & Lan, 2007).

Having all these aspects, Web 2.0 can be seen as a complex term, comprised of a combination of multiple areas as (1) new techniques such as web services, Ajax or RSS<sup>3</sup>, (2) new application systems such as weblogs, wikis and social bookmarking, (3) new social aspects as collaboration, user-generated content and self-presentation of end users as well as (4) new business models such as Software as a Service (SaaS) and the long tail (Richter, 2010). Regarding this complexity, previous literature has not agreed on one single definition for Web 2.0. However, Musser and O'Reilly (2007) brings it to the point by defining its term as

*“ a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet—a more mature, distinctive medium characterized by user participation, openness, and network effects ”*  
(Musser & O'Reilly, 2007, p. 5).

<sup>3</sup> *Web services* refers to the integration of distributed applications in web servers, enabling interdependent communication of applications from operation system, programming language and location, where *Ajax* (Asynchronous JavaScript and XML) refers to the concept of asynchronous data transfer between a server and browser in order to create richer and more responsive web applications by reducing slow-click-and-wait interactions. In addition, *RSS* (Really Simple Syndication) defines an syndicated feed based on an XML text-based data format containing a list of items, which allows users to explore updates, published information or summaries of a website's content without actually visiting the RSS-enabled website (Musser & O'Reilly, 2007).



### Web 3.0

The term Web 3.0 is barely used today and its definition is still ambiguous where the characterizing set of technologies are still blurry (Silva, Mahfujur Rahman, & El Saddik, 2008). However, in order to be complete in the evolution of ESN, it is necessary to shortly outline the core aspects of Web 3.0.

Also referring to the semantic Web, Web 3.0 is the next evolutionary stage as a successor of Web 2.0 and is seen as the web of data involving intelligent applications and developed networked digital technologies which support human cooperation (Fuchs et al., 2010; Kamel Boulos & Wheeler, 2007). Hendler (2009) provides a rough definition of Web 3.0, by stating that it is viewed as “*Semantic Web technologies integrated into, or powering, large-scale Web applications.*” (p. 111), while it focuses on the integration of multiple applications and data derived from different sources. By making information more expressive to people and machines, it holds the promise of being a global web which consists of semantically linked data rather than just a collection of HTML documents (Garrigos-Simon, Lapiedra Alcamí, & Ribera, 2012). Therefore, the semantic web and herein Web 3.0 allows a new level of abstraction based on the underlying network infrastructure (Hendler, 2008). Web 3.0 is thereby significantly influenced by innovations in data-integration applications, a more ambitious use of metadata, where it has at the same time a strong focus on the creation and management of networks (Garrigos-Simon et al., 2012). The web evolutionary stages can be distinguished in this way, that Web 1.0 was a tool for thought, Web 2.0 represents a medium for human communication, where Web 3.0 supports human co-operation (Fuchs et al., 2010).

### Enterprise 2.0

While Web 2.0 introduces new concepts and tools enabling a more social and participatory use of Internet services and applications, Enterprise 2.0 means the integration of Web 2.0 technologies such as wikis, instant messaging, social networking or forums within organizations to drive business value and leveraging collaboration and knowledge work (McAfee, 2006; Trimi & Galanxhi, 2014). The term was initially coined by Andrew McAfee in 2004, defining Enterprise 2.0 as the business use of emergent social software platforms and Web 2.0 technologies within or between organizations (McAfee, 2006). By using the acronym SLATES, McAfee (2006) indicates the key features of Enterprise 2.0 technologies and their potential in organizations' context: search, links, authoring, tags, extensions and signals. That means, content in Enterprise 2.0 technologies can be searched, linked, authored, tagged, extended and signalled by anybody within the organization (Trimis & Galanxhi, 2014). Enterprise 2.0 is thus characterized by user-centric information, interoperability and a bottom-up approach (De Hertogh et al., 2011). Moreover, Enterprise 2.0 technologies supports emergent collaboration, dynamic knowledge exchange, open involvement, information sharing, internal or external social network development and exploitation (Corso, Martini, & Pesoli, 2008). Enterprise 2.0 technologies can thereby be used in organizations as a form of individual stand-alone applications such as wikis, blogs and independent forums, but also as an entire social software suite, as the ESN platform in order to converge collaboration, communication, communities and content in one technology. Hence, ESN belongs among others to the group of Enterprise 2.0 technologies.

In sum, then, using Web 2.0 technologies within organizations, which are then named Enterprise 2.0 technologies, foster collaboration and knowledge exchange within and across corporations, where it provides at the same time more control to the users and is driven by network effects, as more people are engaged with these technologies, more value is thereby created

and consequently can affect the way in which work is organized (Saldanha & Krishnan, 2012; Schneckenberg, 2009).

## Digital Natives

As stated previously, besides the integration of Enterprise 2.0 technologies, the so-called digital natives are another key driver for the changes on how work and social collaboration is done in organization today (Palfrey & Gasser, 2013). It can be said, that all employees in an organization can be grouped in two categories: digital natives and digital immigrants. The generation of digital natives, all born after 1980, are the native speakers of the digital language of computers, videogames and the Internet (Prensky, 2001), growing up in a world where the usage of information and communication technologies (ICT) are taken for granted, where “*technology is like the air*” (Tapscott, 2009, p. 18) and therefore have a high reliance and affinity on those ICT (Bennett et al., 2008). Digital natives are always expecting to have a persistent connection to the Internet, always being online with digital devices such as smartphones and tablets, wherever they go at any time (Myers & Sundaram, 2012). Digital natives are also expected to have a desire for experimental learning. This in essence means that they embrace the notion of learning by doing, while it is furthermore assumed that they are proficient in multi-tasking, and mainly teach themselves in the use of new technology and in this essence they use ICT as their main source of information. (Oblinger & Oblinger, 2005).

While authors such as Prensky (2001), Tapscott (2009) and Palfrey and Gasser (2013) are the main propagators of the term digital natives, Tapscott (2009) indicates the main differentiating characteristics of this generation by defining eight different norms, which are freedom, customization, scrutiny, integrity, collaboration, entertainment, speed and innovation. These eight norms are derived from the changing behaviours and attitudes of the digital natives where it provides an understanding about how this generation shapes the changes (Figure 2-2).

Freedom	Customization	Scrutiny	Integrity
Digital natives take freedom for granted and persist on freedom of choice, where they expect to choose where and when they work while seeking freedom to change jobs, take their own path and to express themselves.	They have a desire of customizing and personalizing everything as for example online spaces, smartphone screens and even their jobs, where the potential to personalize a product or service is crucial for them.	Digital natives seek the ability to distinguish between fact and fiction, where they want to know what is going on based on a motto of “trust but verify”, where they are knowing to be sceptical.	While making decisions about what to buy or where to work, digital natives seek for corporate integrity and openness, where they care about being honest, considerate, transparent, and abiding by their commitments
Collaboration	Entertainment	Speed	Innovation
As the collaboration and relationship generation, they collaborate and influence each other constantly through online networks discussing brands, companies, products, and services and have the desire to be in touch all day long.	Digital natives seek for entertainment and want their work and other aspects of their life as education and social life to be fun, where they can deal with multiple activities simultaneously.	The generation of digital natives have a need for speed and expect instant feedback, where the quality and nature of time changes and the fast pace of their lives is critical to them.	Digital natives grew up in a culture of innovation, where it is characterized by an on-going creativity and changes, while they are constantly looking for innovative ways to collaborate, learn, and work.

Figure 2-2. The eight norms of digital natives (according to Tapscott (2009))

Regarding these eight norms, the differences of digital natives compared to the earlier generation is rooted in their experiences and in their different handling and consumption of media, where they are seen as more fluent in the use of technology and characterized as creators and active participants in the digital environment, active experimental learners, versed in multi-

tasking, having a high dependency on ICT for accessing information and the interaction with others (Bennett et al., 2008; Oblinger & Oblinger, 2005; Prensky, 2001).

The counterpart of the digital natives are the digital immigrants, not born in the digital age, but who have adopted many of the new technologies during their life (Prensky, 2001). Unlike the generation of digital natives, they do not see the emerging Web 2.0 technologies as a natural tool, but have learned to adopt and to engage with it in their adult lives (Vodanovich, Sundaram, & Myers, 2010). Just as in our ordinary lives when you are not a native speaker of a particular language, you tend to have some form of accent, and it is said that digital immigrants will retain their accent of a digital immigrant, regardless how well they adapt to these technologies (Prensky, 2001). It is argued, that although many digital immigrants have become proficient in the use of technology, their usage still differs from how digital natives make use of ICT (Vodanovich et al., 2010). While for example digital immigrants prefer e-mail as the main online communication channel, digital natives favour instant messaging and in regard to the use of mobile phones, digital immigrants tend to use it to talk to people, whereas digital natives prefer using it for texting (Tapscott, 2009). Another important difference, argued by Vodanovich et al. (2010) is, that especially the functionality of IT tools and technologies are of great importance for digital immigrants, whereas digital natives favor such aspects as interactivity, usability, flexibility and connectivity as well as personalization. Moreover, as digital natives use technology extensively to network and socialize (Oblinger & Oblinger, 2005), it is easier for them to use it in a business' context and therefore, it could be then assumed, that they have less problems integrating an ESN platform in their everyday work in contrast to digital immigrants.

Indeed, the generational difference between digital natives and digital immigrants creates challenges but also opportunities for organizations as their experiences and values differ. This has to be taken into account when adopting social collaboration tools at an organization and particularly when choosing, designing and implementing an ESN platform.

Although, there are many critics, debating about the term of digital natives and showing evidence against the differentiation of digital natives and digital immigrants (Bennett et al., 2008; Helsper & Eynon, 2010; Schulmeister, 2008; Selwyn, 2009), we are not intending to join the debate to evaluate its term in regard of whether it will stand the test over time or not, nor if it is the right term to define this generation. However, the research evidence to date indicates, that the younger generation think and process information differently (Prensky, 2001) and enforce changes within the business environment due to their high reliance and affinity on ICT and their increased use and expectations on social networks (DiMicco et al., 2008). In context of our research, we believe that it is crucial to be aware of this differentiation as we might uncover different behaviour or communication patterns related to digital natives and digital immigrants. Thus, referring back to the first chapter, we aim to explore in our research if and how there are any differences in a way of how digital natives and digital immigrants perceive and make use of ESN.

## **2.2 Determinants of the role of ICTs in digital transformation**

In order to prepare our analysis for key enablers and major obstacles enabled by ESN, we reviewed existing literature about the possible benefits and challenges associated with ESN and as a result identified the main determinants of the role of ESN in organizations (outlined

in the following subchapter) as well as the challenges occurring during the implementation of ESN (covered in section 2.3).

This chapter has as strong focus on the benefits associated with information and knowledge aspects where we particularly examine the influences of ESN on information and knowledge sharing, organizational learning and social capital.

**Definition of information and knowledge.** Before the determinants of the role of ESN can be considered, some notions need to be developed of how information and knowledge are defined and the distinction between these terms. Many authors distinguishing among three types: data, information and knowledge (Alavi & Leidner, 2001; Dalkir, 2013; T. H. Davenport & Prusak, 1998).

According to T. H. Davenport and Prusak (1998), *data* is defined as a set of discrete, objective facts about events as for instance structured records and transactions. It is an essential raw material in order to generate information, but does not allow any judgement, interpretation or sustainable basis of action. *Information* on the other hand, is a message, mostly as a form of a document, audible or visible communication (E. Davenport & Hall, 2001). It is thereby processed data in terms of having meaning and value to the recipient (Davis & Olson, 1984). Consequently, information comprises relevance and purpose, where the meaning is interpreted by the recipient by drawing conclusions and implications of it (T. H. Davenport & Prusak, 1998). Lastly, *knowledge* is defined as a combination of framed experience, values, contextual information and expert insights, which in total constitutes a framework for the evaluation and integration of new experience and information, while it emerges and is applied in the minds of knowers (T. H. Davenport & Prusak, 1998). Knowledge is thus more than information, since it is personalized information connected to interpretations, concepts, facts and observations (Alavi & Leidner, 2001). According to Dalkir (2013) and Nonaka (1991), knowledge can be seen as subjective and valuable information, being validated and organized into a model, where it is used to make sense of our world and emerges from experiences, incorporate perceptions, beliefs and values.

Yet scientists, philosophers and others have debated the definition of knowledge, seeing the term from different views (T. H. Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Polanyi, 1966; Von Krogh & Roos, 1995). Because of its complex and intangible nature, it is difficult to define knowledge precisely, but as it is not our intent to join this debate, for the purpose of this research we derive our view of knowledge from Holsapple and Joshi (2002), who stated that “...*knowledge is explicitly and/or tacitly represented and processed by human and/or computer-based participants in the organization*” (p.49). In this matter and from the epistemological perspective, knowledge can be either explicit or tacit. Thereby, tacit knowledge is the knowledge being hard to express in formalized ways, difficult to communicate, personal and mostly context-specific (Dalkir, 2013; Nonaka, 1991). On the other hand, explicit knowledge is codified, expressible in formal ways such as words and algorithms, systematic and easily to share and transmittable (Dalkir, 2013). Consequently, we define the action of knowledge sharing according to Hendriks (1999), as the action of transferring knowledge from a knowledge owners, who externalize or transmit, i.e. codify, illustrate or describe the knowledge, enabling knowledge reconstructors to internalize or absorb, i.e. learn by doing, read or interpret the received knowledge (Figure 2-3).

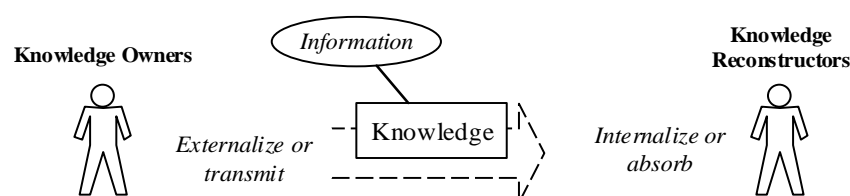


Figure 2-3. Simplified model of knowledge sharing (according to Hendriks (1999))

In addition, it has to be mentioned, that knowledge and information are interactively connected to each other, as the creation of knowledge requires information, where at the same time the application of knowledge is needed to enable the development of information (Roberts, 2000).

### 2.2.1 Information and knowledge sharing

Information and communication technologies (ICT) in general are seen as crucial enablers of information and knowledge sharing, by facilitating the access, collection, combining, distribution and storage of information and knowledge (Hendriks, 1999; Roberts, 2000). By using ICTs, the exchange of information and knowledge within organizations has become much easier than before, while its usage enables organizations to manage employees time, money and effort more efficiently (Bhatt, Gupta, & Kitchens, 2005). But especially the emergence of Enterprise 2.0 technologies, and herein ESN, provide new ways to distribute and access relevant information and knowledge within and across organizations (Saldanha & Krishnan, 2012).

**Information and knowledge sharing in context of ESN.** Information and knowledge sharing can be done in different informal and formal forms and the motivational factors and the degree to which an individual is motivated to share his/her knowledge differs and depends on the person, context, and the task to be accomplished (Hendriks, 1999). Nevertheless, ICTs in general, such as e-mail, voice mail, teleconferencing, videoconferencing or groupware (Roberts, 2000), has already provided the ability to overcome barriers of information and knowledge sharing such as temporal distance, physical distance and social distance for a long time (Hendriks, 1999). But today, especially Enterprise 2.0 technologies and particularly ESN platforms facilitate communication and collaboration between these distances and thus are seen as a key enabler to remove these barriers (Jarrahi & Sawyer, 2013). While *temporal distance* refers to the maintenance of knowledge over time, an ESN platform allows the storage and accessibility of information anytime (DiMicco et al., 2008). Secondly, referring to the *physical distance*, ESN supports the information sharing between employees, regardless where they are physically located and hence leverages communication and collaboration beyond geographical barriers (Lai & Turban, 2008). Lastly, taking the *social distance* into account, by leveraging social relationships and encouraging communication between employees, an ESN platform lowers the barrier of social distance. More specifically, it provides the ability to interact and share information, opinions, common interests, experiences and ideas with other employees outside their immediate working group, while connecting individuals and groups in a non-routine way across the organization (Lea, Yu, Maguluru, & Nichols, 2006; McKeen & Smith, 2007).

Although it is argued that knowledge distribution is not an easy task and it depends on the organizations' culture on how knowledge is made available for its employees as well as on the shared social understanding (Bhatt et al., 2005; Hendriks, 1999; Roberts, 2000), there are sev-

eral knowledge sharing practices where social technology tools and especially an ESN platform attempts to remove the barriers between knowledge owners and knowledge reconstructors. As stated by Jarrahi and Sawyer (2013), ESN particularly supports the following knowledge sharing practices: (1) expertise locating, (2) expert locating, (3) reaching out, (4) socializing, and (5) horizon broadening.

*Expertise locating* is when an employee accesses information and codified knowledge, without contacting the person who holds the original knowledge. *Expert locating* on the other hand refers to the action when employees seek for the advice and input from other knowledgeable persons in order to gather specific information from co-workers within their social network. Thereby, the key resource for finding the right person lies in the seeker's social network while social technologies as email, forums, corporate portals or internal social networking platforms support this mechanism. Furthermore, the practice of *reaching out* is used, when employees reach out for other individuals or simply contact others to obtain their knowledge in order to find an answer to a knowledge problem or to get to know how to accomplish a certain task. *Socializing* practice is associated with the natural need of people to increase their personal network. While it is not directly associated with an immediate work problem, people aim to expand their personal network in order to generate and maintain social ties with the overall goal to realize a better directed and targeted knowledge sharing. In this way, the socializing practice can be divided into three types of activities: generating new ties where a person learns about and connects with other people that are either within the organization or outside of it; solidifying social ties, when a person maintains its relation with existing knowledge people; community building by combining the generation of new ties and solidifying social ties in order to deepen the sense of community leveraging emotional support and identity. Lastly, *horizon broadening* is practiced, when a person wants to be kept updated and thereby gaining knowledge about work-related perspectives or views on professional interests, being beyond the immediate demands of work-at-hand. (Jarrahi & Sawyer, 2013)

**Summary.** On that account, the unique added value of ESN in an organization lies particularly in its ability to overcome the barriers of temporal, physical and social distance and to create an environment, where expertise and expert locating, reaching out, socializing and horizon broadening can be done, while it connects those, who need to share and those who hold the knowledge (Patrick & Dotsika, 2007). It further facilitates information and knowledge exchange, providing a social sharing space for individuals within an organization to access, share and discuss information with others (Mäntymäki & Riemer, 2014).

### 2.2.2 Organizational learning

Simultaneously, the emergence of Web 2.0 technologies and the usage of ESN platform not only allows actions of knowledge sharing, but moreover can foster the creation of knowledge and thus leveraging organizational learning within an organization. Indeed, the engagement and empowerment of employees and the creation of a collaborative environment as it is done through an ESN, simplifies the process of knowledge creation, where it forms at the same time the basis for enhancing the organizational knowledge (Boateng, Malik, & Mbarika, 2009). Organizational learning is thereby defined as a process of learning within an organization, where an organization learns from past behaviour and information in terms of what worked and what did not work. Thereby it is mostly represented through best practices and lessons learned, and consequently transferring and using this knowledge effectively in the present and the future in order to influence the efficiency and effectiveness of an organizations' business positively over time (Dalkir, 2013; Schiuma, 2012). Thus, organizational

learning is the organization's ability to create knowledge from feedback within the organizational performance, from that actions are taken by capturing and using the existing organizational knowledge in order to improve the overall value (Huber, 1991; P. M. Jones, 2001). However, as argued by Nonaka and Takeuchi (1995), organizational knowledge does not arise from the sum of individual learning, but rather is based on the ability to learn and create knowledge through dynamic interactions between tacit and explicit knowledge among employees. Consequently, as the interplay of tacit and explicit knowledge is seen as a critical factor of organizational learning (E. Davenport & Hall, 2002), in the following the conversion of knowledge and its creation process will be further outlined and related to the context of ESN.

**The knowledge creation process.** In order to tap deeper in to the opportunities of knowledge creation enabled by an ESN platform, we need to outline the process of how knowledge is created, derived from a popular model of knowledge creation, known as the SECI model (Nonaka & Takeuchi, 1995). This model comprises four different modes of knowledge conversion: socialization, externalization, combination and internalization (Figure 2-4).

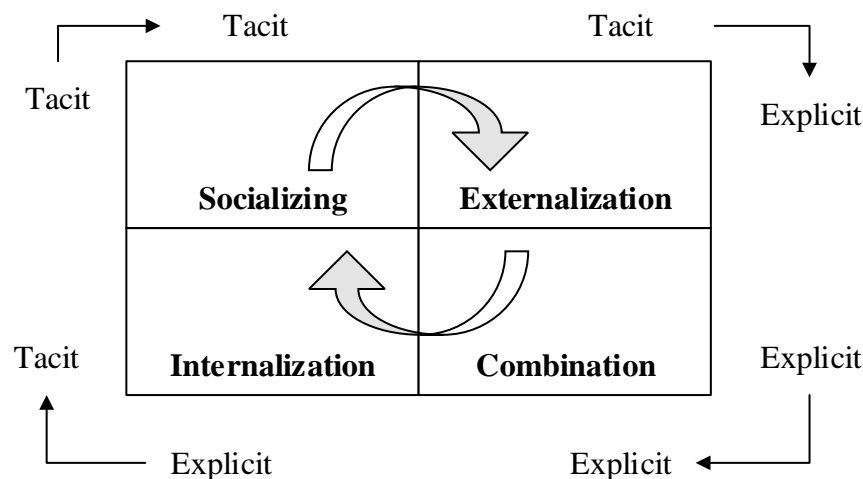


Figure 2-4. Knowledge creation process according to the SECI model (Nonaka & Takeuchi, 1995)

Firstly, the mode of *socialization*, seen as the easiest form of exchanging knowledge, refers to the conversation of tacit to tacit knowledge and thereby involves the process of sharing knowledge in social interactions in order to gain a shared understanding (Dalkir, 2013). Secondly, the process of *externalization* is related to the conversion of tacit to explicit knowledge, where the first order of business is to articulate tacit knowledge and know-how into explicit knowledge by using abstractions, metaphors, analogies, hypotheses or models (Nonaka & Takeuchi, 1995). This often takes place in writing down, recording or drawing the knowledge, so that it become tangible, permanent and easier to share with others (Dalkir, 2013). The third stage of *combination* codifies explicit knowledge into a more discrete structured set of knowledge, where it is not seen as a new knowledge per se, but moreover the combination or representation of already existing knowledge. Examples hereby include the integration of existing information extracted from a database in order to create new knowledge, which can then be represented in for instance review reports, executive summaries or trend analysis (Dalkir, 2013; Lopez-Nicolas & Soto-Acosta, 2010). Lastly, *internalization* describes the concept of converting explicit knowledge to tacit knowledge by integrating shared or individual knowledge and experiences into individual mental models. This is done by either the method of learning by doing, observations or on-the-job-training (Chou, Chang,

Tsai, & Cheng, 2005), while it can be consequently used by other employees to broaden, extend or reframe the captured knowledge with their own existing knowledge (Dalkir, 2013).

**Knowledge creation in context of ESN.** Regarding the knowledge creation in relation to ESN, it can be argued that an ESN supports the conversion of knowledge in each of these processes. Indeed, an ESN provides the ability of tagging, social bookmarking and following others profile by linking or subscribing to others, while it provides a platform for social interactions and information sharing among individuals (Richter & Riemer, 2013). Thereby, ESN provides an environment for interaction, bringing knowledge owners and knowledge seekers closer together and thus enables *socialization* through observation, gathering and sharing of knowledge as well as through the imitation of ideas. Thus, it enables the sharing and capturing of individual knowledge, while the knowledge becomes at the same time more searchable, accessible and usable (Boateng et al., 2009; Nath, Singh, & Iyer, 2009). Moreover, concerning the *externalization*, ESN can be used for collaborative work, dialogues and discussions and by framing users knowledge into categories and groups and providing the opportunity of filtering, it leverages the systematic arrangement of knowledge and hence facilitates the organization of knowledge from the individuals, which in turn enables the creation of metaphors and abstractions from the received information (Boateng et al., 2009). Regarding the stage of *combination*, ESN leverages the combination of explicit knowledge from various sources, where it enables the integration of different knowledge and the import of external resources into one large system through uploading, editing and recommending content and information (Shang, Li, Wu, & Hou, 2011). Finally, an ESN platform also leverages the process of *internationalization* as it enables the communication of feedback, the creation of polls to evaluate alternatives, content editing and co-creation among employees regardless of their place or time. Thus, ESN allows individuals to reflect knowledge, experiences, best practices and lessons learned, and thereby leverage the mechanism of learning by doing and asynchronous learning by allowing employees to apply and experiment with the knowledge received from others. (Boateng et al., 2009; Sophia van Zyl, 2009)

**Summary.** In sum, by leveraging the creation of knowledge in all four phases of the SECI model, an ESN platform provides the ability to increase the effectiveness and efficiency of organizational learning, which in turn could lead to an expansion of the organizational knowledge. Consequently, by facilitating the exchange and generation of knowledge, it could support the development of a knowledge sharing organizational culture and ensure, that knowledge does not only remain in the control of the individuals, but moreover becomes a collective resource, where the entire organization can benefit.

### 2.2.3 Social capital

While the organizational learning plays a crucial role in the competitive environment (Argote & Ingram, 2000; March, 1991), many organizations are showing increased interest in social capital and its enhancement (Burt, 2005). The term social capital itself has already been used for a long time, where one of the earliest definitions were provided by Hanifan (1916), stating that social capital refers

*“...to that in life which tends to make these tangible substances count for most in the daily lives of people, namely, good-will, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit.”*  
(p.130).



Years later, Coleman (1988) follows this definition by suggesting that social capital relies in social structures of relations among actors facilitating certain actions within these structures. In general, derived from a more present definition by Lin (1999), social capital can be understood as an “*investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions*” (p.39). Simplified, social capital is generally rooted in the social network structure of an organization and hence embedded in the informal networks among employees (Steinfeld, DiMicco, Ellison, & Lampe, 2009). Social capital is thereby not only the sum of the individuals residing in an organization, but rather the glue which holds them together (Dalkir, 2013). Advocates of the social capital theory argue that relationships and interactions occurring in a network are a valuable resource for the conduct of social actions and thereby strongly influencing the way in which individuals are acting and consequently how knowledge is shared in an organization (Baker, 1990; Bourdieu, 1986; Coleman, 1988, 1994).

**Structural, relational and cognitive social capital.** Nahapiet and Ghoshal (1998), who argue that social capital particularly increases the efficiency of action and encourages cooperative behaviour, categorize social capital in three dimensions: structural, relational and cognitive social capital. Thereby, the *structural social capital* describes the configuration of the linkages between individuals or units and thus describes the overall pattern of connections and the presence or absence of network ties between individuals in terms of who is reaching who and how. The structural dimension is thereby measured through variables as density, intensity, connectivity, stability and hierarchy. The *relational social capital* on the other hand, refers to the nature and quality of relationships between individuals, where it is mainly influenced by trust and trustworthiness, obligations, norms and sanctions and expectations. Lastly, the cognitive social capital is related to “*those resources providing shared representations, interpretations, and systems of meaning among parties*” (p.244). In other words, it indicates the resources, which increase the understanding between parties, where factors such as shared culture, goals, codes, narratives and languages are important (Chow & Chan, 2008; Huysman & De Wit, 2004).

**Social capital in context of ESN.** At this point, our literature review reveals that particularly ESN has been found as an enabler of social capital. Concerning the structural social capital and the fact that an ESN facilitates social interaction and enables the collaboration beyond the boundaries of physically and timely constraints (Ali-Hassan & Nevo, 2009), it could lead to an increased amount of active participants within the network, where it leverages at the same time the formation and strengthening of ties (Ellison et al., 2014; Wellman, Haase, Witte, & Hampton, 2001). It enables an individual to access new connections outside the immediately working group, to new people and expertise (Ellison et al., 2014) and hence, provides the ability to increase the intensity and density of the social network. Moreover, the fact, that an ESN enables cross-site communication regardless of the hierarchical structure, it gives every employee a voice and forms open lines of communication between executives and employees (Ardichvili, Maurer, Li, Wentling, & Stuedemann, 2006) and thus positively impact the structural social capital.

Taking the relational capital into account, and the fact that especially trust emerges from social interaction (E. Davenport & Hall, 2001), an ESN could enable the development of trust in terms of that it facilitates social interaction, this in turn could lead to the establishment of trusting relationships and the formation of cognition-based trust (Liu et al., 2014). By participating in an online community as an ESN platform, employees are enabled to show respect to others content or appreciate it, by leaving rewarding comments or simply display, that they like a particular shared information. Thus, it may increase the level of trust and reciprocity as

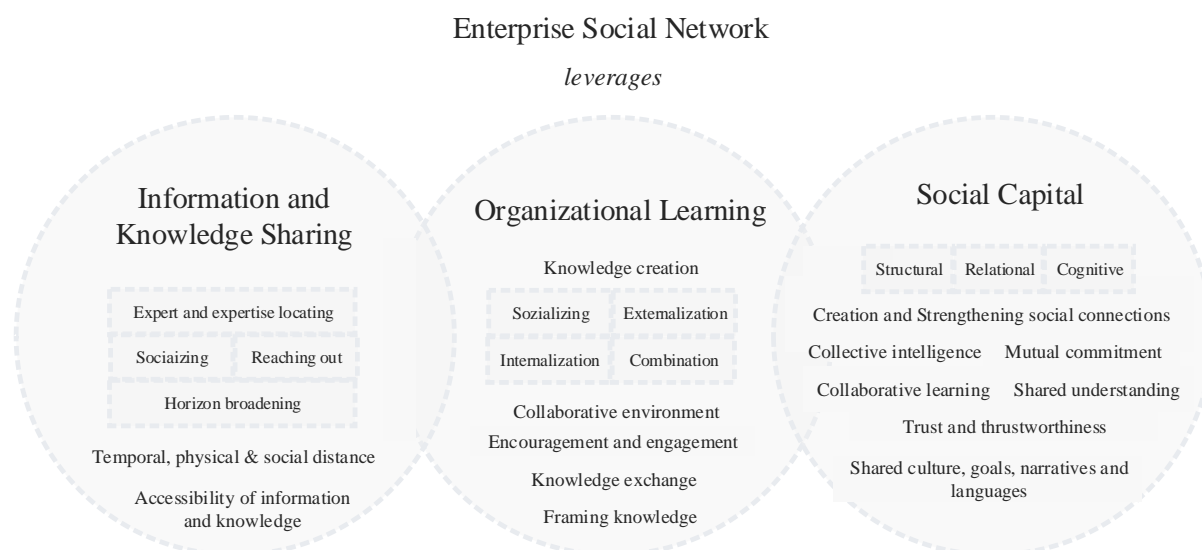
well as the willingness to contribute (Wellman et al., 2001). While an ESN fosters social collaboration, it simultaneously leverages the creation of virtual communities, where individuals are enabled to belong to a group where they share, discuss, collaborate and argue about topics of common interests (Bernal, 2009). Making use of an ESN indeed supports the creation of a feeling of belonging and mutual commitment (Gunawardena et al., 2009) as well as a sense of community and team spirit, while it promotes openness, cooperation, loyalty and trust (Hall & Graham, 2004). The fact, that an ESN enables cross-site communication regardless of the hierarchical structure, gives every employee a voice and forms open lines of communication between executives and employees. Indeed, it further supports a shared vision and the strengthening of social interaction ties among individuals (Ardichvili et al., 2006; Steinfield et al., 2009) and hence may influence the employees' trust and willingness to share knowledge and to be engaged in the social network.

Using an ESN holds the potential of improving a shared understanding, a common ground and mutual perception (Ali-Hassan & Nevo, 2009) and thus influencing the cognitive social capital. Furthermore, an ESN promotes active and engaged learning, where employees get to know each other better and share and create knowledge through interaction and exploration (Kamel Boulos & Wheeler, 2007). Moreover, it harnesses the collective intelligence and thereby makes it easier for anyone within the organization to submit information, ideas and feedback and hence, provide the ability to increase the level of a shared culture, goals and mutual understanding (Razmerita, Kirchner, & Nabeth, 2014).

**Summary.** It can therefore be said, that ESN holds the potential of creating and further developing the overall social capital within an organization by leveraging all three forms of social capital: the structural, relational and cognitive dimension.

#### *2.2.4 Overview of the possible opportunities*

In summary, the literature review reveals, that the integration of an ESN in an organizational environment offers several opportunities for leveraging the efficiency and effectiveness of information and knowledge sharing. While it provides a collaborative environment, it increases the accessibility of information, facilitates the exchange of information and knowledge, leverages organizational learning and knowledge creation as well as provides a platform that could strengthen the social connections and foster social capital. To conclude, the following figure summarizes the determinants of ESN (Figure 2-5)



**Figure 2-5. Summary of the determinants of ESN.**

This graphic displays the three core determinants possibly influenced by ESN. This developed framework, will be used in our study, inter alia, to analyse and identify the key enablers provided by ESN. Thereby, the rectangles within the circles represent the actions of each determinant. As illustrated by one example: *information and knowledge sharing* is done via expert and expertise locating, socializing, reaching out and horizon broadening, where the other terms represented in the figure are then the effects on these actions enabled by ESN, as lowering temporal, physical and social distance and leveraging the accessibility of information and knowledge.

## 2.3 Challenges

The previous chapter highlights the great potential associated with the usage of ESN in a corporate environment, ranging from an enhanced employees collaboration and knowledge exchange, over stronger social relationships to an increased level of organizational learning. However, every coin has its other side and as it is a fact that many organizations still struggle with the implementation of social technologies (Van der Meulen & Rivera, 2013), the adoption of an ESN entails a number of challenges. By reviewing the existing literature, it came particularly clear that the main challenges identified are lack of management and leadership support, overcoming of cultural barriers as well as lack of employees' engagement and the interoperability of ESN with existing enterprise systems and business processes.

### 2.3.1 Leadership and management support

Several studies indicated, that the usage of Web 2.0 technologies and thereby the usage of ESN heavily depends on the leadership and the support of the management (Bennett, 2012; Brzozowski, 2009; Corso et al., 2008; Paroutis & Al Saleh, 2009; Turban et al., 2011). Although Web 2.0 technologies are seen as intuitive and easily adaptable, one of the biggest challenges found in prior literature is the lack of leadership and management that hinders an effective use of an ESN. As explored in a study by Paroutis and Al Saleh (2009), the lack of support and recognition from the organization is one major factor hindering the active partici-

pation of employees within Web 2.0 technologies. They argue, that an active leadership role is needed in order to introduce such technologies successfully, where it has to be clearly communicated how it supports the achievement of the overall business goals, what benefits are intended and how it fits in the overall organizational strategy. This is also in alignment with the view of McAfee (2006), who argues that a clear communication plays a crucial role as the adoption of Enterprise 2.0 technologies is not done automatically and have a great dependency on the actions and decisions made by the managers of the organization. He further found, that the encouragement and stimulation of the use of Enterprise 2.0 from the leaders of an organization is needed in order to benefit from its usage.

**Communication and coordination.** With the recent popularity of public social networks, like Facebook, organizations see the need for implementing communication tools such as ESN in order to follow the changing communication behaviour of the employees in private life (Alarifi & Sedera, 2013; Kügler & Smolnik, 2014). By using ESN, organizations expect to improve the communication and collaboration within the organization (Alarifi & Sedera, 2013). However, when implementing the ESN, organizations often intend to give a brief notification that the system is up and running, without giving any explanation on how the structure of the system should be, but instead they wait to see the benefit occur (McAfee, 2009b). This structure of implementing ESN might work at the beginning of the adoption, where the attention it gains is high but after some time the participation decreases, as there is a lack of participation from most of the employees, which leads to an inactive ESN (Leroy, Defert, Hocquet, Goethals, & Maes, 2013). Thus, it is a difficult task to get a wide adoption of ESN, as it is challenge to encourage users to participate, and especially with the lurkers, who are defined as members who never contribute within ESN (Alarifi & Sedera, 2013).

It has been previously argued, that digital natives are more attuned and show a higher affinity to Web 2.0 technologies (Tapscott, 2009), where it is at the same time assumed that they especially find social networks natural and moreover, expect such technologies to be available in their workplace (Levy, 2009; Pettey & Tudor, 2010). However, it could not be assumed that digital natives nor digital immigrants just use an ESN without being guided (Selwyn, 2009). The fact that social network technologies leverages bottom-up collaboration (Richter, Heidemann, Klier, & Behrendt, 2013) may lead to the assumption that top management play a limited role in its adoption. However, this is not a fact of truth. Indeed, it is ironic, that on the one hand, organizational leadership is a crucial factor in the adoption of Web 2.0 technologies and that it demands in a way a top-down approach, and on the other hand, these technologies are contrary known as an enabler for less hierarchical and bottom-up work environment (Seo & Rietsema, 2010). But as several studies outlined, it is certainly the case, that some coordination from the top-level management is needed. A study of Brzozowski (2009) indicates, managers are seen as the key influencers for introducing an ESN successfully, where employees consider the management support as an important factor in order to inspire the participation within an ESN. Moreover, it is argued, that the change has to be driven from the top and the ESN has to be embraced from the executive team in order to gain employees' motivation to use the ESN (Bennett, 2012). This is also confirmed by a case study of Onyechi and Abeysinghe (2009), where they emphasized that the involvement of management and policy makers plays a crucial role in the adoption of social network tools. It has been found, that an active participation in the social platform can be positively influenced when the significance of the platform is clearly communicated (Turban et al., 2011). Moreover, as emphasized by Paroutis and Al Saleh (2009), it enhances the employees awareness and encourage the adoption of ESN among employees when the top management sends strong messages about the importance of the platform and indicate how crucial knowledge sharing is.

**Strategic approach.** It is further stated, that organizations need a strategic approach and alignment, where operational policies and procedures are taken into account before the implementation of an ESN can be realized (Barnes & Barnes, 2009). Moreover, as Saldanha and Krishnan (2012) argue, organizations need to develop a comprehensive understanding of the ESN and its influence on the organizational settings in order to create the basis for a successful adoption. Van der Meulen and Rivera (2013) support this view emphasizing that leadership and the development of a social business strategy is needed, indicating the sense and purpose of social technologies for the organization in order to support a successful adoption. In addition, as stated by Turban et al. (2011), the use of a social network platform is only useful when it is applied to appropriate tasks and hence a clear strategy and a shared view are necessary, where the organizational and individual needs and expectations has to be taken into account. This is in alignment with the findings of Wang, Jung, Kang, and Chung (2014) study, where they also indicated that a successful adoption of Enterprise 2.0 technologies is highly influenced by the support of managers and executives. They suggest, that managers should define and execute a clear strategy in order to gain employees' motivation to use the system as well as clearly indicate and communicate the desired benefits of using Enterprise 2.0 technologies to leverage employees' awareness on how the technology in particular contributes to the enhancement of their work performance, which in turn may lead to an increased and more effective usage.

**Guidance and training.** Understanding that some individuals might be familiar with the use of social networks derived from the widespread private use of Web 2.0 technologies, it might lead to the assumption that any guidance for using the technology is not needed, following the motto "*if we build it, they will come*" (McAfee, 2006, p. 26) or "*...if we get the technology right, then cooperative working will follow*" (Bannon & Schmidt, 1989, p. 363). However, an important element in terms of organizational and management support is still training and guidance of how to use a particular Web 2.0 technology (Paroutis & Al Saleh, 2009). As Brzozowski (2009) found, it plays a crucial role to train employees how to use a social network in a business context in order to leverage an active participation. Here he argues that it is not specifically meant to train employees about the technology's' functionalities in detail, rather provide a guidance for on-the-job-use of social network technologies and leverage the meaningfulness in terms of connecting its purpose to business problems and train the employees about for what specific tasks the tool can be used in order to drive encouragement and active participation. As stated by Jackson, Yates, and Orlikowski (2007), it is crucial that employees are aware of the usefulness and possible benefits provided by the ESN, where employees consider social technologies such as ESN as useful, when it improves their work to be done and clearly see their benefits by using it. Specifically, the authors argue, that employees view the technology and hereby the established connections to their co-workers as useful when it allows them to share and gain valuable work-related information through these connections.

### 2.3.2 Cultural barriers

Overcoming cultural barriers in order to leverage a successful adoption of ESN seems like another challenge faced by organizations. The creation of a supportive work environment characterized by an emphasis on collaborative activities still remains a significant challenge (Dyrby, Jensen, & Avital, 2014). Indeed, it has been found that the difficulties in Enterprise 2.0 technologies are not on the technical side, rather on the cultural side (Corso et al., 2008). Hereby, it cannot be taken for granted, that the introduction of Web 2.0 technologies in organ-

izations, and herein ESN, will automatically lead to an enhanced collaboration and knowledge sharing culture among employees (Chiu, Hsu, & Wang, 2006).

**Cultural readiness.** As argued by Koch, Gonzalez, and Leidner (2012), the introduction of ESN platforms needs to be aligned with the cultural values residing in the organization. In particular, as emphasized in a case study of Denyer, Parry, and Flowers (2011), a shift towards an open and collaborative culture is needed in order to enable a successful adoption of social technologies. Moreover, Kamath (2008) claims that an organization has to analyse whether the organizational culture already fully supports collaboration or if executive support is needed to build a collaborative culture before implementing any social network technology. As stated by Schneckenberg (2009), the acceptance and sustainable use of social technologies depends heavily on the extent to which individuals are willing to collaborate and share knowledge among each other, where especially trust plays an important role. Accordingly it is argued by Abrams, Cross, Lesser, and Levin (2003), that in particular two dimensions of interpersonal trust influence the knowledge sharing culture related to social networks, which are benevolence- and competence-based trust. Thereby, they revert to the work of Mayer, Davis, and Schoorman (1995) and state, that benevolence-based trust is based on the principle that people care about one other and take an interest in their well-being goals. On the other hand, the competence-based trust refers to the principle that individuals are being confident, that others have the relevant expertise that they can rely on and are confident that they are trustworthy sources of knowledge, while they simultaneously believe, that the others know what they are talking about and see a value in listening to and learning from that. Consequently, it is of need to have a certain level of benevolence- and competence-based trust in order to be able to moving towards a collaborative and knowledge sharing culture. Thus, despite the fact that ESN platforms can increase the intensity of trust by facilitating social interaction and strengthening personal relationships among employees (Liu et al., 2014), it is nevertheless in the same way impossible to establish a collaborative work culture without having a general trust (Paroutis & Al Saleh, 2009).

It can be therefore assumed, that an organization has to follow the principle: the technology is just the condition, but the individual is the prerequisite and thus, the cultural readiness by using an ESN plays a crucial role in the adoption of ESN. Even though changes in the organizational culture in terms of shifting organizational norms and anchoring social collaboration might not be an easy task (Hester, 2014), it is needed that the culture will stress the necessity of community and collaboration in order to leverage the employees' commitment and to be able to perceive value from the usage of ESN (Li, 2012).

### *2.3.3 Employees' engagement and interoperability with existing business processes*

Another possible challenge in regard to the adoption of ESN is the lack of employees' engagement and the interoperability with existing work procedures and business processes.

**Employees' engagement.** We define the level of employees' engagement accordingly to W. A. Kahn (1990), who stated that the level of personal engagement refers to the extent to which individuals are employed and express themselves physically, cognitively and emotionally in the particular process. Basically, in context to ESN, it means how actively employees are participating within the platform and how motivated and willing they are to contribute and share their information and knowledge with other colleagues. This in turn, relies on the personal motivation, the perceived usefulness and expectations about ESN, where it can significantly differ between digital natives, digital immigrants as well as depending on the employees' role

and hierarchical position within the organization (Figuroa & Cranefield, 2012). It is argued that a low level of employees' engagement could lead to the effect, that the ESN will not further established in the organization and thus could let the implementation of ESN fail (Malsbender, Recker, Kohlborn, Beverungen, & Tanwer, 2013). The level of engagement within ESN thus significantly impacts its successful adoption. In a study of Wang et al. (2014), it has been further emphasized that in particularly the perceived usefulness of an ESN has an impact on the behavioural intentions and thus on the level of engagement. But as stated previously, the perceived usefulness and herein the level of engagement is also influenced by the degree of existing management support, by the awareness of the ESN objectives and on the alignment with the work-related tasks to be done from the individuals.

Another reason for lack of employees' adoption is because employees consider that they are too busy and do not have the additional time or motivation to participate within ESN. This view holds especially true where the ESN has been implemented without any structure, ill-defined goals, and lack of expectations. In addition, it is further argued that a low engagement could arise from the employees' uncertainty about how the top managers view their participation within ESN, whether superiors value the employee for contribution or assume that employees are not really interested in their real job. When this is not clear, it could lead to a lack of adoption. Thus, the managements' active participation is crucial and in order to lower the employees' uncertainty, top managers and superiors should actively participating within the ESN to show the other employees that it is not frowned upon to use the system. By doing so, they are giving a strong message that they also believe in the system. (McAfee, 2009b)

**Integration in the wider organizational infrastructure and work procedures.** Additionally, organizations also face challenges with the integration of ESN platforms into the wider organizational infrastructure, workflows and business processes (Williams, Hausmann, Hardy, & Schubert, 2013). Although it is generally possible to implement an ESN as a stand-alone solution, it is still of need to integrate the ESN in the existing enterprise systems landscape and the individual work procedures in order to become useful and to foster employees' engagement (Li, 2012). It is necessary, that social technologies are interpreted and appropriated in order to enable the integration in the work environment and in shared work practices (Riemer et al., 2009). As it is stated in the study of Li (2012), organizations can get more value out of the usage of ESN when it is incorporated in the employees' workflow and further evidence is found in the study of Chiu et al. (2006), who argued that the employees' active participation will not last long when the social technology is not integrated in their day-to-day activities.

#### *2.3.4 Overview of the main challenges associated with ESN*

Due to the nature of a social network and its network effects, it can be said, that the more employees are participating on an ESN platform by sharing information among co-workers, the more likely it is that they will continue to participate and hence, the higher is the level of engagement (Brzozowski, Sandholm, & Hogg, 2009). Conversely, when there is a lack of management support, missing guidance or lack of appropriate training and cultural barriers for leveraging social collaboration, it might lead to a lower amount of participation, which in turn result in a lower level of engagement and finally affects the overall success of the adoption of the ESN. In this regard, the following figure summarizes the main challenges outlined in this chapter (Figure 2-6).

## Overview of the main challenges

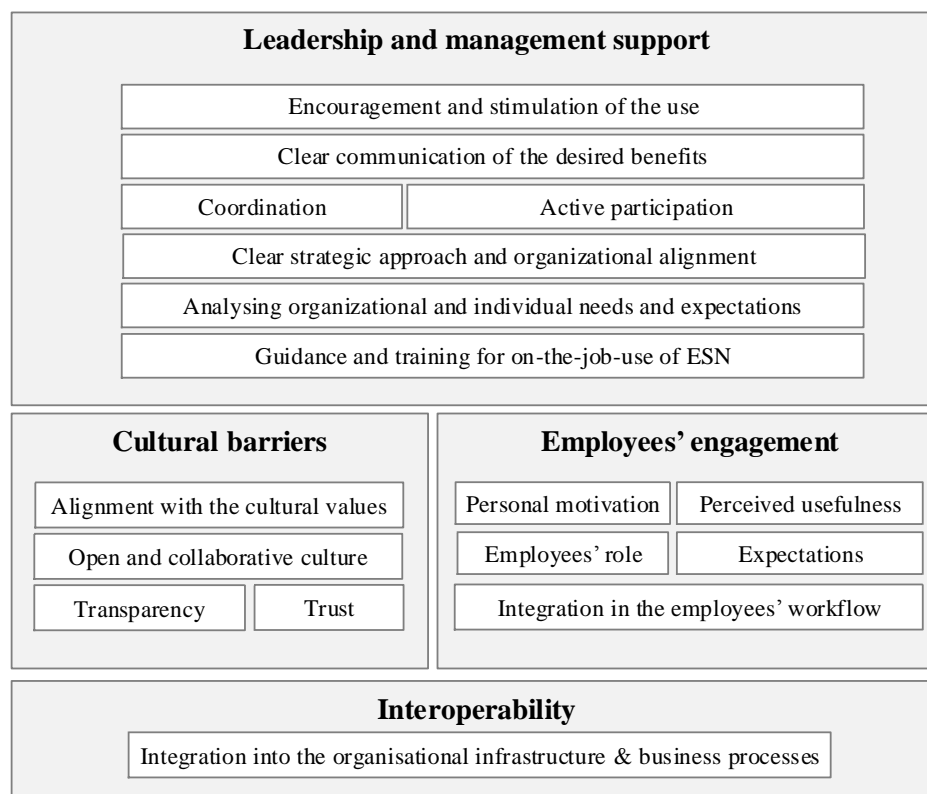


Figure 2-6. Overview of the main challenges associated with ESN.

## 2.4 Themes and methods derived from selected theories

It has already been noted that there are several good reasons for organizations to invest in the implementation of ESN (section 2.2). A strong evidence exists, that ESN systems could provide organizations valuable benefits, due to its ability to improve information and knowledge sharing within the organization (Li, 2012). However, as outlined in the previous chapter, the adoption simultaneously poses great challenges, where the lack of adoption of ESN platforms is mainly caused by the facts, that it is not sufficient supported by the management, employees lose interest in the system over the time, only some employees are willing to adopt the system or due to lack of cultural maturity in regard to the ESN (Li, 2012). Thus, it can be argued that the analysis of ESN and its impact on the organizations' performance are highly complex, where many aspects have to be taken into account in order to analyse the ESN adoption and its usage within organizations. One challenge faced in this research is, that the prior literature on ESN does not provide one specific theoretical approach that could be adopted in order to meet our research aim, defining the main factors to be analysed in order to explore the role of the ESN in organizations. For the purpose of our thesis we therefore reached out for appropriate theories and came to the conclusion, that particularly two theories support us in framing our research: the Rogers diffusion model and the socio-technical system theory (STS). We explain each of these models and provide the reasoning behind how they are related to our research aim in order to aid the understanding of the usefulness of these frameworks.



### 2.4.1 Rogers Diffusion model

The “diffusion of innovations” theory, first proposed by Everett M. Rogers is a well-known and widespread framework, often seen as a social process (Rogers, 1983), where it is used for explaining issues related to the diffusion of innovation and implementation of technologies within organization (Kautz & Åby Larsen, 2000). Over the past decades many researchers adopted, modified, and improved the original model and due to its abstract framework it could be simultaneously applied to various studies concerned with the introduction of innovation in any field of study, such as rural sociology, communication, education or public health (Rogers, 2004). Due to its diverse range of application options, it can thus also apply to innovation related to Web 2.0 technologies (Chang, 2010; Rogers, 2004) and hence, to the innovation and adoption associated with ESN. In general, as emphasized by Rogers (1983),

*“diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (p.5).*

The communication process is thereby special in a way, that the message being delivered involves new ideas and where individuals can create and exchange knowledge and information with each other in order to gain a mutual understanding (Rogers, 1983). Thus, it is a kind of social change, defined as the process where changes in structure and function of a social system occur, i.e. these changes occur when new ideas are invented, diffused, and either adopted or rejected, which then leads to a certain consequences (Rogers, 1983).

**Main elements of the diffusion of innovation theory.** As a result, the diffusion of innovation is a process where few users of a social system initially adopts a new innovation, where over time the number of adopters increases up to the time at which all, or most of the users, have adopted the innovation (Rogers, 1983, 2004; Ryan & Gross, 1943; Valente, 1993, 1996). Rogers (1983) introduced the four main elements of the theory as innovation, communication channels, time, and a social system. *Innovation* can be defined as an idea, practice, or object that an individual sees as a new innovation, where new innovation does not necessarily mean new knowledge, as the individual may already have previously gained the knowledge but has not adopt it yet. *Communication channels* refer to the way “... by which messages get from one individual to another” (Rogers, 1983, p. 17). The *time* dimension is an important factor of the innovation-decision process, where it is a part of the diffusion in a way, that it (1) is involved in the individual's innovation decision process, from the time that he or she acknowledge the innovation until the innovation has either been adopted or rejected, (2) measures the earliness or lateness of an individual adoption of the new innovation, compared to other users of the system, and (3) is involved in the innovation rate of adoption in a system, where the number of individuals who has adopted an innovation is measured within a certain time period. A *social system* has a set of interrelated units that works on solving problems together in order to achieve common goals, where the users or units of the social system can vary from individuals, informal groups, organization, or subsystems. Accordingly, these four elements are the frame of the innovation-decision process, being the process from when an individual first gains knowledge about an innovation until the individual has made an opinion about this particular innovation, i.e. where the individual has made a decision if the innovation will be beneficial for him/her which then leads to adoption or rejection. The process is furthermore, mainly an information-seeking and -processing activity in which the individual is motivated to reduce uncertainty about the advantages and disadvantages of the innovation. (Rogers, 1983)

**Five stages of innovation-decision process.** In order to make a final decision of the adoption of the innovation, an individual goes through five stages of the innovation-decision process: knowledge, persuasion, decision, implementation, and confirmation. Firstly, in the *knowledge* stage an individual is notified about an existing innovation, where he or she gains an understanding on how the innovation works. Secondly, *persuasion* occurs when an individual makes an opinion about the innovation, i.e. if it is beneficial or not for him or her. Thirdly, in the *decision* stage an individual is involved in activities that lead to decision if he or she will adopt or reject the innovation. Fourthly, at the *implementation* stage the individual starts using the innovation and lastly, the *confirmation* refers to the stage where an individual seek to strengthen the innovation-decision that has previously been made. (Rogers, 1983)

**Type of adopters.** As previously stated, the usage of an innovation depends on the individuals that adopt it, where they adopt innovations in a time sequence (Rogers, 1983). The adopters can be categorized into innovators, early adopters, early majority, late majority, and laggards (Fichman, 2000; Rogers, 1983), where each type of adopters is further explained in Table 2-3.

**Table 2-3. Type of adopters of innovation (Rogers, 1983)**

Type of adopter	Description
<b>Innovators</b>	Individuals, which have the enthusiasm of trying out new ideas, which will result in an expanded social network for them. As an innovator, an individual has communication patterns and friendship with other innovators. Innovator must also be able accept it if an innovation he or she adopts will be unsuccessful. Innovators are an important role within the diffusion process by promoting new idea in the social system. Thus, " <i>the innovator plays a gatekeeping role in the flow of new ideas into a social system</i> " (Rogers, 1983, p. 248).
<b>Early adopters</b>	Early adopters are in more contexts with the social system than the innovators are. The individual, who is an early adopter, gains a leadership within a social system as potential adopters seek for information and advice, from individual who is an early adopter, before they start using the new idea. It is therefore in the early adopters' hand, to adopt new ideas and in the meantime decrease the uncertainty about the new idea.
<b>Early majority</b>	An individual that is an early majority adopter adopts the new idea right before average individuals within a social system does. Different from the early adopters, early majority is seldom in the leadership position. They are open for new ideas and to adopt them, but do not want to be in the leading role of adoption.
<b>Late majority</b>	The late majority adopters are not the last one to adopt a new idea but they are adopting it right after the average individual within a social system, and therefore they wait with adopting until most of the individuals within the social system has adopted the new idea. This group of adopters often adopts the new idea because of network pressure or out of necessity.
<b>Laggards</b>	Laggards are a group of individuals who is almost isolated from the social network. When this group decides to adopt, the idea adopted has often been transformed into a more recent idea that the innovators have already start to use. Furthermore, it tends to be that laggards need to be fully sure that the idea works before they adopt the idea.

**Characterization of individuals' rate of adoption.** In addition to the type of adopters, Rogers (1983) suggest five attributes of innovation, in order to examine individuals' different rate of adoption of an innovation, and based on that to motivate their adoption (Vodanovich et al., 2010). The five attributes of innovation are: (1) *Relative advantage* is the level where an innovation is seen as better than the old one it replaces; (2) *Compatibility* is the stage where an innovation is seen as being stable with existing values, past experiences, and needs of potential adopters, and compatible innovation is adopted faster than the one that are incompati-

ble; (3) *Complexity* refers to the extent to which individuals think an innovation is difficult to understand and use, where some innovation are easier to understand than others that leads to a faster adoption of more understandable innovations, whilst the adoption is slower if the innovation is complicated to understand; (4) *Trialability* describes the degree to which an innovation can be tested at the implementation stage, before individuals committing to use the innovation. Innovation having a high degree of trialability can be easier and faster adopted, than innovations which cannot be experimented, as it lead to less uncertainty amongst individuals that are looking at the new innovation; and (5) *Observability* is the extent to which the results and gains of the innovation are visible to others. The more easily observed and communicated the innovation is to others, the more likely it is, that the innovation will be adopted by individuals. (Rogers, 1983)

**Diffusion of innovation model in context of ESN.** Connecting the types of adopters and their attributes to the context of ESN, it can be said that the users of ESN can be categorized in these types of adopters and in order to analyse the individuals' rate of the adoption of ESN, it has to be examined (1) to which degree does the ESN better replace other communication channels of the individual such as telephone, e-mail and face-to-face communication, and what benefits can the individual perceive through the ESN (relative advantage), (2) how does it fit to the individuals' work practices and to which degree does it meet the individuals' needs and expectations (compatibility), (3) how much time and effort is needed that the individual understands and can use the ESN (complexity), (4) has the ESN been tested within an evaluation project or test phase prior the actual implementation by which individuals are allowed to experiment with the ESN (trialability) and (5) was the implementation of the ESN clearly communicated and visible to the individual (observability).

Figure 2-7 illustrates the main elements of the diffusion of innovation model (coloured dark-grey), including the types of adopters (light ellipse) and the attributes of innovation influencing the adoption (light rectangle).

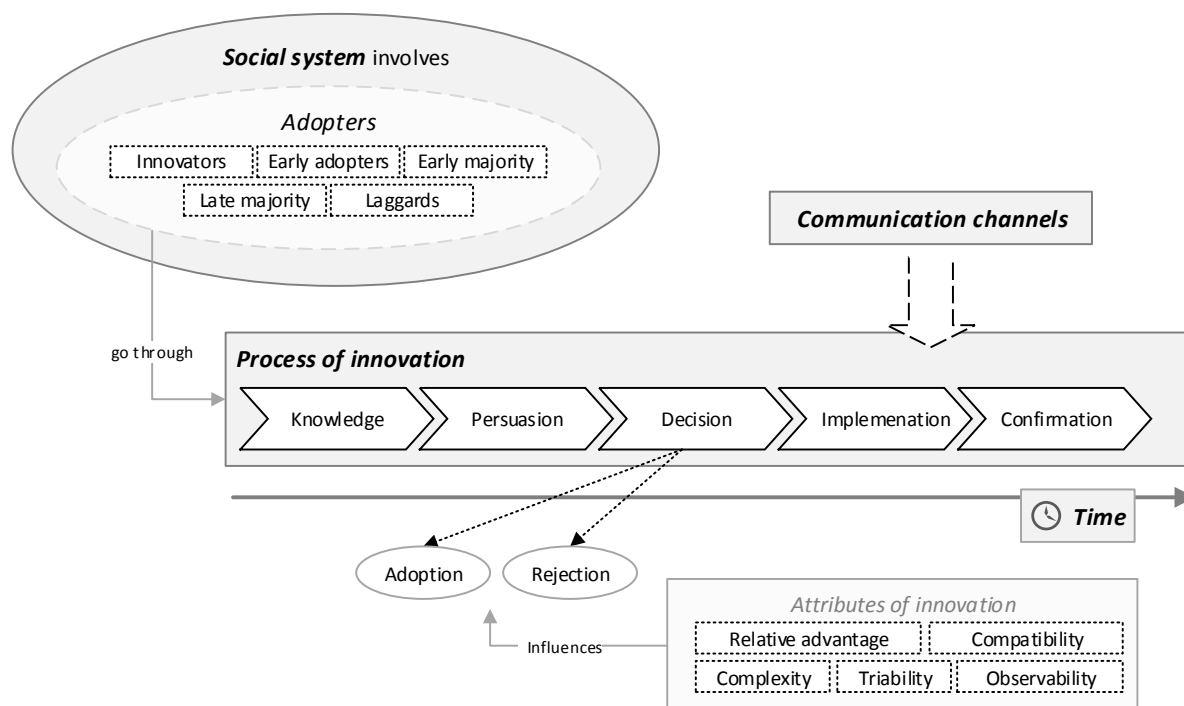


Figure 2-7. Overview of the diffusion of innovation model (Chen, Krikley, and Raible (2008) cited in Chang (2010, p. 2); Rogers (1983))

**Summary.** By analysing the individuals rate of the ESN adoption using the diffusion of innovation model, it supports the understanding and incentives on the user motivation to adopt the system, and thereby helps to explore how the usage of the innovation and herein ESN could possibly increase over the time (Chang, 2010). Thus, we believe that the diffusion of innovation model is well suited as a guideline for our research in order to explore the main factors driving the individuals' and organizations' engagement to use the ESN. Thereby, it would enable us, to categorize the individuals and the overall organizations taking part in our research into group of adopters. By doing so the early adopters could for example be seen as the first group of users, who initiated or drove the adoption, where the early majority could be those individuals, who were involved in the roll-out of the ESN and encouraged and motivate other employees to use the system (Freeman, 2004), whereas then the laggards could refer to the individuals rejecting or not engaged in the use of the ESN. Thus, using the model supports us to analyse if there is a distinction between employees regarding types of adopters, where for example early adopters could possibly refer to digital natives (Vodanovich et al., 2010). Moreover, in terms of capabilities we want to examine if all the types of adopters, characterized in the diffusion of innovation model, are represented in the organization and if so, in what way and to which degree the organization take these different adopters and their needs into account in the strategy and implementation of the ESN.

#### 2.4.2 Socio-technical systems theory

Socio-technical systems (STS) theory, first emerged around 1949 at the Tavistock Institute of Human Relations in London (Trist, 1981), has become a common approach for designing organizations and analysing the organizational impact of technology (Cummings, 1978; Dillon & Morris, 1996). The STS theory is a holistic approach focusing on the interdependencies of technical and social factors occurring between and among individuals, technologies and the

environment within an organization (Cummings, 1978). As it became clear in the previous chapter by outlining the challenges associated with the implementation of ESN, that a successful adoption does indeed heavily depend on the social aspects involved in the ESN and to a lesser extent on the technical part, we found it particularly appropriate to adopt the STS theory for the purpose of our study by analysing the adoption of ESN viewed from the perspective of the STS elements and its principles in order to reach our research aim.

**Elements of the STS theory.** In the view of the STS theory, an organization is an open work system and consists of technical and social elements, where the socio-technical system is open in this way, that both elements, the social and technical system are part of an inclusive system, but they should be open to its environment, to be able to continuously adapt to the changes in the environment in order to maintain the system state stable (Mumford, 2006). Thus, the work system include on the one hand, the *social system* referring to the people working in the organization (actors), workgroups and the relationships between them, which in turn are influenced by the actors' attitudes, skills, and values. On the other hand the *technical system* consisting of the work processes and techniques, technologies, knowledge and skills used by the actors of the social system needed for the organization to function and to perform its tasks (Bostrom & Heinen, 1977; Cherns, 1976; Emery & Trist, 1965; Pasmore, Francis, Haldeman, & Shani, 1982; Trist, 1981).

According to Pasmore et al. (1982), the STS theory suggests

*“that organizations are made up of people that produce products or services using some technology, and that each affects the operation and appropriateness of the technology as well as the actions of the people who operate it” (p.1182).*

Indeed, the STS theory provides an integrated concept which support the understanding of the complex way in which individuals cooperate and use technologies in an organizational environment in order to get their collaborative work done (Eason, 2008). Thus it is widely used for the design of organizational systems that consider human, social, organizational as well as technical factors within a work system (Baxter & Sommerville, 2011; Trist, 1981). By taking both into account, it focuses on the social and the technical factors' interdependencies, while it is argued that the interactions among the two systems leads to the creation of either successful or unsuccessful system performance (Read, Salmon, Lenné, & Stanton, 2014). Indeed, the STS theory has at its core the notion that the performance or design of a work system can only be improved when the social and technical part are brought together and treated as independent aspects (Clegg, 2000). Specifically, STS theory predicts, that when optimization is done in only one subsystem, for example introducing a new technology such as an ESN without considering the social system, it leads to impracticability of the overall system. This is in line with the previously mentioned statement (section 2.3), where it is argued, that social technologies such as ESN is only be useful if it is interpreted and appropriated to the organizations' social and technical system in order to enable the integration in the work environment and in shared work practices (Riemer et al., 2009). Thus, in order to reach a successful system performance, both components need to be managed and designed in a coordinated way in order to attain a joint optimization (Davis et al., 1992).

**Principles of the STS theory regarding effective work design.** Furthermore, the STS theory can support the creation of an effective work design, where it follows the main proposition, that the overall productivity of a system is directly related to the precise analysis of its social and technical needs and requirements (Appelbaum, 1997). Advocates of the STS have developed several guidelines and principles concerning the design of work. Some of the basic

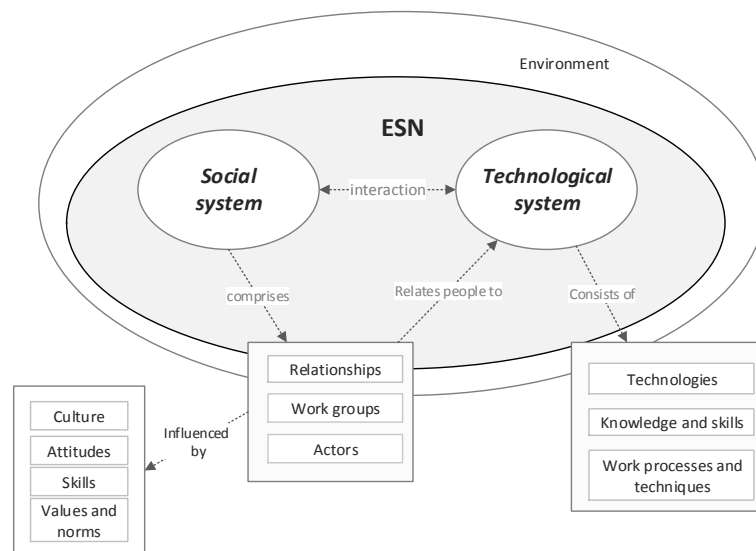
propositions, stated by Cherns (1976) are, that the work system has to (1) be organized in a way that it is compatible and attain the organization's goals, (2) adapt to its environment, and (3) group those individuals together in autonomous work groups, that perform related tasks which are relatively differentiated from other units in order to facilitate information, knowledge and learning sharing. In context to the implementation of ESN, this means that the work system emerging through the adoption of the ESN has to be aligned with the overall organizations' goals, has to be integrated in existing work procedures and processes, and should enable the creation and development of working groups, herein communities within the ESN, related to specific work-related tasks.

Especially the principles of the STS theory, characterizing an effective work design are helpful to describe the important factors to be considered in analysing the work system. In this respect, the prominent STS author Cherns (1976, 1987) outlines several principles of sociotechnical design in his paper:

- *Compatibility* - means that process of design has to be aligned with its objectives
- *Minimal critical specification* - which means undertaking tasks should be flexibly specified, in a meaning that as much as necessary rules, policies and predefined procedures, and as little as possible should be defined
- *Variance control* - states that processes of variances, or deviations should be controlled from where they were originated
- *Multifunctionality* – points out that an individual should have a variety of skills and expertise in more than one area in order to have work groups characterized by flexibility and the ability to respond to changes
- *Boundary location* - indicates that boundaries should be drawn and maintained in an order that it does not hinder the sharing of information, knowledge and learning
- *Information flow* - states that information systems should be designed in order to provide information to the desired site of action and problem solving,
- *Support congruence* – means that social systems should be designed in a way that it strengthens the desired social behaviour
- *Design and human values* - where the work design should enable the achievement of high results by allocating a high quality of work life in order to enable employees to fulfil their individual needs, including the offer of jobs to be reasonably demanding, learning opportunities, an area of decision-making, social support, the ability to connect social to work life and a job that leads to the desirable future of the individual.
- *Incompletion* – refers to the awareness that design is an iterative process, where new demands and conditions arising in the work environment are taken into account by continually rethinking the structures and objectives

**Principles in context of ESN.** Regarding these principles, ESN can be seen as a sociotechnical system, where its main focus is to create interactive communication, support social relationships and ad hoc sharing (Riemer et al., 2012). It could then be argued, in order to adopt an ESN successfully, it is needed to take the principles of work design into account such as being aware of its overall objectives (referring to the principle of compatibility), should be aligned with the individual needs, characteristics and abilities (related to the principle of design and human values) or examining behaviour and communication patterns of the individuals in order to reach the desired social behaviour, which is mostly the enhancement of the amount and efficiency of information sharing (referring to the principle of support congruence).

As already indicated earlier, referring to the challenges related to the adoption of ESN (section 2.3), it has become evident, that ESN has been adopted by many organizations without being successful, mainly caused by lack of management, lack of structure or lack of engagement, where employees do not see their benefits in using the system (Alarifi & Sedera, 2013). It has also been stated, that, organizations in fact need to understand the possible benefits of the system before getting employees to adopt the system (Kügler & Smolnik, 2013). Thus, it can be argued that it is crucial to regard the technology within its social context by considering simultaneously the work practices in which they are embedded (Richter & Riemer, 2013). Hence, we believe, that viewing the ESN as a sociotechnical system supports us to meet our research objectives, where we are reminded that both has to be taken into account: the social system, with its underlying elements as well as the technical system (Figure 2-8).

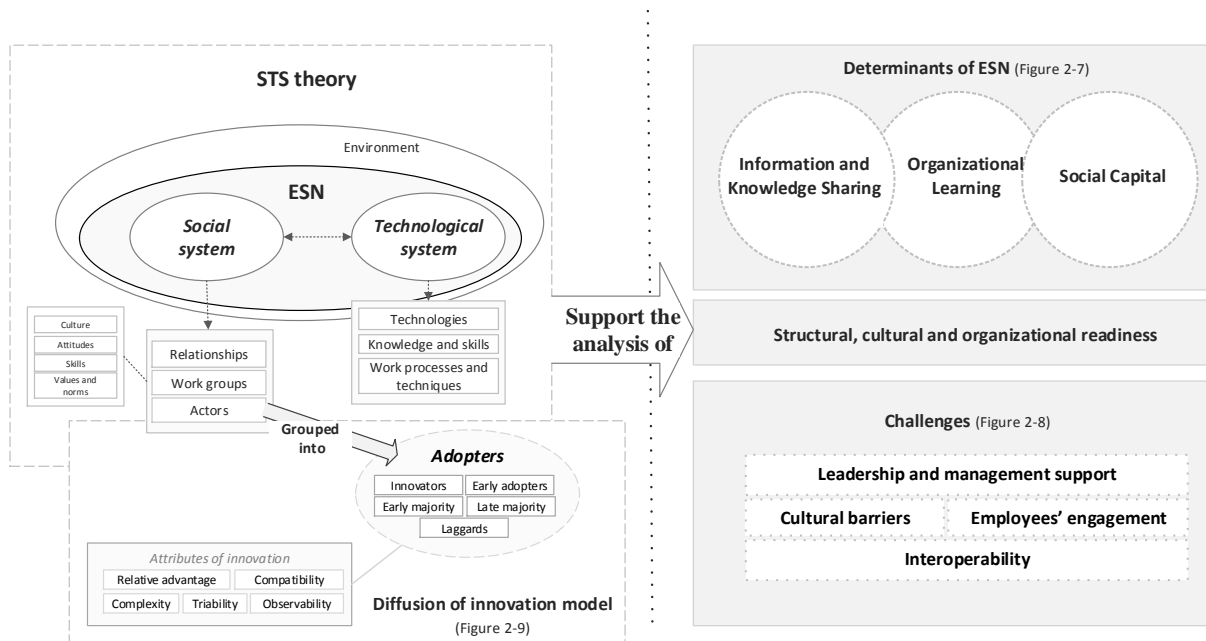


**Figure 2-8. ESN as a socio-technical system.**

In particular, analysing an ESN and its usage by integrating the STS theory in our research framework, it enables us to reach the main objectives of our study, in a way to being aware of the interdependencies of social and technical subsystem of the ESN and thereby gives implications about what social and technical subsystem elements have to be examined influenced by the ESN.

## 2.5 Summary of the theoretical background

The integration of the two presented theories, STS theory and diffusion of innovation model in our research framework supports our study in order to answer the research questions, by leveraging the analysis of the key enablers, major obstacles, as well as the structural, cultural and organizational readiness associated with ESN (Figure 2-9).



**Figure 2-9. Overall view of the theoretical background.**

The social part comprises thus the social relationships, work groups and actors included in the ESN, which in turn is influenced by the organizational culture, attitudes, skills, as well as values and norms. Whereas the technological part includes the ESN technology itself, the knowledge and skills embedded, as well as the integrated work processes and techniques. In addition to that, the actors involved in the social system can be categorized in the types of adopters and the individuals' rate of adoption (i.e. attributes of innovation) according to the diffusion of innovation model, mentioned in the previous chapter (Figure 2-7, p.29).

As a result, the view of the socio-technical system and the types of adopters including their attributes derived from the diffusion of innovation model supports the analysis of the determinants of the ESN as information and knowledge sharing, social capital and organizational learning (Figure 2-5, p.20), the structural, cultural and organizational readiness as well as the possible challenges associated with ESN. Hence, Figure 2-9 comprises all main factors to be considered in the analysis of the ESN and enables us to uncover possible gaps between the systems and examine strengths and weaknesses related to the social and technical system of the ESN.



## 3 Research method

This chapter concerns the methodological approach and research design that we used in our study, where the overall research strategy will be outlined. Thereby, the following includes the description of the research approach, the examination of the selected methods, as well as the justification of choice. Furthermore, we provide the identification of data requirements and target population as well as the techniques used for gathering and analysing the data. We conclude this chapter by discussing how we ensured the research quality and ethics.

### 3.1 Research strategy

Within our research, we aim to adopt methods, being straightforward and useful within the given limitations of available resources in terms of time, costs and expertise. In order to be able to provide robust results and to reach the required level of detail, we found it most appropriate, to make use of the qualitative approach, partly based on the grounded theory approach generating theoretical insights through the analysis of multiple case studies descriptions.

In general, qualitative methods are used to study social and cultural phenomena in its natural settings, to develop a comprehensive picture of complex phenomena and are characterized by multiple sources of data and inductive analysis (Recker, 2013). Moreover, qualitative methods are often seen as an interpretive research method, where researchers aim to develop interpretations by collecting emerging data with the primary intent of developing themes from this data (Creswell, 2013).

While qualitative method research can be done among others through case study research, action research or grounded theory, we found it most appropriate to derive the research approach in part from the method advocated by Eisenhardt (1989), building theory through case study research, in order to answer our research questions. Thereby, the data are collected by conducting a multiple case study research based on semi-structured interviews using grounded theory principles.

In a case study research, the research can be designed either by studying just a single organization or comprising multiple organizations (Locke, 2001). Regarding our research purpose, we decided to use a multiple case research approach, since it leverages the generalizability and the development of richer interpretations of the phenomenon (Bhattacharjee, 2012), while we will replicate and compare the analysis of the usage of ESN platforms in different organizations. However, it has to be acknowledged, that the generalizability in our study is limited up to a certain level, since we conducted the interviews by having one participant from each organization, where their roles within the organization differs.

Because our research is partly based on the work of Eisenhardt (1989), the purposed strategy involves elements of the grounded theory approach in order to manage the collected data from

the multiple case studies and to provide a deep and comprehensive explanation of what we observed in the environment being studied.

The design of our research strategy thus take partly a grounded approach in combination with the use of case study data where the strategy is influenced from the grounded approach and the work of Eisenhardt (1989), since several elements indicate the high appropriateness of the grounded approach as well as adopting the approach of building theory from case research. Firstly, as stated by Locke (2001), a grounded approach is applicable, when there is a lack of extant literature on the topic under investigation as well as when little is known about a phenomenon (Eisenhardt, 1989). Indeed, our literature review reveals, that only a few studies concerned the key enablers and major obstacles for an effective information sharing enabled by ESN. In addition, it is little known of the role of ESN in information sharing and as the importance and awareness of ESN firstly occurred in the last years (Mathiesen & Fielt, 2013), the research on this topic is in its early stages. Moreover, we found there is a lack of evidence on the employee's perception of ESN and its role in their everyday work, where it misses the analysis of the required capabilities in terms of organizational, cultural and structural readiness enabling a successful adoption of ESN. Secondly, the grounded approach is seen as applicable, when situated processes and actions in organizational contexts have to be examined and is thereby commonly used in particular to study social processes in social settings (Locke, 2001). Hence, this criterion is relevant for our research, as we consider situated processes and actions of information sharing enabled by ESN in the cooperate environment. Thirdly, it is applicable when the anticipated output will be useful to practitioners as well as academics (Turner, 1983). Since the overall purpose of our research is the identification of critical success factors and capability patterns regarding ESN, our research will on the one hand, contribute to the domain of information science and on the other hand, it is anticipated, that practitioners will be interested in the output of our research for the purpose of a successful adoption of ESN in the future. Fourthly, another indicator is, when current perspectives appear to be in conflict with each other or common sense and as the level of enthusiasm towards the usage and efficiency of ESN differs heavily in organizations (Turban et al., 2011), it is indeed another factor which calls for the case study approach.

Thus, in regard to all these aspects, our research comprises a multiple case study based partly on the grounded theory approach, where the continuing process of the research approach will be outlined in the following sub chapters.

## **3.2 Data collection and analysis**

There are several major sources for collecting data in conducting multiple case studies, such as documents, archival records, interviews, observing behaviours, face-to face interaction or physical artefacts (Recker, 2013; Yin, 1994). However, especially interviews are seen as an essential source of case study evidence (Yin, 1994), where there are basically three types of interviews: structured, semi-structured and unstructured interviews. Where structured interviews follows a predetermined and standardised list of questions, always asked in the same order and way, the other extreme are unstructured interviews, where the interviewer may just have a list of broad topics to be explored (Arksey & Knight, 1999). Located somewhere between the completely structured and unstructured interviews, the semi-structured interview can be found, where this is one of the most commonly used qualitative research method (Myers & Newman, 2007). Although semi-structured interviews are usually also based on an interview guide involving predetermined questions (Berg, Lune, & Lune, 2004), it is however

more flexible as the interview guide is far less structured, including both open-ended questions and probing questions, where it simplifies a more focused exploration of our research topic (Fossey, Harvey, McDermott, & Davidson, 2002). This meant that we had a certain amount of freedom during the interviews to adjust the sequence of the questions to be asked, add questions based on the participants' responses, follow up ideas and probe responses (Wildemuth, 2009). Indeed, it leveraged a two-way communication and ensured us a certain amount of flexibility and openness in order to probe for more details and tap deeper in the context of ESN (Recker, 2013). Thus, we found semi-structured interviews were the most appropriate method as it enhanced the flexibility and openness and allowed us to generate a comprehensive and multi-faced picture of the usage of ESN.

In alignment with the seven stages of an interview inquiry suggested by Kvale (2007), we defined and developed our interview process (Figure 3-1).



Figure 3-1. Interview process (according to Kvale (2006)).

### 3.2.1 Designing the interviews

Starting with the first stage of the interview process, *thematizing*, we thematised and clarified the overall theme of our study by defining the purpose and main research goal illustrated in the first chapter of our thesis. Subsequently, as the overall framework of our study, the description of the problem area, purpose and research questions was the fundamental basis for the second stage of the interview process: the design of the interview study, where we herein designed our interview guide for the semi-structured interviews.

Derived from the research questions, the conducted literature review and the theoretical frameworks, we developed the interview guide which is designed to analyse the usage, value and maturity of ESN in the specific organization. Table 3-1 illustrates the predefined questions, to which research question they are related and what topic they are concerning. We further included probing questions in our interview guide for each predefined question in order to stimulate the responses from the interviewees and drawing out sufficient information about the subjects of ESN. These prompts were then especially helpful when it came to the event of little interaction after asking the initial questions (Berg et al., 2004). The interview guide including the probing questions can be found in Appendix 1.

Table 3-1. Overview of the interview questions.

Nr.	Question	Research question	Major topic of question
Q1	Please tell us more about your company and your current role.	R1	Companies profile and interviewee's role
Q2	How would you describe in general the organizational culture?	R1	Description of the organizational culture
Q3	What social technologies or other workflow technologies are already in place within your organization?	R1	Organizational infrastructure
Q4	When have you implemented the ESN and which ESN system are you using?	R1	Time frame of the implementation of ESN and

			software specification
Q5	Why did the company decide to start using ESN and what is it supposed to solve?	R2	Reasons and sources for the ESN initiation
Q6	What is your organization trying to achieve with using ESN?	R2	Major purposes of the ESN initiative
Q7	How was the ESN introduced within the organization (concerning the implementation strategy)?	R1	ESN implementation strategy
Q8	Could you say some more about your personal usage of the ESN and how is it used in overall from other employees within your organization?	R2	Usage of ESN
Q9	How does ESN affects the cross-site communication and between different hierarchies?	R2	Effects on cross-site and hierarchical collaboration
Q10	How is the ESN system integrated with other technologies and your business process and is it used for particular collaboration processes or project purposes?	R1	Interoperability within software landscape and business processes
Q11	Is there a difference in how digital natives perceive and make use of the ESN?	R1	Differences among digital natives and digital immigrants
Q12	How would you describe the overall social engagement and the employees' engagement in information sharing?	R2	Individual engagement and knowledge sharing culture
Q13	How does your organization benefit of using an ESN and how does it leverage information sharing and seeking?	R2	Perceived benefits, impact on information and knowledge sharing and organizational learning
Q14	How does the ESN affect social relationships, work groups and personal network?	R2	Impact on the organization's social system
Q15	Can you think of any downsides regarding the usage of ESN?	R2	Major obstacles
Q16	What difficulties hinder a more efficient use of ESN?	R1	Key challenges and impediments affecting a more effective usage of ESN
Q17	Is there anything more you would like to add?	-	Closing Question

The interview guide is mainly divided in three parts: the first part includes introductory questions, where we aimed firstly to let the interviewee feel comfortable in the interview situation and secondly, gain insights about the organizational context and obtain a picture of the interviewee's role in the organization. The second part then comprised the main interview questions focusing on several topics associated with ESN such as the ESN implementation strategy, perception and usage of the ESN, interoperability with the organizational infrastructure, impacts on social relationships, cross-side and hierarchical collaboration as well as perceived benefits and key challenges in regard to the ESN (Table 3-1). Lastly, the third part includes an ending question in order to allow the interviewee to further add something, in case that they felt some important aspects was missing or should be mentioned before closing the interview.

By defining the interview questions, we strived to keep the questions simple and easily understood in order to foster a good interaction and simultaneously gaining valuable insights. Additionally, while paying attention to the thematic and flexible aspects of the questions aligned with our research purpose, we further kept continuously the later analysis, verification and reporting of the interviews in mind, while structuring the interview guide in order to facilitate these processes.

### 3.2.2 *Interviewing*

Arriving at the fourth stage *interviewing*, we firstly selected appropriate informants, followed by the conduction of the interviews via telephone, face-to-face interviews and video conferences. Since the purposeful choice of the cases to be investigated is particularly of central concern within case studies (Locke, 2001), we had to choose our sample selection, defining the target population from which the data will be collected carefully (Bhattacharjee, 2012). Thereby, it was essential to select information-rich cases, that provide the opportunity to learn a great deal about issues central to the research (Patton, 1990). In order to ensure the selection of information-rich cases, we reverted to a sampling strategy suggested by Bhattacharjee (2012), consisting of three stages: definition of the target population, defining the sampling frame and finally choosing the samples from the sampling frame.

Firstly, as our main goal was to identify the key enabler and major obstacles regarding the usage of ESN and what capabilities in terms of organizational, cultural and structural readiness is needed for a successful adoption of ESN, we defined that the overall target population have to consist of a mixture of experts in the field of ESN as well as managers, digital natives and digital immigrants within organizations. Subsequently, we defined our sampling frame by choosing accessible organizations from where the samples can be drawn. As our research focus on organizations, where an ESN already has been implemented, the sampling frame was governed by this prerequisite. Thereupon, we defined our sampling technique, which can be either probability (random) sampling or non-probability sampling (Bhattacharjee, 2012). Where in the probability sampling, every sample has a chance to be chosen, in the non-probability sampling, some units have zero chance of selection. Since our research has the prerequisite, being an organization, which has already adopted an ESN, our selection of samples calls for a non-probability sampling and further, we chose to use a convenience sampling in order to simplify the research process in regard to the limitations of time and cost resources. In particular, we chose this type of sampling as it calls for that part of the population that is close to hand, readily available, or convenient (Bhattacharjee, 2012). Following this, we used both, existing contacts from our previous work experience as well as searched for potential participants through professional social networks such as LinkedIn. Thus, we selected experts from different industries and countries in order to provide more generalizability in our study, where we ultimately agreed on 6 interviews.

In order to protect the identities of the interviewees allowing them to respond more freely to our interview questions, we decided to keep the received information confidentially, which means that we report the findings without stating the real name of the organization and where it does not identify the interviewees as the respondent. Furthermore, in order to ensure the anonymity, we will define the interviewees as “he” throughout the thesis, regardless of their actual gender.

**Key characteristics of the interviewees.** Although we have a certain level of anonymity of the interviewees, with the agreement of all interviewees, we are yet enabled to draw the key

characteristics of each interview. Thus, Table 3-2, illustrates a rough description of the organization's size and industry, the role of the interviewee within the organization as well as the type of interview and its duration.

**Table 3-2. Key characteristics of the interviewees.**

Interviewee	Organization's industry	Size (employees)	Role of the interviewee	Type of interview	Duration
A (IA)	Software products and service provider	100000	Senior Software engineer	Face-to-face	38 Min.
B (IB)	IT organization providing portal solutions	40	IT Consultant	Face-to-face	52 Min
C (IC)	Global matrix organization and automotive industry supplier	200000	Expert for change management and culture development	Telephone	86 Min.
D (ID)	Holding organization engaged in the field of medical and healthcare products	10000	Business Process Manager	Telephone	45 Min.
E (IE)	Shipping	1400	Information & Business Process Manager	Telephone	41 Min.
F (IF)	IT Consultancy	1000	IT Consultant	Video conference	80 Min.

Interviewee A (IA) works as a senior software engineer at a large organization providing software products and services. The organization is located in over 100 countries and has 100000 employees. IA himself works at a location involving 80 employees and 5 teams and focuses in his role on programming and software development.

Interviewee B (IB) is employed at a small and young IT organization providing portal solutions. The organization has one location including 40 employees. In his work role he is responsible for the server side of the portal solutions, where he focuses on the infrastructure and integration as well as on facilitating the social experience of the portal solutions.

Interviewee C (IC) represents a large global matrix organization and automotive industry supplier, located in over 50 countries with 300 locations and 200000 employees. As an expert for global change management and organizational development, IC is working in the department for corporate HR development and organizational development, where his sphere of activity focuses on change management, social business, digital transformation and culture development.

Interviewee D (ID) works at a large holding organization engaged in the field of medical and healthcare products, located in over 30 countries including 10000 employees. IC himself works in the department of process optimization and specification and as a business process manager his main focus is on product lifecycle management.

Interviewee E (IE) works as a project manager in the department of information and business process management at an organization that specializes itself in transports, ship transports and trucking, where they do all kinds of services for organizations that want to transport products. The organization is located all over the world and has an approximately 1400 employees.

Interviewee F (IF) is employed as a junior consultant at an organization operating in the IT industry, where they provide apart from the distribution of software products mainly comprehensive solution consulting.

Having these informants, we conducted the interviews in the period of 17<sup>th</sup> April – 12<sup>th</sup> May 2015. Following the argument of R. L. Kahn and Cannell (1957, p. 111) “*If interviewer and respondent ‘speak the same language’, they are more likely to have had similar backgrounds and experience and are therefore more likely to be capable of understanding each other*”, we conducted 4 out of 6 interviews in the native language, which was in our case Icelandic and German. Hereby, we further ensured to get even more valuable data out of the interviews.

Furthermore, by mirroring answers and comments of the participants during the interviews, it allowed us to even further focus on the usage of ESN in a particular organization and provides the interviewee the opportunity to explain their world in their own words (Myers & Newman, 2007), which lead in our opinion to an enrichment of the collected data.

Although we used the interview guide in each interview, we diverged from the predefined questions based on the participants’ answers and probe for underlying reasons for answers in order to capture the stories illustrating the usage and to gather the most valuable data.

### 3.2.3 Transcribing

Coming to the fifth stage within the interview process, *transcribing* and recording the interviews, these actions bear several advantages. According to Atkinson and Heritage (1984), it especially supports the correction of the natural limitations of our memories and of the intuitive glosses that might take place on what people say throughout the interview. It further allows a more detailed and repeated examination of the interviewees answers, while it enabled us at the same time to concentrate on the specific topic of our research and the dynamics evolving within the interview (Kvale, 2007). Thus, we recorded the interviews with the use of a digital voice recorder and as a supplement to the recordings, we took field notes about the most important key points mentioned by the interviewee.

After each interview, we further conducted a discussion about the overall quality of the interview and how we perceived in regards to our research goals and own expectations. We followed herein one fundamental principle of the grounded theory approach: viewing the data collection and analysis as interrelated processes, where it is suggested to start analysing the data immediately after the first data has been collected. in order to direct the following interviews in the right direction (Strauss & Corbin, 1990). Thus, based on a rough review of our field notes and records after each interview, the interview guide has been reviewed in terms of possible improvement and adjustments of the predefined questions in order to explore possible issues and to increase the effectiveness of the data collection, which enabled us to gather even more valuable data out of the interviews. Hence, we made small adjustments on the interview guide during the data collection process as for example where we asked in the first interviews, if the organization is innovative-driven or more standardized in order to gain in-

sights about the organizational culture, we asked in following interviews directly, how the interviewee would describe the organizational culture in general.

After all, we transferred the records in written form in order to enable a comprehensive and detailed analysis of the received data. The transcripts can be found in Appendix 2a-2f.

### 3.2.4 Analysing

In order to make sense and understand the data collected from the interviews, we made a comprehensive data analysis by using the grounded theory approach (Strauss & Corbin, 1990). Fossey et al. (2002) stated, that the data analysis comprises in general two steps: firstly it is needed to review, identify and code repetitive topics within the data of each interview, followed by the identification of joint themes and deviations of all interviews and the generation of connections one to another. However, as we already defined in the research strategy, that our research is partly based on the grounded theory, we conducted our data analysis with the coding procedure suggested by Strauss and Corbin (1990), in order to make sense of the collected data and creating the basis for the empirical findings. Strauss and Corbin (1990) suggest three steps of coding techniques, which we adopted and performed successively in our study:

**Open coding** refers generally to the identification of hidden concepts within the data and subsequently summarizing these concepts into broader and generalizable categories, where these categories are required to build the big picture of the overall research topic and is seen as “open”, as the researcher aims to seek new concepts related to the phenomenon of interest (Bhattacharjee, 2012). However, before we started the actual open coding, we exchanged, compared and discussed our individual field notes, as it varied at some level among us and hence, enabled us to analyse possible perceived differences. Following then, while we always had our research questions and main purpose in mind, we examined the field notes and transcriptions on concepts, key ideas and themes and thereupon organized the emerging themes into categories across all interview data in alignment with our theoretical background. Thereby, we followed the principle “*Similar data are placed in similar categories, and different data creates new categories*” (Walker & Myrick, 2006, p. 549). We both examined the recording and interview transcripts separately by colouring emerging categories and its subcategories with different colours (Figure 3-2), followed by a joint discussion. Within this discussion, we compared the explored categories and agreed finally on broader categories. We found this approach particularly crucial, as we believed that based on our personal knowledge and experience, we might discover different important aspects and interpret the answers differently, while defining different categories. Thus, it enabled us to gain a shared understanding and view, while both of us become thoroughly familiar with the data and consequently agreed on common categories.



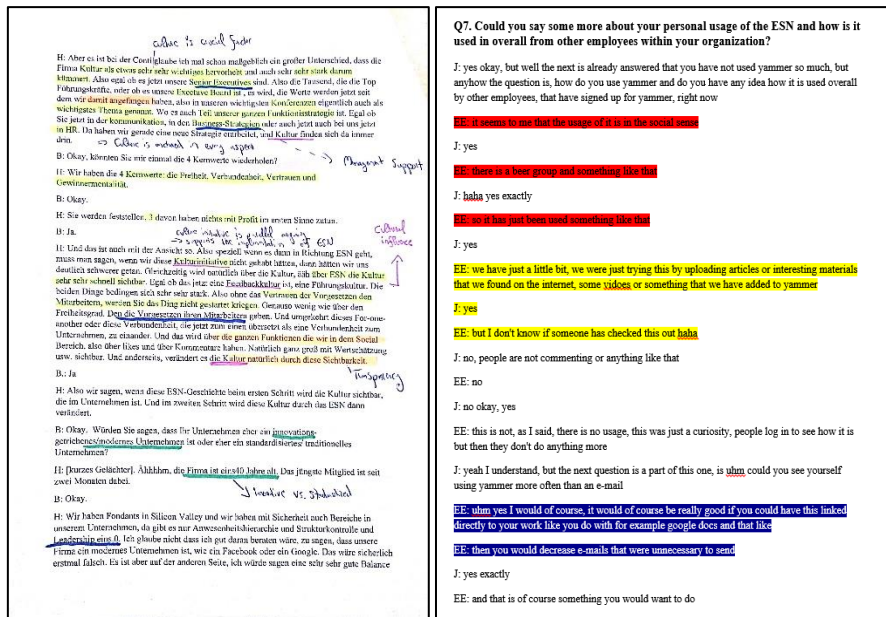


Figure 3-2. Examples of open coding actions.

**Axial coding** aims to assemble the previous defined categories and subcategories into causal relationships (Bhattacharjee, 2012). This means, whereas open coding focused on the distinction of categories, in the axial coding it was of task to bring these fractured categories back together and connect it to each other (Strauss & Corbin, 1990). Thereby, we analysed the conditions, interactions and consequences of each category and its subcategories and tried to draw the connections among those (Figure 3-3).

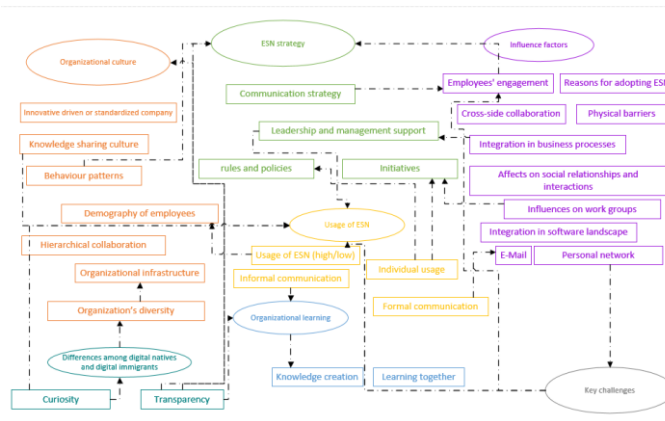
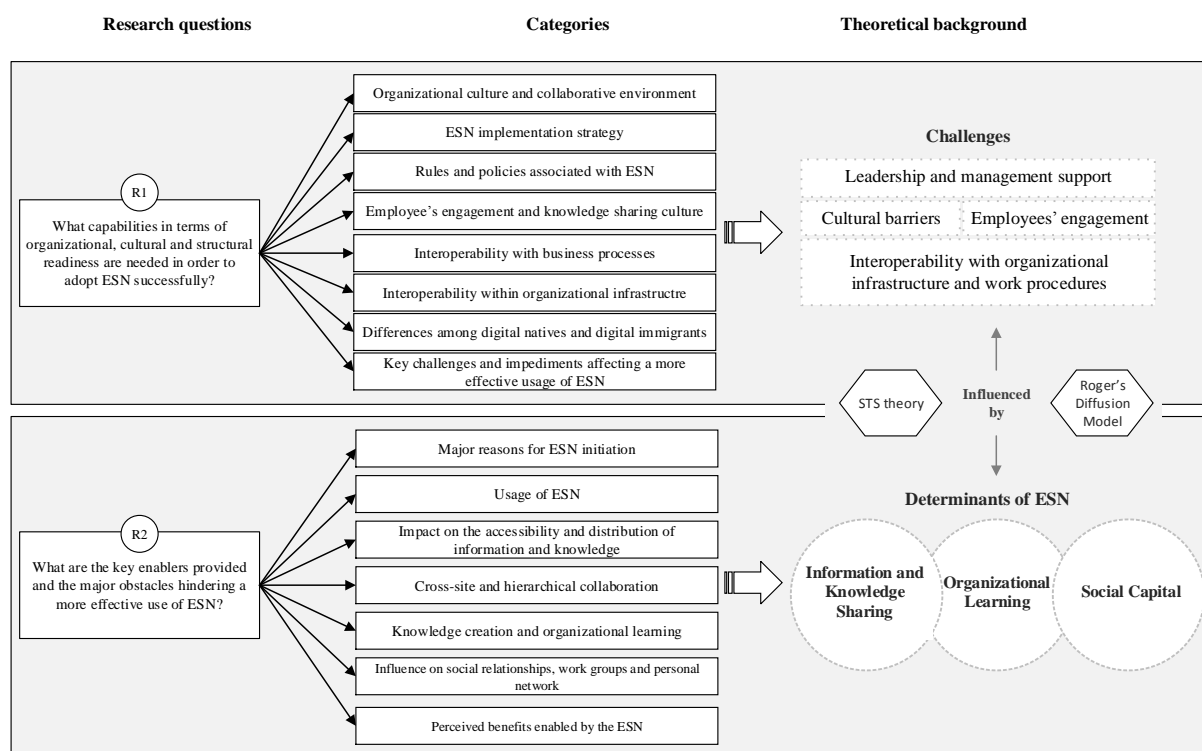


Figure 3-3. Example of axial coding actions.

**Selective coding** is the final step in the coding process, where it was essential, based on the previously defined categories and its relationships, to identify the most central category and relate it to the other categories and the theoretical background (Strauss & Corbin, 1990). Thus, we defined two central categories, aligned with our research questions: (1) influence factors and capabilities in terms of organizational, cultural and structural readiness associated with ESN” and (2) key enablers and major obstacles in regard to ESN”. These central categories were then related to the examined categories and finally resulted in one big picture, which consequently represented the basis for the empirical findings. Figure 3-4 illustrates how the categories are related to the central categories (i.e. to the research questions) and in turn, how these are related to the theoretical background.



**Figure 3-4. The big picture: Result of our coding process.**

Based on this big picture, we developed a coding scheme (Table 3-3) and worked through the field notes and transcriptions again in order to mark the according sections of answers with these codes, which were then used for elaborating the empirical findings.

**Table 3-3. Coding scheme.**

Category	Code	Category	Code
Organizational culture and collaborative environment	OC	Key challenges and impediments affecting a more effective usage of ESN	KC
ESN implementation strategy	EIS	Major reasons for ESN initiation	REI
Rules and policies associated with ESN	RAP	Usage of ESN	UF
Employee's engagement and knowledge sharing culture	EE	Impact on the accessibility and distribution of information and knowledge	IKS
Interoperability with business processes	IBS	Cross-site and hierarchical collaboration	CHC
Interoperability within organizational infrastructure	IWOI	Knowledge creation and organizational learning	OL
Differences among digital natives and digital immigrants	DNDI	Influence on social relationships, work groups and personal network	SRW
Perceived benefits enabled by the ESN	PC		

### 3.3 Research quality

In order to have a qualitative research, we took reliability, validity, biases, as well as ethic into account. Thus, this chapter provides an overview and description about these terms in line with our study.

#### 3.3.1 Reliability

Reliability is a term for consistent or dependable measure of variable(s), where measurements need to be tested for reliability (Bhattacharjee, 2012; Recker, 2013). In other words this means that if a researcher does the same study as before by using the same procedure, it should result in almost the same results as the previous study (Recker, 2013). However, it should be acknowledge that the previous mentioned definition of reliability does not always applies to qualitative research, as stated by Merriam (1995), the reliability within the social science can be problematic, as social science is studying individuals and their behavior, and whilst the individuals behavior is not static it might raise difficulties in gaining the same results as from previous studies. Thus, in order to follow the definition of reliability, we listed a clear description of our research process, data sources and the empirical findings (Benbasat, 1987). Moreover, in order to have a shared understanding and reliable assumption from the interview data, as stated in the previous section, both of us read over the transcribed interview separately and made our own conclusion, which we then compared with each other. When our views on the data varied and did not match, we further discussed it in order to reach a common view and therefore increase the reliability of our findings.

#### 3.3.2 Validity

Validity represents the underlying construct that is supposed to be measured, and should be assessed by using both theoretical or empirical approaches (Bhattacharjee, 2012), i.e. if the data collected are really measuring what the researcher tended to measure (Recker, 2013).

Moreover, Maxwell (1992) provides five categories of validity that concern qualitative research, where we just considered the first three categories as the other two did not apply to our research. Therefore the categories we considered are descriptive validity, interpretive validity, and theoretical validity (Maxwell, 1992).

##### 1. Descriptive validity

Truthfulness of a study can be of great concern in qualitative research, thus qualitative researchers need to be sure to trigger that what they write in their study is not made up or they are describing things they have seen or heard about. Moreover, descriptive validity can be categorized into primary and secondary descriptive validity, where the primary refers to what the researcher is reporting of what he or she saw or heard, whilst secondary refers to when things could usually be observed but were instead concluded from other data. These descriptive are all referring to specific events and situation that it should be easy to receive an inter-subjective agreement. Therefore, in every case it is recommended for the researcher to record the interview and take notes while the interview is being conducted, in order to proof specific statements were made by interviewees, and to avoid lack of truthfulness in the study. (Maxwell, 1992) Hence, in order to trigger descriptive validity, i.e. both primary and second, we as interviewers recorded every interview with two digital recorders, if the unexpected

would happen that one recorder would break, where we as well wrote down notes at the same time while the interview was conducted.

## 2. *Interpretive validity*

Interpretive validity states that qualitative researchers are not only concerned on providing valid description of the physical objects, events, and behaviours for their study, as well as what this means to the people engaged in and with the study, (Maxwell, 1992). For our research we worked on describing each interview conducted thoroughly where we kept that in mind to keep all responses anonymous.

## 3. *Theoretical validity*

Theoretical validity refers to an account's validity is a theory of some phenomenon, where a theory has a two components that are either concepts or categories which the theory uses, and the presumed relationship between these concepts. In line with this are the two aspects of theoretical validity that are the validity of the "blocks" that the researcher builds it models on and attach it to his/her study, while the second one is the way of how these "blocks" are added together (Maxwell, 1992). With this in mind we thoroughly went through the literature review related to our research, added theories that fitted with our research and literature review, where this was then further used in our discussion and conclusion in order to reach our goal.

In addition to Maxwell's (1992) five categories of validities, Merriam (1995) stated that internal validity is the strength of qualitative research. Thereby, internal validity has five strategies, triangulation; member checks; peer/colleague examination; statement of researcher's experiences; assumptions; biases; and submersion/engagement, who should be included in the research situation in order to strengthen the internal validity within the qualitative research. *Triangulation* refers to the process of conducting multiple investigations, multiple data sources, and multiple methods, in order for the emerged findings to be confirmed. In our research we do not the triangulation as our research was not built up on multiple investigation, data and methods. *Member checks* refer to data that have been collected from interviewees and preliminary interpreted, and are presented to the interviewee's in order to get their opinion if the interpretations are reasonable enough. According to member checks that strategy also does not apply to our research as the interviewee were not sent the interpretation of the data that we collected from the interviews with them. *Peer/colleague examination* refers to the process of asking a colleague or a peer to read over the collected data, in order to have their opinion if the interpretation is reasonable enough. In order to follow the peer/colleague examination strategy in our thesis, we had our supervisor to read over the collected data as well as fellow students in order to get their perspective on our interpretation of the data. *Statement of researcher's experiences, assumptions, and biases* refers to where the researchers' orientation, biases, and so is presented at the beginning of the study. To follow this strategy we stated our goals clearly in the beginning of the study by e.g. list purpose, challenges, and so forth. *Submersion/engagement in the research situation* refers to the time process of data collection, which needs to be long enough in order for the researcher to get an in-depth understanding on his or her case. In the early stage of our thesis work, we brainstormed about possible interviewees and contacted them as soon as we had clear interview guide set up. The interviews where therefore conducted relatively early in the process of our thesis in order to follow the strategy of submersion/engagement in the research situation. (Merriam, 1995)

### 3.3.3 Bias

The definition of bias, stated by Collier and Mahoney (1996, p. 59), is that

*"... "bias" is systematic error that is expected to occur in a given context of research, whereas "error" is generally taken to mean any difference between an estimated value and the "true" value of a variable or parameter, whether the difference follows a systematic pattern or not".*

As stated by Norris (1997), the definition of potential of bias in a research is not an easy task and therefore we will state five of the biases and potential pitfalls that can occur during our thesis work.

Firstly it is to mention the *selection bias* can lead to poor validity of the research (Collier & Mahoney, 1996). A selection bias occurs when the selection process of either design of the study or investigation on real-life phenomena leads to a conclusion that is affected by systematic error (Collier & Mahoney, 1996), and where it can include sampling of the following factors: "... *times, places, events, people, issues, questions, and the balance between dramatic and the mundane*" (Norris, 1997, p. 174). One example that might lead to a selection bias is in case there are too few interviewees chosen, the results from the interview may end up being not generalizable enough (Kvale, 1992). Hence, we listed up all possible interviewees, where we began to contact only part of them. After these interviews were conducted we went over the data collected in order to see if further information were needed. We followed this process until we were satisfied with the data collected. Furthermore, we focused on having interviewees working for organizations in different industries in order to possibly see if one industry approached the topic differently than others.

Secondly, is the *unintentional bias* that can occur from both the interviewee and the interviewer side where the researcher's expectancies from the outcome of the research study can unintentionally harm the outcome of the interview, in the sense of affecting the responses of the interviewee (Kvale, 1992). Before we conducted our interviews, we prepared ourselves by creating an interview guide that in no means mirrored our expectations of the results. By doing so we aimed to avoid any unintentional bias that could occur.

The third bias that we took into account was the *interviewers' bias*, which occurs when the interviewers' hypotheses bias their question and how they interpret the answer (Kvale, 1992). Hence, to avoid the interviewers' bias we by no mean stated our opinion of the topic for the interviewees, we were especially careful of not having any aspects in our interview guide that could possibly mirror our opinion of the topic.

Fourthly it is the *researcher bias* which states that the findings or the result from an interview is not reliable enough when the interviewee answers were relying on leading questions, e.g. yes or no questions, or when in some cases the interpretation of the interview does not have the same meaning between researchers, i.e. the meaning differs between researchers (Kvale, 1992). With our questions we avoided yes or no answers as we had open-ended questions. We sought for the opinion and view of the interviewees rather than having our own view supported. By creating questions for our interview guide that would not lead to yes or no answers, we aimed to avoid the researcher bias.

Finally it is the *biased subjectivity*, i.e. unprofessional work, that can occur when the researcher only seeks to find evidence that mirrors his/her opinion, and where he/she interprets and reports the statements from the interview which is in order in what the researcher would

state by him-/herself (Kvale, 1992). To avoid the biased subjectivity, we went over each interview transcription on our own and then compared our findings, and if the findings differed we discussed them until we had reached a common conclusion. This was furthermore done, to make sure that neither of us would interpret incorrectly from the data collected.

As we are conducting interviews in our thesis, we aim to avoid the *interview pitfalls* provided by Myers and Newman (2007), at all time. The pitfalls are the artificiality of the interview, lack of trust, lack of time, level of entry, elite bias, Hawthorne effects, constructing knowledge, ambiguity of language, and interview can go wrong.

- *Artificiality of the interview* happens when a stranger is asked questions about subjects that will give or create opinions under time pressure, and therefore the desired answer might not be received. In order to avoid this pitfall, we defined a timeframe before interviews were conducted, as well as planning enough time for the interviews, however we let the interviewees take their time in their answer, and therefore not putting any pressure on the interviewee by e.g. mentioning that we were running over the planned time.
- *Lack of trust* (also referred to as unwitting bias (Kvale, 1992)) occurs when the interviewer is a stranger which can lead to lack of trust from the interviewee. To ensure this from happening we informed the interviewee about our thesis, how the data collected in the interview will be used and that we keep their identity completely anonymous.
- *Lack of time* can lead to an incomplete data gathering. As mentioned previously we had a defined a timeframe in order to avoid this pitfall. We further had the interviewee suggest a meeting time in order it would fit best into their schedule.
- *Level of entry* occurs if a researcher enters the "wrong" level of an organization it might be difficult or impossible for him to have interview with a person in higher position than the person he interviewed the first. From the beginning of our thesis we worked on gaining interviews with employees from different positions in each organization in order to avoid this pitfall.
- *Elite bias* occurs when the researcher only interviews certain group of people which will lead to a fail in gaining an understanding of the broader situation. As our interviewees were from organizations in different industries, we firmly believed that we have avoided the elite bias.
- *Hawthorne effects* can happen when the interviewer interferes with people's behavior. We avoided this pitfall as we let the interviewees feel comfortable and talk freely while the interview was conducted.
- *Constructing knowledge* happens when the interviewers do not realize that gathering data is constructing knowledge, and are therefore naïve. We avoided this pitfall by using the data collected from the interviews to compare with our literature review and by doing so we were using the knowledge gathered from our interviews.
- *Ambiguity of language* occurs when the questions are not fully understandable for the interviewee. In case the questions that were asked were not understandable by the interviewees we explained the terms for them and therefore we avoided the pitfall of ambiguity of language.
- *Interview can go wrong* and can be abandoned if the interviewee is offended by some questions or unintentionally insulted, thus we were especially careful of not asking questions that could be offended for the interviewee or harm the organization image in any way. (Myers & Newman, 2007) Hence, our aim is to avoid the interview biases at all time and therefore we conducted the interviews as warm and empathic

(Brinkmann & Kvale, 2005). Moreover, it may happen that the assumption of the result from the interview will differ between interviewers, because the interview is too person-dependent and is not a formalized method (Kvale, 1992).

Hence, by following these pitfalls and avoid them at all time it could give better qualitative data than if some of the pitfalls would occur, and therefore it will result in better quality analysis.

In addition, it should be noted that we acknowledge that more biases could occur, but in our opinion the previously mentioned are the one that we should pay special attention during our research.

### 3.3.4 Ethics

Ethics are one part of the research quality, and in order for a good quality research the ethics needs to be kept in mind (Kvale, 2007). According to Recker (2013) and Bhattacharjee (2012), ethics defines what is thought of as right or wrong within a community or profession, and it can be defined as an action in relation to responsibility, accountability, liability, and due process. There are two research activities where ethical guidelines should be considered:

1. *Ethical issues in conducting research*

A researcher should always have ethical considerations in mind while working on the research process. Furthermore, a key ethical principle within IS research is to be aware of having a responsibility in securing the actual permission and interest of all participants in the study. The information gained within the study period should not be misused. The following should be borne in mind throughout the study: secure anonymity; secure confidentiality; participants are voluntary taking part of the study and can choose if they want to participate or not, and if they want to withdraw their participation from the study; provide information to the participant about the study subject in order for the participant to decide if he wants to take a part of the study or not; communicate with the participants about potential risk to the subject; secure the storage and analysis of data; and keep honesty when reporting how data was analyzed and reported. (Bhattacharjee, 2012; Recker, 2013)

2. *Ethical issues in writing*

Avoid plagiarism, recognition of co-author contributions, and appropriate use of language. (Bhattacharjee, 2012; Recker, 2013)

During our research process we ensured that the above mentioned ethical issues would be taken into account all the time. When it comes to the ethical issues in conducting interviews we informed all of our interviewees that their data would be confidential, that we would trigger anonymity, they could stop the interview at any time, and about the study subject. Furthermore we kept our data within closed drive, only accessible for us that only us. Moreover, we conscientiously reported our data in the thesis. Regarding the ethical issues in writing, we used references for all of the material taken from other articles in order to avoid plagiarism, and further to have appropriate use of language we had a native speaker read our thesis over in order to ensure good language.

Moreover, Brinkmann and Kvale (2005) states that ethics can occur in qualitative research because it is a complex area where the research process is to conduct interview which requires personal opinion of the interviewee. It is of interest to look further into the first research activity provided by Bhattacharjee (2012) and Recker (2013), i.e. ethical issues in conducting research, in order to acknowledge the ethics within a qualitative research process. There are two types of ethics within qualitative research, microethics and macroethics, which describes the relationships within the interview situation, and the relations to society and culture (Brinkmann & Kvale, 2005).

### Microethics

Microethics occur when a researcher secures the interviewee or participants confidentiality, informs them about the character of the research and that the interviewee can withdraw at any time (Brinkmann & Kvale, 2005), thus we stated so in our interview guide which was provided for each interviewee before the interview was conducted, as well as inform them when we met. The ethical issues at the seven research stages (to recap thematizing, designing, interviewing, transcribing, analyzing, verifying, and reporting) are part of the microethics. As stated by Kvale (2007) the ethical issues of *thematizing* should not only focus on seeking valuable scientific knowledge with the interview study, as it should also consider seeking on improving human situation; the ethical issues of *designing* is to gain an approval from the interviewee for a participation in the interview, secure confidentiality, and keep in mind the consequences of the study for the interviewee; the ethical issues of *interviewing* needs to take into account the consequences that may occur in the interviewee interaction during the interview, i.e. the interviewee can be stressed or his self-understanding changes; the ethical issues of *transcribing* protects the confidentiality of the interviewee, as well as being loyal to the statements presented orally by the interviewee when creating the transcribed text; the ethics of *analysis* holds the question on how well the interviews can be analyzed, as well as if the interviewee can comment on how his or her statement are interpreted; ethical issues of *verification* implies that the researcher's ethical responsibility is to report as secured and validated knowledge as possible; finally, the issue of ethical *reporting* is to keep confidentiality when the private interviews are reported in public. In our study we ensured the ethics in the seven research stages, where in the thematizing stage we collected data that might possibly assist with improving ESN adoption in the future. Within the designing stage we did, as previously mentioned, inform all of our interviewees about the confidentiality of their identity. In order to take the ethical issues of interviewing into account we did not put any pressure on the interviewee, explained the interview process beforehand, as well as had a conversation with the interviewee before we started asking him or her the questions. Within the transcript of the interviews, we did not use the interviewee names, the organizations' name nor did we display any words that could possibly lead to the identity of the interviewee or the organization. Furthermore, in the analysis part, as stated before we each went over the transcripts separately and then discussed it and thereby ensured the ethical issues of the analysis. Moreover, we ensured the ethical issues of verification by gaining knowledge through the literature review. As stated before names of individuals and organizations were not stated in the transcription and therefore we ensured the ethical issue of reporting.

### Macroethics

Macroethics occur when a researcher keeps it in mind how the knowledge produced will circulate within the culture and how it will affect the humans and the society (Brinkmann &



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Kvale, 2005). Before the interview is conducted, the interviewee should be informed about the ethical principles in scientific research. These principles state that the interviewee is participating as a *volunteer*, he/she is can choose if they want to participate in the study, and can withdraw the participation at any time. In a face-to-face interview, the interviewee should be informed about *anonymity* and *confidentiality* of the study, where the interviewee's particular answers cannot be tracked back to him or he, and the interviewee will be informed about total confidentiality of his or her answers. *Disclosure* means that the interviewee should be provided with information about the study before the interview starts, in order to make a decision about participation. The *analysis* and *reporting* of the study should be well made, and the researcher should inform about all findings, even if they are unexpected or negative. (Bhattacharjee, 2012; Recker, 2013)

In order to ensure the ethical principles of scientific research we informed the interviewee that he/she could choose if they want to participate or not, anonymity was ensured, and they were furthermore sent the information guide before the interview was collected.

## 4 Empirical findings

This chapter reports the results of analysing the data collected through the semi-structured interviews, where the relevant responses from the interviewees are described in details. Based on the big picture illustrated in the previous chapter, the results are described and categorized in several subcategories.

In some subchapters the responses from the interviewees are merged together, while in other chapters the responses are separately outlined. The reason for that setup is because where the interviewee responses are merged together, the interviewees had responses that were similar or the same, whilst in other subchapters it was not possible to merge the responses together as the answers would have then lose its value. In addition to that, we will provide a table for each theme, which displays key words from each interviewee for that particular theme. Furthermore, Table 4-1 displays a brief overview of which ESN software is used in the interviewees' organization. Even though, more detailed information about the interviewees can be found under chapter 3.2.2.

**Table 4-1. Overview of the organizations' ESN software**

Interviewee	Organization's industry	ESN software
A (IA)	Software products and service provider	Yammer
B (IB)	IT organization providing portal solutions	Yammer
C (IC)	Global matrix organization and automotive industry supplier	IBM Connections
D (ID)	Holding organization engaged in the field of medical and healthcare products	Tibbr
E (IE)	Shipping	Yammer
F (IF)	IT Consultancy	IBM Connections

## 4.1 Overall organizational culture

In order to explore the cultural and structural readiness of the organizations regarding the ESN, the interviewees were asked how they would describe the overall organizational culture and if they regard their organization as an innovative driven and modern organization or more a standardized and traditional one (Table 4-2).

**Table 4-2. Findings about the organizational culture**

	Innovative vs. standardized	Organizational structure	Overall organizational culture
<b>A</b>	<ul style="list-style-type: none"> <li>Innovative driven</li> <li>See themselves as risk-takers</li> </ul>	<ul style="list-style-type: none"> <li>No strict hierarchical bounds</li> <li>Diverged in many different locations,</li> <li>Culture differs between those locations.</li> </ul>	<ul style="list-style-type: none"> <li>Managers encourage their employees to use ESN</li> <li>Social networking plays a crucial role</li> <li>Transparent culture, where employees want to be on the leading edge of technology</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>Innovative driven up to a certain degree</li> </ul>	<ul style="list-style-type: none"> <li>The hierarchy can be seen as flat line</li> <li>no real hierarchy within the organization</li> </ul>	<ul style="list-style-type: none"> <li>ESN does fit to the organizational culture</li> <li>Transparent culture</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>Mix of both innovative and standardized</li> <li>good balance between being tradition-conscious and take today's modern requirements seriously</li> </ul>	<ul style="list-style-type: none"> <li>Matrix organization</li> <li>geographically dispersed</li> <li>Not one single culture</li> </ul>	<ul style="list-style-type: none"> <li>Transparent culture: culture becomes visible through the ESN, while culture changes through the ESN simultaneously</li> <li>Focus on development and enhancement of the culture</li> <li>Culture and ESN is supported by the top management, trusted by superiors</li> <li>Culture initiative running parallel to ESN implementation</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>Standardized driven</li> </ul>	<ul style="list-style-type: none"> <li>Strict hierarchy</li> </ul>	<ul style="list-style-type: none"> <li>Employees' fundamental principles are kind of old-fashioned</li> <li>Culture is not suitable for ESN in the first place</li> <li>Low level of social engagement and little focus on information sharing</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>Standardized</li> </ul>	<ul style="list-style-type: none"> <li>Very conservative</li> </ul>	<ul style="list-style-type: none"> <li>Current organizational culture does not support ESN</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>Young and modern</li> <li>Driven by dynamic and openness</li> </ul>	<ul style="list-style-type: none"> <li>Some level of hierarchical structure exists</li> <li>management level does actively communicate with all employees and have an open ear for all requests and feedback</li> </ul>	<ul style="list-style-type: none"> <li>High degree of transparency</li> <li>ESN fits in their overall organizational culture</li> <li>Social collaboration and networking are seen as very important in order to drive business value, where it is supported by executives</li> </ul>

**Innovative- versus standardized-driven.** IA sees his organization as an innovative driven organization, where he found that it especially applies for his department, which focuses on software development while considering involved employees as "risk-takers" as it is all about "go and get it done". IB stated as well that his organization is innovative driven, but only up to a certain degree as he argued that the organization's main focus is to sell computer software, and thus he found that the innovation cannot be the main focus. In IC's organization, however, the culture is a mix of both innovative and standardized driven, since on the one

hand, his organization has areas where hierarchy and structure control play a role, but on the other hand, they have the strong wish for continuous improvements and are aiming to become more and more agile, which they already have managed to realize in several areas. Thus, he found, that they have a good balance between being tradition-conscious and take the today's modern requirements seriously. This differs from the view of ID and IE, where both reported, that their organizations are highly traditional and standardized driven. Where IE declared that his organization is very conservative, ID asserted that the hierarchy is very strict at his organization. Regarding the hierarchy of organization B, IB stated that it can be seen as a flat line as there is no real hierarchy within the organization. He stated, that the organization has three person with more responsibilities than others, as the CEO, vice CEO and CTO followed by the specialists, being all at the same level of hierarchy. Therefore IB does not see the organization as a traditional organization, while IA pointed out the same as IB, that they do not have strict hierarchical bounds. In the view of IF, then, he asserted that his organization is young and modern and regarding the hierarchy, he reported that there is some level of hierarchical structure, though it is still driven by dynamic and openness, lived by the executives.

**Overall organizational culture.** When IC was asked to describe the culture of the organization, he stated, that it is not easy to define the organization's culture in one specific way. Due to the facts, that this particular organization is structured as a matrix organization and employees are geographically dispersed, they do not have one single culture. He thus argued that the longer he thinks about the culture, the more difficult he found it to express the culture under a common denominator, as there are many things to take into consideration. The same goes for organization A which is diverse and located in so many different places, that he expected that the culture differs between locations.

In addition, IC stated that the organization particularly stresses the importance of its culture as his organization has a special focus on its development and enhancement. It is thereby supported by senior executives, top managers and executive board as well as represented as one of the most important topics in their major conferences and integrated in their overall business and communication strategy. Moreover, IC emphasized, that they do have a culture initiative running parallel to the ESN implementation, where this initiative, which is still ongoing, concerns the development of culture focusing on the establishment of four core pillars: freedom, connection, trust and winner mentality. Thereby, he pointed out that the parallel run was crucial for the implementation of the ESN and vice versa, while both supported each other and were mutually dependent. He thereby said that without having the culture initiative, they would have had a more difficult journey while implementing the ESN. Moreover, with a view on its dependency, he argued, that without having the trust placed by superiors, they would have not been able to adopt the ESN successfully. On the other hand, he stated, that the ESN makes the culture more visible. As expressed by him:

*“The feedback culture, the level of freedom and the principle “for-one-another” established through the ESN helps to improve the visibility of the organizational culture and supports the anchoring of our four core values.”*

He further outlined, that the appreciation and the solidarity are made visible through functionalities represented in the ESN as commentary function, like function or social tagging, while this visibility simultaneously lead to changes in the organizational culture. Hence, he concluded, that in the first step, the culture becomes visible through the ESN and in the second step, this culture changes through the ESN.

At organization A, managers are both explicitly encouraging their employees to use the ESN, involved in the collaboration between teams, and they are showing their support by being active on the ESN and sharing their views and opinions there. He furthermore stated that social networking is a very big thing for his organization, where it is doing everything possible to make the information flow easier, make it easier for new employees to establish these networks, and get things done. While IA, IB, IC and IF believe, that an ESN does fit in their overall organizational culture, organization E is still looking at how they could align the culture with the use of the ESN, because as IE stated, the current organization culture does not yet support ESN. Furthermore, when ID was asked if ESN fits to the organizational culture, he assumed, that with modest steps, they could move towards an ESN, introduce it and then adopt it successfully. However, he also contended, that they are not the right organization because of the employees' demography and their fundamental principles are kind of old-fashioned. Apart from that, he and IE share the same believes, that with small steps a successful adoption of ESN could be possible even if it means that changes in the organizations culture are necessary.

Regarding the general level of social engagement, ID found that his organization does not have a high level of social engagement or focus on information sharing, while it depends on the individual department working mainly independently in its sphere of activity. Thus, he sees definitely a significant need of improvement regarding the development of transparency and knowledge sharing culture. In contrast, IF stated, that the organizational culture is driven by a relative high degree of transparency, where social collaboration and networking are regarded as very important aspects in order to drive business value and is supported by the executives. In particular, he indicated that although some level of hierarchical structure exists, the management level does actively communicate with all employees, where they have an open ear for all requests and feedback. The same is also reported from IA and IB, as they believe that they have a transparent culture. Furthermore, IA emphasized that organization A is full of people who want to be on the leading edge of technology, where they want to use and create the best. Additionally, at his location they are very prototype driven, where small teams are the rule and the atmosphere is very informal.

**Summary.** In sum, then, the overall organizational culture differs between the interviewed organizations. However most of them found, that their organizations are innovative driven, even though up to a certain degree, a mix of both innovative and standardized driven or where some level of hierarchical structure exists, but still characterized by being young and modern, driven by dynamic and openness. These interviewees also reported, that they do have a transparent culture supporting ESN, where contrary, those interviewees, who view their organization as standardized driven, strict hierarchical and very conservative, the current culture does not support ESN yet.

## 4.2 Reasons for adopting ESN

The question about the cultural aspects of the organizations led up to the question for the reason why the organization was adopting ESN in the first place (Table 4-3). As some of the interviewees were not at the organization when the implementation started, they had either second hand information or assumption of the implementation.

**Table 4-3. Findings about reasons for adopting ESN.**

	Reasons for adopting ESN
<b>A</b>	<ul style="list-style-type: none"> <li>• Enable connection and communication between employees</li> <li>• Easier for employees to find each other</li> <li>• Keep people informed</li> <li>• Overcome hierarchical barriers</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Communicate internally</li> <li>• Enhance internal communications</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• Information infrastructure was no longer efficient and sufficient</li> <li>• Leverage communication</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• No clear approach</li> <li>• Main thought was to decrease e-mail usage and information silos</li> <li>• Better structure, access, and process of information</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• Implemented out of interest</li> <li>• Use as part of knowledge management</li> <li>• Internal communication and general information gathering</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• Gain expertise about ESN in order to advertise their products and services better</li> <li>• Improve the overall transparency of knowledge and expertise</li> <li>• Leverage the communication and knowledge exchange</li> </ul>

**Organization A.** IA was not working at the organization when it was decided to implement ESN in the first place. However, after he joined the organization, the ESN system has changed, where they started to use Yammer. IA thereby reported, that using Yammer was quite natural for the organization. From IA's own perspective, the organization decided to adopt ESN in order to enable connection and communication between the several thousand employees that are spread all over the world, and to solve the real need in having an easy way for employees to find other employees located at different places and reaching out for those they are not immediately working with. Additionally, he claimed that other purposes were to keep people informed through announcements, to overcome hierarchical barriers and to reach other employees who are not reachable otherwise.

**Organization B.** Like IA, IB was not an employee at his organization when they decided to implement ESN, so IB provided second hand information for the reason of adoption of ESN. He was informed that before the organization decided to start using ESN, they were using an intranet which had no social feeds. Thus, they needed something to communicate internally and therefore they implemented an ESN system. Furthermore, from what IB understood, the reason for the implementation was to enhance internal communications.

**Organization C.** IC pointed out, that the decisive reason for implementing the ESN was, that their information infrastructure was no longer efficient and sufficient and thus they found it was a great need of urgency given. As he argued, especially in the matrix organization, the communication is a crucial point in regard to the overall success and thus, increasing the transparency and leveraging communication was the major reason for initiating the adoption of ESN.

**Organization D.** Although ID stated, that they did not have a clear approach, one of the main thought behind the adoption of ESN was to decrease the e-mail usage and the hereby occur-

ring information silos. Thus, they aimed to allow employees to better structure, access and process information. Moreover, ID claimed that ESN could leverage the overall transparency within the organization. However, he also stated that it highly depends on the specific topic, if some work procedures are appropriate to be handled via ESN or not and thus he believes, that it is crucial to define what topics to be integrated in the ESN.

**Organization E.** According to IE, they implemented ESN out of interest, to explore its functionalities and to find out how it works. Thus IE stated, that it was a test implementation. The ESN system they chose was Yammer and it had been introduced very much in context to intranet (i.e. SharePoint), which is one of the systems that the organization uses. Even if Yammer was rolled out as a test implementation, the organization had some ideas for the reason of adopting ESN. For example they want to use it as a part of knowledge management, internal communication, and just for general information gathering.

**Organization F.** While IF was not yet in the organization, when the ESN was implemented, he also provided second hand information and thereby reported about two major reasons for the adoption of ESN: on the one hand, since the organization refers to the IT industry, they are offering implementation and development of such social tools to their customers, and thus they aimed to gain expertise of the usage of the ESN while experimenting with it internally in order to advertise their products and services better. On the other hand, due to the size and the geographical distribution of the organization and hence the distributed knowledge, it led to lack of transparency and to the issue that employees did not know where to allocate expertise required for their work. Thus, in order to find appropriate experts within the organizations, employees had to search intensively for a long time with the existing tools such as intranet, e-mail and telephone in order find the right experts. Thus, the second major reason was to improve the overall transparency of knowledge and expertise within the organization and leveraging the communication and knowledge exchange.

**Summary.** To sum up, the interviews provided the information that the organizations were adopting ESN for few reasons, where most of the interviewees mentioned that the ESN was implemented to enhance internal connection and communication amongst employees and to keep them informed. Other reasons mentioned: to have an easy way for employees to find each other, overcome hierarchical barriers, reach employees that would not be reachable otherwise, improve the information infrastructure, decrease the e-mail usage and information silos, out of interest, gain expertise of the ESN in order to provide better customer services, improve overall transparency of knowledge and expertise, and leveraging knowledge exchange.

### 4.3 ESN Strategy

In order to explore the factors influencing the adoption positively or negatively, the interviewees were asked to describe their implementation approach (Table 4-4).

**Table 4-4. Findings about the ESN strategy**

	<b>ESN strategy</b>	<b>Initiated from</b>	<b>Training</b>
<b>A</b>	<ul style="list-style-type: none"> <li>Employees were told that this was the new tool and they should use it from that point on</li> <li>Well communicated</li> </ul>	-	<ul style="list-style-type: none"> <li>No specific training</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>Introduction with no special structure</li> <li>Employees were told "here is a link to Yammer, let's start using it"</li> <li>When IB started his job, the introduction he got for Yammer was that it was used to post fun stuff, discussion of improvements and other things</li> </ul>	<ul style="list-style-type: none"> <li>Most likely imitated by top level</li> </ul>	<ul style="list-style-type: none"> <li>No specific training</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>Implementation phase took about 3 years</li> <li>Successful evaluation project prior implementation including 6 successful use cases which showed clear measurable success</li> <li>ESN was implemented in 3 steps, where different functions of ESN were made available</li> <li>Each country had their own method but followed the overall organization vision</li> </ul>	<ul style="list-style-type: none"> <li>Initiated by the IC project team</li> <li>IT played a big role as well as communication department, knowledge management and quality department</li> </ul>	<ul style="list-style-type: none"> <li>Guide network of voluntary employees guiding through the implementation in all locations</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>No strategy or vision defined</li> <li>Communications were not proper</li> <li>Characterized by a prototype mode, where it was just about experimenting with the ESN platform without having a specific goal</li> <li>Other departments also experimented with other ESN software as Yammer at the same time.</li> </ul>	<ul style="list-style-type: none"> <li>The adoption arose in first line in the process and IT department</li> <li>No clear message from the top, indicating the need of ESN</li> <li>Department of corporate communication (responsible for internal and external communications) were not involved</li> </ul>	<ul style="list-style-type: none"> <li>No training</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>The implementation has not been formal and not finished yet</li> <li>Started in early 2014 with a test instalment to see how the tool worked</li> <li>The tool is open for all employees</li> </ul>	<ul style="list-style-type: none"> <li>An employee within IE's department suggested the implementation of Yammer</li> </ul>	<ul style="list-style-type: none"> <li>No training yet</li> <li>No proper introduction</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>Employees were informed about ESN available, without any specific instructions</li> <li>ESN was implemented as a pilot rollout including a test phase prior the implementation in the entire organization</li> <li>Communicated as a new tool available via e-mail, flyers and webcasts</li> </ul>	<ul style="list-style-type: none"> <li>Initiated by the department of IBM experts, rather than from the top-level</li> <li>After the successful test phase, the management level has taken the investment decision concerning the roll-out in the entire organization</li> </ul>	<ul style="list-style-type: none"> <li>The technology was just installed without specific trainings</li> </ul>



**Strategy and initiation.** As stated by IA, when Yammer was first introduced within the organization, employees were told that this was the new tool and they should use it from that point on, and that was very well communicated. As mentioned before, IB was not with the organization when it implemented Yammer. However he stated that it was most likely initiated by top level at the organization, where the introduction of Yammer was with no special structure. It was just introduced to employees where they were told, “*here is a link to Yammer, let's start using it*”. This is just aligned with IF’s statement, where he reported, that after IBM Connections was installed, employees were just informed via e-mail about the new tool, available for being used, but without defining any specific instructions or purposes. Furthermore, IB stated that the employees at the organization are not that many so it was not a big deal to roll out Yammer. When IB began his job at the organization, he was introduced to the organizations’ systems in a way that the intranet (i.e. SharePoint) was to be used to store documents and some useful information, whereas Yammer was to post fun stuff, discussion of improvements and other things.

The ESN implementation at organization C was initiated by the project team of IC, where also IT played a role as well as the communication department, knowledge management, and quality department. According to IC the implementation phase of ESN took about three years, and before they started with the implementation phase, they initiated an evaluation project of ESN, where it was of task to find out what they actually needed. The evaluation project was then so successful, that they saw an absolute need for implementing the ESN. There was no need to convince with any numbers or ROI figures as they were convinced with the good results from the evaluation project.

At organization D, the idea of adoption of Tibbr arose in first line in the process and IT department. Furthermore, contrary to IC, who stated that the implementation followed a clear approach including a proper communication strategy, ID indicated, that it was at the first place characterized as a prototype, where they had a software solution as Tibbr, but did not have any concrete imagination how to design or deal with it. Thus, they still aimed to adopt it properly someday in the entire organization, but firstly just experimented a little with it, without having a clear goal. Additionally, he stated that as the communication of ESN adoption was not proper enough, it occurred that other departments also experimented with other ESN software like Yammer at the same time.

The idea of the adoption of the ESN at organization E was with similar mode as with organization D, where an employee within the IE's department suggested the implementation of Yammer. However the implementation has not been in any formal way, since it was more like a test instalment to see how the tool worked, without having a clear intention or goal. Thus, the organization still remains in the test phase, where they do not have a clear approach yet, nor has there any plans for further development of the implementation specified.

In contrast, organization C had a very well defined strategy of the adoption of ESN, where IC reported, that they had 6 use cases in the beginning, on which they showed clear measurable success. After that, nobody asked further for the reason of the implementation, where he suggests, that the biggest success is, when nobody asked for any KPIs anymore. Within the evaluation project, they analysed their existing software landscape, asked the employees what they needed and looked what was available on the market. These three aspects were then combined with their strategy, where the culture and individual behaviour patterns were also taken into account.

The implementation followed thus a very clear strategy and was closely associated with Change Management. Thereby, the implementation project of organization C was divided into 3 core steps: In the very beginning, they turned off almost all functionalities, followed by the first step, where they just activated the profile and status messages functions, in order to enable self-presentation, allowing employees to become visible in the first place. In the second step, they provide employees the ability to become visible and to collaborate thorough wikis and blogs. Finally, in the third step, they unlocked the community function, where individuals were enabled to form communities and groups. This means, only then it was possible to restrict certain areas by closed communities or to add a level of security by creating moderated communities, where it is only possible for employees belonging to a certain community to adjust content. But this was just the last step as they found it crucial to firstly give employees the time to get used to the new tool allowing experiments with it, before restricting the freedom and providing the ability to limit certain things straight from the beginning.

Concerning organization F, IF indicated, that the ESN platform and herein IBM Connections has been implemented as a pilot rollout. Thereby, the department, where IBM experts were located, initiated the introduction, while they first ran a test phase. This was needed, as the department decided to sell the IBM solution to their customers and thus, they wanted in first line gain expertise of the product. Within this test phase, they had the goal to explore the functionalities and the possible benefit on their own with selected employees internally. Hence, it was driven by the engagement residing in the specific department rather than from the top-level. Only after the prototype of ESN started up successfully, investment decision from the management level has been taken concerning the roll-out in the entire organization, while official resources have then been allocated. However, as stated by IF, the technology has just been installed rather than illustrating clear benefits about the usage of IBM Connections to their employees. Nevertheless, IF indicated, that it has been sort of communicated that a new tool is available, where they informed the employees about the availability of the ESN by e-mail as well as distributed flyers and webcasts.

**Guidance and training.** The biggest lever of the implementation in the view of IC was the development of a “Guide-network”, referring to a network of voluntary employees guiding through the implementation in all locations, where the guides had approval from the executive board to spend 10% (4 hours) of their working time as a guide. Thereby, it was the aim to have at one location at least one guide, where one guide should be responsible for not more than 200 employees. The guides were not chosen by their education, personal data or hierarchical position, but moreover by their level of curiosity, motivation and who are able to speak English. Thus, it ensures a development of a bottom-up network, where everybody is seen as equal. But these guides did not simply train the employees, but moreover they first actively participate and optimized their own working processes with the ESN, which in turn increased the visibility of their successes with ESN. Thus, it made other employees curious, where they started to provide them answers to their questions. He further stated that there was no project on any scale before, where it has been so widely communicated. They have invested very heavily in the communication within the implementation of ESN and thereby used every conceivable channel, regardless if it was face-to-face, analogue or digital for the communication.

While organization C had this special guide network established, organizations A and B took different approaches, where at IA's location there was no training as it was assumed that the employees knew how to use the tool and according to IB, his organization did not have any training in the beginning, i.e. after the implementation, nor did they have training on ESN when new employees started. Instead, employees were told that the organization installed Yammer and they should figure out how to use it on their own. But then, IB stated, that the

employees of the organization are used to computers and these kinds of technologies and that their main business requires employees to be knowledgeable about these technologies. Thus, the organization assumes that no special training is required. When it comes to organization E, IE reported, that no training has been formed yet, which is mainly due to the reason that the organization is still trying to figure out the whole strategy and structure on how they want to use Yammer. However, when the organization has setup the strategy for Yammer, they will arrange training for all of the employees.

Although organization C established the specific guide network, they did not specify anything from the top, besides the vision about where they want to be: to change the communication and collaboration in the organization. Thereby, they communicated through the “how”, meaning that illustrating the approach and defining what behaviour they would appreciate. Then, how it will be done was in the responsibility of the countries. The methods then differed along the countries, depending on the acting guides, where in one location totally different methods were established than in other locations. Thus, the approaches varied a lot, where one used gamification and introduced in a playful way, others integrated specific business processes with ESN, where the employees had to use the ESN in order to accomplish their work tasks, while others searched for moderators for supporting the implementation. With this diversity of implementation approaches, it was ensured that the specific country culture and region was aligned with the ESN. Furthermore, IC found it crucial to mention, that although the organization has finished the implementation project of ESN, it is still an ongoing process, where constantly follow-up projects are generated. As an example, he provides the current topic about the integration of external partners and customers or the integration of ESN with “bring your own device”, where further investigation is needed. Thus, there are many actions and other small projects initiated by the implementation of ESN, where it is kind of a spiral: it first starts at one point and has then at some point impacts on every part of the organization.

While the implementation was successful at organization C, organization D faced some problems with their implementation. Due to the lack of a clear vision and strategy and missing support from the management and the department being responsible for corporate communication the attempt to implement the ESN finally resulted in a failure.

When it comes to organization E, there has not been any proper introduction to Yammer. Some employees have been informed about the tool on meetings and where they have then informed other co-workers about this, which has led to more and more employees signing up for Yammer. However, the organization plans on having strategy in a way that they will not require the employees to use Yammer but instead they hope that network effects will occur. Furthermore, the implementation needs to be taken with small steps as a project like this cannot be with a big bang. This needs to be something that the people can handle and they cannot expect too much from the people at the beginning.

**Summary.** In brief, it has been found that the ESN strategy varied within the organizations, reaching from one extreme to the other, having no strategy at all to a very clear and well communicated strategy. Some interviewees thereby reported that the ESN has been introduced without any special structure or training, just introduced via e-mail or the link to the ESN has just been provided, where no special training was required. In contrast, other interviewee reported that that the implementation followed a clear approach and well defined strategy including a proper communication strategy, where they invested heavily in its communication. Other interviewees claimed that they did not have any concrete imagination how to design or deal with ESN, nor did they have a clear goal or strategy, which finally ended up, that the ESN adoption failed or they are still remaining in the test phase, without specifying

any plans for further development of the implementation. It has further been found that two organizations had an evaluation project or test project prior the actual implementation, where others have not initiated such projects.

## 4.4 Rules and policies

Some of the interviewees mentioned rules around their ESN systems (Table 4-5).

**Table 4-5. Findings about rules and policies**

	Defined rules and policies
<b>A</b>	<ul style="list-style-type: none"> <li>• No rules or policies how to use Yammer</li> <li>• Yammer is not mandatory</li> <li>• Employees use it if they feel like it</li> <li>• Yammer is considered to be safe, do not expects leaks</li> </ul>
<b>B</b>	N/A
<b>C</b>	<ul style="list-style-type: none"> <li>• No specific regulation about how ESN has to be used</li> <li>• No "Internet Police"</li> <li>• Much rules as necessary, as less as possible, Freedom to Act, giving benefit of the doubt</li> </ul>
<b>D</b>	N/A
<b>E</b>	<ul style="list-style-type: none"> <li>• Plans to have general behaviour rules around Yammer</li> <li>• As little rules as possible</li> <li>• Yammer will not be mandatory</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• No rules or moderators guide</li> <li>• Social media guideline distributed to all employees</li> </ul>

In organization A, the employees do not have any rules or policies on how to use Yammer, and Yammer is not mandatory for them. IA further believes that it is useful and people will just use it on their own if they feel like that. IC indicated, that they have no specific regulation about how the ESN has to be used nor is there like an "Internet Police", where they follow the motto as much rules as necessary, as less as possible. Ultimately, it is everything "Freedom to Act". But in the view of IC, having a certain level of freedom is crucial, since it supports the diversity existing in the organization.

Due to unfinished implementation process, organization E is planning on having some rules around Yammer, but mainly general behaviour rules that are in place for all other systems, like being polite, show respect to others and other things that is within other social systems and chats. So their intention is to have as little rules as possible and have Yammer free of use, i.e. not mandatory.

Although organization C established rough rules for the usage of ESN represented by certain policies, a social media guideline and organization agreement, they still tried to provide maximum space for the usage of ESN. Indeed, they grant the employees a leap of faith and the relevant freedom of action and for the case, something happens, they can still react on it. He further stated that due to the high amount of participators within the ESN, it is almost impossible to control every action. But even though no "central police" exists controlling everything, it is still possible to react on legal breaches to a certain degree, since an unwanted con-

duct takes place, ESN users do have the possibility to flag inappropriate content as questionable. However, IC indicated, it is simply not possible to control the entire ESN since the organization is spread all over the world. For this being realized, they would have to know and integrate all regulations from each country, which is simply not achievable in the view of IC.

In context of security issues with ESN, IA stated that Yammer is considered to be safe, so they are not expecting it would lead to leaks or things like that.

While IF indicated, that there has been no rules for the use of IBM Connections nor were there any moderators to guide the usage in the first place, they still distributed a social media guideline to all employees, where it was defined how the individuals should communicate with each other in terms of that employees should behave civilly, take care how to criticize others and appreciate one another. However, although there has not been clear roles in the first place, IF indicated, that they introduced a moderator later on, who were then responsible to promote the use of the ESN, maintain the content and provide support in terms of when questions arises from other employees. However, it was just one moderator appointed, being responsible for all employees, i.e. for 1000 employees working in the organization.

**Summary.** To summarise: all interviewees reported, that there are no specific rules or strict policies defined on how to use the ESN, however some interviewees pointed out that rough rules in form of certain policies, social media guideline and organization agreement exist or that a social media guideline has been distributed to all employees when the ESN was introduced.

## 4.5 ESN usage

By analysing the key enablers associated with ESN, interviewees were firstly asked about the usage of ESN (Table 4-6).

**Table 4-6. Findings about the ESN usage.**

	ESN usage	Personal use
<b>A</b>	<ul style="list-style-type: none"> <li>High participation rate, employees using it on a regular basis</li> <li>Seeking for information and advice from others</li> <li>Solving professional issues and seeking employees within the whole organization, bridge between divisions</li> <li>Announcements, discussions, project status updates, informal, polls and formal communication</li> <li>Usage of ESN depends of the person of interest, not the role</li> </ul>	<ul style="list-style-type: none"> <li>On a daily basis</li> <li>When he does not know who to address for a specific question or problem</li> <li>Fill gaps (e.g. when he waits for a meeting)</li> <li>Post possible work related improvements</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>High usage, around 90%, including management</li> <li>One reason for the usage of ESN: they are IT consultants and they build their work around it</li> <li>Inform about open projects</li> <li>Share and seek information and knowledge</li> <li>Informal and formal communication</li> <li>Asking and answering questions, posting ideas</li> </ul>	<ul style="list-style-type: none"> <li>Uses it on a daily basis</li> <li>To post ideas that should be reach by a larger audience</li> <li>To see useful information</li> </ul>

<b>C</b>	<ul style="list-style-type: none"> <li>• Increased linearly within the last 3 1/2 years, where 30% of all employees are participating</li> <li>• Used for general communication,</li> <li>• share and seek information and knowledge,</li> <li>• trainings and organizational learning,</li> <li>• competence development among each other,</li> <li>• service support network where IT issues are solved, any kind of questions asked</li> </ul>	<ul style="list-style-type: none"> <li>• General communication</li> <li>• information processing,</li> <li>• asking questions to others,</li> <li>• arrangement of appointments,</li> <li>• joint preparation of information,</li> <li>• proceeding and debriefing of agendas,</li> <li>• knowledge database,</li> <li>• project documentation,</li> <li>• polls, tasks lists and distribution of templates</li> <li>• Employee database in order to find colleagues</li> <li>• Evaluation of the overall usage in order to explore certain flows</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• No participation rate as the adoption of the ESN failed.</li> </ul>	N/A
<b>E</b>	<ul style="list-style-type: none"> <li>• Not much usage of ESN as it has not been implemented in a formal way</li> <li>• Used to upload articles or interesting materials from the internet, as well as some videos</li> <li>• Possible usage in the future when the strategy has been formalized: for internal communications and social sense, as well for general service</li> </ul>	<ul style="list-style-type: none"> <li>• Does not use Yammer regularly</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• Usage is not as high as desired and definitely improvable, today about 10%</li> <li>• Due to lack of the clear communication it is hard to motivate employees to be active, where many were active in the beginning due to curiosity</li> <li>• Those who are active use it frequently</li> <li>• Many different employees are participating in ESN communities, from sales, over consultants to software engineers</li> <li>• Used to find specific information or to ask questions</li> <li>• Business units communities</li> <li>• Personal interest communities</li> </ul>	<ul style="list-style-type: none"> <li>• Used for team work, related to specific project and customer-related tasks in order to get information about projects</li> <li>• Uses almost all available functionalities of the ESN in his everyday work: blogs, wikis, document storage, activity streams</li> </ul>

**Organization A.** IA stated, that the usage of ESN is pretty high within the organization, where Yammer is for example used for announcements, discussions among people, and to post polls. Thus, Yammer is also used to drive business decisions, where it is not only informal communications. Furthermore, being such a large organization, with thousands of employees, IA indicated that it can be difficult to find an employee you need to get a hold on, and thus Yammer is used to assist with that, while acting like a bridge between divisions. IA uses Yammer on a daily basis during the week where his personal usage of Yammer is mostly to find people to communicate with, and that he can contact a person or a team, that he do not know of or is not working with, with a problem he has. He also uses it to post possible work related improvements. He furthermore thinks that most of his co-workers use it the same, where some individuals are more active than others. Thereby he gave an example of one user that uses Yammer a lot to post every idea he has for his next project, and puts up poll for the idea, where he also replies a lot to other posts. But as IA stated that the persons that find Yammer useful and interesting, they will use it more. Thus, he contented, that the usage of Yammer depends on the person and not their role.

**Organization B.** According to IB, the organization uses Yammer to inform employees about open projects, where they share information from stand up meetings, from each team, by using a certain hashtag. He furthermore argued, that without the hashtag, employees located at the customer side or not located at the headquarters, would face the problem of not knowing what was being discussed on the meetings, status of projects, and general information about

what is happening within the organization. Thus IB stated that Yammer is solving these kinds of problems and issues. Yammer is furthermore used to exchange information regularly, about new releases of the products they are working with and selling, and according to IB there are great sources for relevant information and use on what is going on within the ESN. Employees are also asking questions, answering questions, and posting ideas, where this can save time for the employees and where they get feedback on particular idea. They are furthermore posting on Yammer to improve their work, as according to IB the majority of the posts that the employees' posts are pretty serious, but there are also some posts that are less serious, like more social posts. Hence, IB agrees that ESN leverages information sharing and seeking, as it supports how people communicates and share knowledge. IB personal use of Yammer is to post something that he wants to be reach by large audience within the organization. IB uses Yammer daily, in order to see useful information that have been posted by other employees, and to see some sources that he needs to keep track off that are in relation to the software they work with. Moreover, he stated that there is a high usage of Yammer where the majority of employee uses it, like 90%. When IB was asked if there was a difference in usage between employees, like managers and others, he stated that all three managers are using Yammer, but the usage differs between them as there are some posts that the CEO and vice CEO are not that much into while the CTO uses Yammer a lot as majority of the posts on Yammer are technical stuff that he is a lot into. Finally, IB pointed out that one of many reasons for the organization to use Yammer is because they are IT consultants and they build their work around this, i.e. they are not only using this for themselves, i.e. the employees, but moreover they are selling these kinds of tools and therefore they need to have knowledge on what they are selling.

**Organization C.** At organization C the usage of ESN and its associated functionalities within the organization increased linearly within the last three and a half year, where the utilization rate of the ESN is about 30% per week, which means that one third of the organization are actively participating within the ESN. In detail, he pointed out, that 9000 employees participating in the ESN, where 9500 communities existing and 12000 blogs. He also indicated that the personal network size usually amounts to approximately 60-70 connections to other individuals. IC argued that the increasing participation is due to the fact, that they had a clear strategy, approach and especially communication. IBM Connections is thereby a place for trainings and organizational learning, to bring together trainers, that are focusing on a specific topic as well as a place where they try to conduct competence development among each other and work with tasks lists and templates for all sorts of processes stored in the ESN. Moreover, it is a service support network, where IT issues can be solved, where employees are able to ask any kind of questions, regardless if it is related to travel, to finance aspects or foreign countries. According to IC, his personal usage is for almost everything related to his work: for the general communication, information processing, asking questions to others, arrangement of appointments, joint preparation of agendas, proceeding of agendas, debriefing agendas or emerging points, as knowledge storage, project documentation, polls, and as an employee database in order to find colleagues. Moreover, he evaluates the overall usage, in order to explore certain flows.

**Organization E.** Employees at organization E have signed up for Yammer, most likely out of curiosity. However as stated by IE, they are not using it that much, where IE stated that it is due to no formal introduction of the system and IE himself does not use Yammer regularly neither. Despite of that, IE assumes that when the usage strategy has been formed, many employees will be ready to be very engaged in using Yammer. So far Yammer has been used to upload articles or interesting materials from the internet, as well as some videos, but there has not been much feedback on that as no discussion has appeared from these posts.

**Organization F.** When IF were asked about the usage of ESN, he indicated that the usage is not high as desired and definitely improvable. As he stated, due to the lack of the clear communication how to use the ESN and for what purposes, it is hard to motivate employees staying active in the platform without having an individual benefit. Many employees have been active in the beginning due to curiosity, but after a period of time, employees lost their interest again as they did not know how to integrate it in their everyday work. Hence, he assumes that the usage is today about 100 employees, i.e. 10% in total. However, in contrast, he reported that those people, who are actually active within the ESN, use it frequently, where he counts himself among these active participants. Thereby, he uses IBM Connections intensely for team work, related to specific project and customer-related tasks. As an example, he stated, that they have in his sphere of activity for each customer project one community within the ESN, where they store all information to the specific customer such as project proposals, related e-mails or other customer specific information. He further stated, that many different employees are participating in these communities, from sales, over consultants to software engineers and thus, brings all individuals together involved in the customer project. Thereby, they use those communities to find specific information or to ask questions such as “Does somebody know why this specific software functionality is not working currently” in order to reach others’ expertise, where they normally prompt get answers from other employees. He further stated, that in addition to the project-related communities, they also established communities for each business units as well as communities based on personal interests such as about new technical developments or sports, where joint running trainings are organized. In summary, he uses almost all available functionalities of the ESN in his everyday work, as blogs, wikis, and document storage as well as activity streams.

**Summary.** In conclusion it can be said, that the participation rate of the ESN reaches from a fairly high participation, over a sporadically and improvable participation, to a very low or no participation at all. Almost all interviewees outlined thereby, that they use the ESN in first line for sharing and seeking of information and knowledge from others, where it is used among other actions, for announcements, discussions and polls, informal and formal communication, general communication, organizational learning, employee database and as a service support network or for team work, related to specific project and customer-related task.

## 4.6 Information and knowledge sharing

In order to analyse how information and knowledge sharing is influenced by the ESN, interviewees were asked about the impact on the accessibility and exchange of information and knowledge as well as about the individual engagement (Table 4-7).

**Table 4-7. Findings about information and knowledge sharing**

	Information and Knowledge sharing	Employees engagement
<b>A</b>	<ul style="list-style-type: none"> <li>• ESN is used for knowledge and information sharing: seeking information and keep people informed</li> <li>• Employees post technology related information they find interesting</li> <li>• Can see information history within ESN</li> </ul>	<ul style="list-style-type: none"> <li>• All employees participate in information sharing</li> <li>• Information appear only through digital forms, thus employees are more comfortable to share information</li> <li>• Level of the individual engagement considering information exchange, depends on the individual usage and on the employee's curiosity about social networking and technologies</li> </ul>



<b>B</b>	<ul style="list-style-type: none"> <li>• ESN is used for knowledge and information sharing: seeking information and keep people informed</li> <li>• Easy way for employees to communicate and share knowledge with those who are not physically located at the office</li> <li>• A way for busy people to share their knowledge and facilitate the social engagement between employees</li> </ul>	<ul style="list-style-type: none"> <li>• Employees engagement depends on the employee's role</li> <li>• Employees can sit on knowledge for two reasons: political reasons, lack of time to share knowledge</li> <li>• Level of the individual engagement considering information exchange, depends on the individual usage and interest</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• ESN is used for knowledge and information sharing: seeking information and keep people informed</li> <li>• Scalability is a key enabler where it allows plenty of individuals to share information information is accessible and searchable enabling individuals quickly finding information</li> <li>• Not possible to have not any information silos</li> <li>• ESN is firstly empty when an organization adopt it and has to be filled with own ideas and information</li> <li>• ESN highly differs from traditional enterprise software system (e.g. SAP)</li> </ul>	<ul style="list-style-type: none"> <li>• Level of the individual engagement considering information exchange, depends on the individual usage and interest</li> <li>• Depends in addition on support from the management</li> <li>• ESN differs from personal social network systems</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• It is planned that Yammer should allow employees to add the "right" information Make information flow better and easier between work places</li> </ul>	<ul style="list-style-type: none"> <li>• Hesitation might occur from employees to share information and knowledge</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• ESN is used for knowledge and information sharing: seeking information and keep people informed</li> <li>• Can see information history within ESN</li> <li>• Increased accessibility and transparency of information and knowledge</li> <li>• Information sharing is an ongoing process</li> <li>• Information shared about monthly wins, project status, other information that might be of interest for others</li> <li>• Data are stored at one place and not dispersed on several drives, hidden behind folder structures</li> </ul>	<ul style="list-style-type: none"> <li>• People who are more active on ESN are more likely to share information and knowledge as they see the benefit from it</li> <li>• Impediments for sharing knowledge: fear to lose authority or power and fear to become blamed</li> <li>• ESN differs from personal social network systems</li> </ul>

**Information and knowledge sharing.** Interviewees at organizations A, B, C and F all agree that their ESN system is used for knowledge and information sharing, seeking information and to keep people informed. At organization A, employees want to share information, where they use Yammer to post technology related information that they find interesting. IA, furthermore stated that, Yammer has the affects that when an employee is added to one group he can see what has been going on before he was added to the group, whereas if the employee would have been added to an e-mail group he would not be able to see what employees where talking about few months before. This view is also supported by IF, where he provides a vivid example of the usage of the ESN, telling a story when he once joined a new project. Thereby, he was instructed by his supervisor to inform himself about the project through a specific community in the ESN, where all customer data is stored. Thereby, he found it in particular beneficial, to work through all the information from bottom to top, enabled him to access all protocols, important e-mails and any other internal communications about the project at one place rather than seeking for this information on different locations and experts. Thus, while everything was illustrated chronologically, it allowed him to gain a brief understanding in such a short time, where he otherwise would not have been able to. Furthermore, organizations A and B have pretty high social engagement, where IA assumes that all of the employ-

ees participate in information sharing. According to him, many of the information appear only through digital forms like Skype for business, Yammer, SharePoint, and e-mail. By having such structure it leads to the fact that employees are more comfortable to share information. Besides that, IB stated that the employee engagement depends on the employee's role.

IB furthermore, stated that Yammer is an easy way for employees to communicate and share knowledge with those, who are not physically located in the office, sitting at the customers' side or not working at the headquarters currently while doing home office. Moreover, IC mentions scalability of ESN and how that is a crucial key enabler, where it allows at the one hand plenty of individuals to share information and on the other hand, it is structured in a way, that information is accessible and searchable enabling individuals quickly finding the information they are looking for. IF agrees with the view of IC, stating that ESN leads to a better accessibility of information and knowledge at one place, where information sharing is an ongoing process within his organization. Thereby, users share information about monthly wins, project status or other information that might be of interest for others. He further stated, that prior the ESN implementation, they had the issue, that information was dispersed on several drives, hidden behind thousands of folder structures, whereas now the data is stored at one place being consolidated. He thus concludes that his personal main benefit of the ESN is the increased accessibility and transparency of information. Moreover, despite IF's contention, that he does not directly seek for personal information not related to his work within the ESN, he acknowledge, that he sometimes absorb information unconsciously about other topics, where he has not searched for in the first place and thus broadens his horizon indirectly.

**Employees' engagement.** Concerning the individual engagement in ESN, IB mentioned that employees can sit on knowledge for two different reasons. On one hand it might be for political reasons, where the employee hordes the knowledge so that the organization cannot fire him, or that he or she get promoted. However IB stated that it is not happening within his organization as it is strictly forbidden to sit on knowledge, or at least the organization makes a point of not doing so. On the other hand, he indicated, that some employees simply do not have the time to share their knowledge due to their heavy workload.

As organization E has not taken the implementation all the way yet with Yammer, IE informed that the plans when Yammer has been introduced that it should allow employees of the organization to add the "right" information there, which will make the information flow better and easier between work places. However, he stated that some hesitations might occur from employees to share their information and knowledge.

When asking IF about if there are people, who do not want to share knowledge, he claimed that in general there are those people in every organization. However, he argued that in principle everybody is engaged and keen to share information within his organization. IC furthermore claimed that in his view it is not possible, to not have any information silos. Because when somebody would pretend being totally transparent, then this organization would not be on the market anymore. Indeed, there are certain standards and laws not allowing to be fully transparent. However, beyond this, IC stated that they are on a very good way to achieve maximum transparency. But the level of transparency and engagement does relative heavily depend on the well-being of the management functions. Because one feel not comfortable when there name is stated in the ESN, where others feel very comfortable when the majority of their functionalities are transparent.

IF further stated, that those, who are more active in the ESN are more likely to share information and knowledge, as they see the benefit from it, while they experience the "give-and-

take” principle according to the motto “I provide information to others, but I am in turn able to gain information from others”. However, he also assumes that some might not share information because of the fear to lose authority or power when one provides knowledge to others. He further claimed that some employees might have a fear to become blamed. In addition, IA, IB, and IC argue, that the level of the individual engagement considering information exchange, depends on the individual usage and interest, and IC furthermore stated that it also depends on the support from the management. However, IC contended, that it does not allow that one could claim a lack of engagement, since the participation quote is simply too high at his organization, In addition, IA assumes that the engagement of the ESN platform depends as well on the employee's curiosity about social networking and technologies. IB finally stated, that Yammer facilitates the social engagement between employees, since it enables busy employees to share their knowledge.

**Differentiation from private social networks.** In addition, it is worth to mention, that IC and IF argued that an ESN highly differs from private social networks such as Facebook. IC thereby claimed that although ESN, compared to Facebook, Twitter or Wikipedia, is based on similar principles, it is still a major difference having a social network in the corporate environment. As IC and IF claimed, the information which individual posts are represented with his or her real name, where the individuals are judged by other persons, and it is not only seen by their friends, but moreover from those, who pay the salary and decide about the career. Indeed, IF claimed, that a fear to ask wrong questions does exist, where it was e.g. difficult for him as well to dare to be active in the beginning, where he thought twice about what to share with others. Firstly, he just looked how the others behave, who does what and where and then at a later time, he felt confident to be active as well. Another crucial difference between Facebook and ESN, stated by IC is that social networks as Facebook are usually already filled with information, communities or relationships, where an ESN is firstly empty when an organization adopt it and has to be filled with own ideas and information. He thus argued that organizations firstly need to take the first steps and have to learn how to walk within the ESN.

**Differentiation from enterprise software systems.** Interviewee C further contended, that an ESN highly differs from traditional enterprise software system as for example SAP system. Within such systems, clear roles and permissions are defined, where the expected content for each field is clearly determined. Contrary, regarding the ESN, each individual can use the functionalities and fields occurring in the platform differently. One might use the ESN to create to-do lists, others integrate it as a process step, others to document projects and others using it as a meeting protocol or to generate surveys. Thus, it is completely open and not defined in a specific way how to use it. Although it offers thereby new possibilities for work improvements, this in turn could be seen as a downside, as an uncertainty for those who prefer clear guidance and structure. Everyone has its own view on structure and at the first glance, an ESN might be seen as an unstructured environment from those, who are not used to it. This means, only once an employee understand the structure residing in the ESN and how to use it functions as for example using tagging, how to search and filter content, then the structure occurs again and they are able to benefit from the usage.

**Summary.** To sum up, almost all interviewees agreed that that their ESN system is used for knowledge and information sharing, seeking information and to keep people informed and it has been particularly outlined, that the ESN is useful in a way, that it leverages the accessibility and transparency of information and knowledge sharing at one place beyond physical and timely barriers. However, some interviewees reported, that the individuals' engagement in the ESN varies, depending on the individuals' curiosity about social networking, on the employ-

ees' role, personal interest and support from the management as well as on the perceived benefits through the ESN. While it has been furthermore outlined, that an ESN highly differs from private social networks and traditional enterprise systems, few interviewees also agreed, that employees might not be willing to share their information, mainly caused by fear of losing power or becoming blamed.

## 4.7 Effects on social relationships, workgroups and personal network

In order to explore how social capital is influenced by the ESN, we asked the interviewees how its usage affects social relationships, workgroups and personal network (Table 4-8).

**Table 4-8. Findings about effects on social relationships, workgroups and personal network.**

	Social relationships	Work groups	Personal network
<b>A</b>	<ul style="list-style-type: none"> <li>• Yammer is used by employees to reach out for equals outside of their departments</li> <li>• Events and attendance to them are discussed</li> <li>• Social tool for employees</li> <li>• ESN enhances social relationships</li> <li>• ESN does not replace personal interaction</li> <li>• In some cases having a history and persistence of an ESN can be beneficial</li> </ul>	<ul style="list-style-type: none"> <li>• Yammer expands the workgroups vastly</li> <li>• Employees get feedback on their ideas from employees from different divisions</li> <li>• Majority of groups are social</li> <li>• ESN enhances the efficiency of work groups</li> </ul>	<ul style="list-style-type: none"> <li>• ESN expand personal networks</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Employees discuss what they are doing through Yammer</li> <li>• Employees post "silly stuff"</li> <li>• Yammer is a way to know each other better</li> <li>• Yammer is used to talk about the way employees work</li> <li>• ESN contributes to the team spirit</li> </ul>	<ul style="list-style-type: none"> <li>• Broad communications where groups are used to discuss general development</li> </ul>	<ul style="list-style-type: none"> <li>• ESN expand personal networks</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• ESN changes the way of interacting with each other positively</li> <li>• Connects employees throughout different countries, divisions and business units</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Personal network size have approximately 60-70 connections to other individuals</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• Yammer is used in social sense</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Used as a personal network to meet up</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• ESN strengthens the social relationships</li> <li>• Leverages visibility among employees</li> <li>• Level of trust has been increased</li> <li>• Belonging among employees has been enlarged</li> </ul>	<ul style="list-style-type: none"> <li>• Able to receive different feedback and opinions</li> </ul>	<ul style="list-style-type: none"> <li>• Expand the personal network within the organization</li> </ul>

According to IA Yammer is used by employees to reach out for equals outside of their departments as well as to discuss about organization's event to get information about who will be attending these events, so it is also a social tool for employees, the same as it is for em-

employees at organization B where the employees discuss what they are doing, as well as posting “silly stuff”. According to IB, Yammer is a way for the employees to get to know each other better.

For organization A, ESN expands the workgroups vastly and where employees are not only getting feedback on their ideas from only the people at their department, but instead they are getting a feedback from much bigger pool of employees. In addition the groups they have on Yammer are distribution groups as well as social groups, where there are e.g., groups for department's discussion. However the majority of groups are more social. The groups at organization B have similar structure as organization A has, where they are using Yammer to talk about the ways they work, not for specific workgroups. So it is more for broad communication where the groups on Yammer are more to discuss development, not for special projects per se but more general development. However within organization E, Yammer is used more in the social sense, e.g. some employees have formed a beer group. Thus, that is the main function now, to use it as a personal network and to meet up.

IC furthermore stated that the most obvious benefits for the organization that has been enabled by ESN, is the cultural development. He thereby argued, that the ESN indeed enables the elimination of information silos and connects employees throughout different countries, divisions and business units, where it simultaneously changes the way of interacting with each other positively.

IA insisted that ESN enhances social relationships, work groups, and personal networks, but he clearly stated that ESN does not replace the personal interaction when that is possible. Although he emphasized, that in some cases having a history and persistence of an ESN can be beneficial. In addition to this, IE sees ESN as a tool to make employees feel that everyone is working together, hence as IB stated that ESN contributes to the team spirit where he does not think that ESN is a waste of time, as by stopping using ESN the organization would lose the team spirit, which is in IB's mind very valuable for the organization.

IF believes, that the ESN indeed strengthens the social relationships and expand the personal network within the organization. He thereby claimed that it leverages the visibility among employees, where profile pictures, posted information and the participation within the communities in the ESN are promoting the recognition value. He hereby reported, that he often experienced at conferences or meetings that conversations started with people, who did not know each other before, by saying “*Are you not the person, who shares always information about this topic in IBM Connections*” or “*Are you not also involved in this specific community*”. So he finds, that the ESN totally enhance the visibility rather than having just a list of persons stored in an excel file. He further believes that the level of trust has been increased, because employees are able to receive different feedback and opinions. At the same time, he claimed, that the feeling of belonging among employees has been enlarged, since the employees are part of a community, where many others are involved, share information, like and comment on others content and thus they are actively part of the entire community.

**Summary.** In summarising the interviewees’ responses, the majority of the interviewees found that the ESN in fact influence social relationships, workgroups and personal network in a positive way. Thereby the interviewees reported that the ESN enables employees to reach out for equals outside of their departments expanding their personal network and workgroups vastly, are allowed to get feedback from a much bigger pool of employees, and connects employees throughout different countries, divisions and business units. Concerning the social relationships among employees, it has been outlined, that ESN allows employees to get to know each

other better, contributes to the team spirit as well as strengthens the social relationships, fosters the feeling of belonging and increases the level of trust. But in contrast, it must also be noted, that one interviewee stated, that ESN does not replace the personal interaction when that is possible.

#### 4.8 Effects on cross-site communication and the collaborative environment

While we aimed to analyse, how the usage of the ESN leverages the collaborative environment and may assist in overcoming hierarchical and physical barriers, interviewees were asked how the ESN in particular affects the cross-site and hierarchical communication (Table 4-9).

**Table 4-9. Findings about cross-site and hierarchical communication.**

	Cross-side collaboration	Hierarchical collaboration	E-Mail
<b>A</b>	<ul style="list-style-type: none"> <li>• ESN is not main communication tool</li> <li>• Reach somebody that he would not know to reach otherwise</li> <li>• Yammer facilitates internal communication between the consultants</li> <li>• ESN allows communication between employees that are not located at the same place</li> </ul>	<ul style="list-style-type: none"> <li>• Managers uses Yammer equally as much as other employees</li> <li>• Project managers are using Yammer to see what insights people might have on their projects</li> </ul>	<ul style="list-style-type: none"> <li>• High e-mail usage may be because of lack of management ESN not lowers e-mail usage, high e-mail usage</li> <li>• Managers send organization-wide or department wide e-mails</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• ESN is not main communication tool</li> <li>• In order to reach someone quickly, instant messaging is use</li> <li>• ESN allows communication between employees that are not located at the same place</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• If he is not in-house, he would use e-mail or Yammer</li> <li>• Yammer does not replace e-mail usage</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• IC almost exclusively communicates through ESN</li> <li>• All his projects are fully transparent and report is done via ESN and thus leverages the cross-site communication</li> </ul>	<ul style="list-style-type: none"> <li>• ESN lowers hierarchical barriers, while everyone is equal.</li> </ul>	<ul style="list-style-type: none"> <li>• E-mail is a closed channel whereas ESN is an open channel, but does not replace e-mail</li> <li>• E-mail usage has been significantly decreased through ESN</li> <li>• IC works more with ESN than e-mail</li> <li>• <i>"The time when I am working in the e-mail program I am an egoist, and when I work within the ESN I am there for the community"</i></li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• ESN allows communication between employees who are not located at the same place</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>

<b>F</b>	<ul style="list-style-type: none"> <li>• Exchange of project related information take place within the ESN communities</li> <li>• ESN definitely influence cross-site communication</li> </ul>	<ul style="list-style-type: none"> <li>• Every hierarchical position is active on ESN</li> <li>• "ESN is a network where hierarchical roles do not count"</li> </ul>	<ul style="list-style-type: none"> <li>• Utopian vision to think e-mail could be totally abandon</li> <li>• E-mail as a communication channel with their customers</li> <li>• E-mail usage has been significantly decreased through ESN</li> </ul>
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**Cross-site and hierarchical communication.** The communication through ESN differs between the interviewees. Both IA and IB state that they do not use ESN as their main communication tool, but it is because of different reasons. When IA is using Yammer he is expecting that he will reach somebody where he would not know how to reach otherwise. However, he reported, if he would have the e-mail address of a person he needs to reach, he would always use the e-mail instead of ESN because the organization is so attached to e-mails. However, he also mentioned that the preferred communication channel can vary between employees'.

Then, IB stated that he has the luxury of always being in house, where he is able to ask his colleagues personally for assistance instead of using Yammer. However he stated that if he were not always in house, he would then either use e-mail or Yammer. Furthermore, they indicated, that employees at his organization uses Skype for business in order to reach someone quickly with short questions, but when the errand is longer then they are using e-mail over Yammer. IC view differs from IA and IB, as he indicated that he almost exclusively communicates through the ESN, where all his projects are fully transparent while project coordination and reporting are done via ESN and thus leverages the cross-site communication.

IF reported, that the ESN definitely influence both, the cross-site as well as the hierarchical communication. Where the ESN enables the communication with employees, residing in other departments or areas or where they are not directly connected through similar project work, it also fosters the communication behind hierarchical structure. As IF stated, top-level management as well as employees are active on ESN, where everybody is allowed to contribute with asking questions or providing answers, regardless of their current position. To put it in the words of IF: "*ESN is a network where hierarchical roles do not count*". This view is also supported by IC, as he argued that ESN lowers hierarchical barriers. Where earlier employees had a certain distance to their superiors regarding physically or social barriers, these barriers do not longer exists within an ESN as employees are enabled to easily communicate and interact with their superiors by leaving for instance a comment on their profile. Thus, he claimed that in the context of an ESN are equal in a way that everyone is enabled to contribute and interact with one another, regardless of their hierarchical structure.

At organization B, Yammer facilitates internal communication between the consultants, e.g. when a consultant is not in-house, it is advantageous for him or her to see what other employees at the organization are doing. Furthermore, he stated that they have cross-site communications as when people are not physically at the work place, and they are learning stuff where they currently are that might be important to inform other employees about, i.e. that will really help them, and then they use Yammer to do so. Hence, share that knowledge and bring that back "home", i.e. to other employees. This is supported by a statement from IC, where he stated that the cross-site communication and across hierarchy levels is one of the key enabler of ESN. Moreover, when it comes to hierarchical levels in organization A, IA thinks that managers uses Yammer equally as much as other employees as it is important for them to see where this is going and what people are thinking. Project managers are also using Yammer to see what insights people might have on their projects and therefore get valuable insight from employees not working on that specific project.

Interviewee A, B and E argued that the main benefit of ESN is that it allows communication between employees who are not located at the same place, which makes the information flow, i.e. knowledge and information sharing between employees easier. IA stated, that due to the size of the organization and being so geographically disperse, they simply need a way for employees to connect and find each other. By getting to mix diverse ideas and viewpoints enabled by Yammer, the organization benefits massively from it by getting those insights that would not otherwise be reachable.

**E-mail usage and replacement.** When discussing the e-mail usage with the interviewees, they all had different arguments if ESN could replace e-mails or decrease the communications over the e-mail. According to IA, he does not think Yammer lowers the e-mail usage, because e-mail plays such a crucial role within the organization, where they have thousands of distribution groups concerning topics for everything, from business-related things to topics about personal interests as e.g. horse riding or computer games, and therefore, most of employees still prefer e-mail as the main communication channel over the ESN. Moreover, he believes, that this is particularly due to the fact, that no rules have been established demanding for a regularly check on ESN and while managers still send important organization-wide or department wide messages through the e-mail channel rather than via ESN, it is expected from employees to check their e-mails. Thus, he assumes, that the high e-mail use compared with the usage of ESN is a result of lack of management, which may keep ESN from being well adopted within the entire organization. He believes, when there would be a clear message from the management, that from now on conversations concerning more than two people, not being confidential and aim to reach a larger audience, should be hold by ESN that the usage of ESN would increase. However, he claimed, that the organization does not seems to be at this stage now, being ready for such a significant change. IB stated that even though Yammer is working side to side with the intranet (i.e. SharePoint) it does not replace the e-mail usage, as according to IB they are not using the chat function on Yammer as they either use e-mail or Skype for business. IC agrees with that, by stating that ESN does not replace e-mail as e-mail has some justification to exist. Regarding the usage of e-mail versus ESN, he indicated, that the employees once get the guideline from the CEO, that in general positive feedback are allowed to be transparent and negative feedback should be provided personally, in order to ensure, that the ESN does not induce a blaming or pointer culture. However, he also stated, that for certain purposes, e-mails are still needed, as when it is just of concern for two particular persons, it does not add any value for the organization or when it is highly personal and confidential.

However, IC further reported, that a significant change has occurred referring to the considerable decrease of the e-mail amount being sent throughout the organization, since many information are now communicated via ESN instead of being hidden in individual e-mail inboxes. Personally he indicated that he has both, ESN and the e-mail software open all day long. However he also stated that he works more with ESN than with e-mail. He thereby defines e-mail as a closed channel, which does just add value for the sender and the receiver, where ESN is an open channel, where everybody can see what others are doing and what happens, which can be potentially helpful for everybody. Thus he conclude:

*“the time when I am working in the e-mail program I am an egoist, and when I work within the ESN I am there for the community”.*

Moreover, IC provides an example, why it is extremely inefficient what individuals are doing continuously when communicating just via e-mail, where they in general have a low participation, great deal of effort and normally unsustainable. Hereby, he contended, that when



somebody sends one question to 10 recipients via e-mail, then he send out 11 e-mails. Then one might ask a further inquiry probably to all recipients, which results in 22 e-mails. Then the sender provides an answer to this inquiry, again to all recipients in order to ensure everyone is updated, resulting in 33 e-mails. When it is then assumed, that every recipient provides an answer to this e-mail, the result is 44 e-mails, just for one single question. On the other hand, when someone asked the same question via ESN, everybody is able to answer or reply to it by using the commentary function and for the case, somebody would have the same comment, he or she could just press the “like button”. Hence, it is immediately visible to all possible recipients and consolidated and summarized at one place, being accessible every time instead of having an e-mail history over a certain time, where the answers and comments are spread all over and not being consolidated in one single e-mail.

IF agrees with IC and acknowledges, that e-mail is at some point not replaceable with an ESN and views it as an almost utopian vision to think e-mail could be totally abandon, since they still need e-mail as a communication channel with their customers. However, he contended that due to the implementation of IBM Connections, the e-mail usage has been significantly decreased within the organization, where the efficiency of information sharing simultaneously increased. This is due to the fact that they are now more communicating via ESN, while the exchange of project related information take place within its communities. Moreover, they sometimes attach customer e-mails in the communities in order to share it with other project members instead of forwarding the e-mail. Thus, IF argued that this ensures that all data is stored at one place, accessible for everyone and not distributed in several systems including the e-mail inbox. Additionally, he claimed having the communication mostly within ESN it decreases simultaneously the amount of e-mails where many colleagues are just addressed in carbon copy and might not be really interested in the emails’ topic. He thus emphasized, when the same information is stored in the ESN, the individual can then decide on their own if and when they want to access these particular information.

**Summary.** In sum, the majority of interviewees argued, that ESN is not their main communication channel, while some still refer back to e-mail or instant messages for reaching a knowledgeable person. However, the interviewees particularly outlined, that the ESN facilitates the cross-site communication between employees, who have not known each other before or are not located at the same place, and further lowers hierarchical barriers, as everyone is equal within the ESN. Concerning the e-mail usage, some interviewees agreed that ESN cannot replace the e-mail communication, due to the fact, that it is still used for customer and confidential communication. However, these interviewees though reported that the ESN lowers their e-mail usage.

## 4.9 Organizational learning

We asked our interviewees what their personal usage of ESN was as well as how it is within the whole organization, in order to get information on what leverages knowledge creation which leads to organizational learning (Table 4-10).

**Table 4-10. Findings about organizational learning.**

Organizational learning (Knowledge creation)	
A	<ul style="list-style-type: none"> <li>• Yammer could be used for knowledge creation, i.e. when there is a discussion where everybody is commenting and giving their information, which could lead to knowledge creation</li> </ul>

<b>B</b>	<ul style="list-style-type: none"> <li>• Employees post good ideas that may lead to more work efficiency and improvements in employees daily work life.</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• Totally transparent implementation of ESN leveraged the organization learning</li> <li>• All participants were enabled to learn from each other, what works and what does not, and why</li> <li>• ESN leverages the entire knowledge creation process</li> <li>• Through use of ESN it enables employees to see certain result of an action, getting involved in the creation process by contributing their knowledge</li> <li>• Knowledge must have vitality on its own, where using an ESN could act as a "heartbeat"</li> <li>• ESN enables the organization to speed up learning processes</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• Organization wants to try and make more usage of people's knowledge</li> <li>• Get rid of all closed drives and use Yammer instead</li> <li>• Yammer should also be the tool to keep knowledge within organization</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• ESN enables the exchange of best practices and lessons learned</li> <li>• ESN allows employees to experience and learn from each other</li> </ul>

IC stated, that due to the fact that the implementation processes in all countries and divisions ran totally transparent, it thus leveraged the organizational learning, where all participants were enabled to learn from each other as what works and what does not, and why. IA gives an example of an organizational learning, as if an employee who does not programming in his main work, rather in his spare time, he is then enabled to share his programming on Yammer, where it will be seen as a valuable contribution. Otherwise, without the ESN and the related open communication, other employees would never be able to find this out about this specific employee. IA furthermore, stated that Yammer could be used for knowledge creation, i.e. when there is a discussion where everybody is commenting and giving their information, which could lead to knowledge creation. In addition, IB also reported, that he once used ESN to share and explain some specific code developed by himself which helped him to optimize his work processes. By doing so, he shared his own knowledge with his co-workers and thus allows others to possibly benefit from his knowledge.

**Knowledge creation process.** Furthermore, IC argued, that ESN indeed leverages the entire knowledge creation process. Through the use of ESN, it enables employees not only to see a certain result of an action, but moreover getting involved in the creation process by contributing with their knowledge, being able to follow the process, seeing who were involved and when, who voted, who ask which questions and who comment on it, where it provides at the same time the basis for new discussion points. Having such a transparency of the knowledge creation process, it enables the creation of new creativity and knowledge storage. IC thereby claimed that knowledge becomes only once important when it is made alive. Thus, knowledge must have vitality on its own, where ESN could act as a “heartbeat” in this regard. IC reported, that especially the use of ESN enables the organization to speed up learning processes. As an example, he stated that for one operation, three years ago, where they needed 2 weeks to get this specific operation done and had to hire external resources, with the support of ESN, they were one year later able to do the same operation within one week without external support and the results were significantly better than at the first time. And then, one more year later, they just needed 24 hours to accomplish the task with results being 10 times better and having a considerably higher quality. Thus, there might be not specific KPIs existing, but the value, the improvements in activities induced by the ESN and the increased efficiency are still visible. He further stated, that the emerging creativity, improved knowledge management as

well as organizational learning enabled by the ESN, plays an important role, where it also impacts the overall business profitability in a positive way.

This argument by IC is in line with one of many aspects on how employees at organization B use Yammer, where they e.g. post a good idea that may lead to more work efficiency and an improvement in employees daily work life. Furthermore, co-workers can then give a feedback on the idea to improve further. IF does also support this view, by stating that ESN enables the exchange of best practices and lessons learned and thus allows employees to experience and learn from each other and based on that, optimizing the own work processes. However, IB also claimed, that it might be in some cases difficult to share knowledge through ESN in comparison to a brainstorm session having a whiteboard and a face-to-face discussion.

Although organization E has not fully implemented Yammer yet, IE stated that they intent to capture the knowledge and experience of all individuals in the organization with the use of ESN, rather than just from those, who are located at the headquarters or same work place. This in turn, could provide the ability for employees to gather knowledge and answers to occurring questions from other employees they have not known before as well as could foster shared experiences. He further indicated, that the ESN should be the central gateway to keep the knowledge at one place within organization, in order to break down information silos and get rid of all the closed drives where employees are storing information.

In addition, IC argued, that difference between traditional structured learning and organizational learning is the fact, that traditional learning means generally, employees are subscribing and attending trainings, i.e. either they work or attending those trainings. On the other hand, regarding organizational learning, it follows another approach, where employees doing both parallel, working and learn simultaneously, according to the principle learning by doing. Thereby, it occurs parallel, throughout many channels and types, where it differs in the level of intensity. To conclude, IC argued, that several actions of change management, social and cultural development are needed in order to become a learning organization.

**Summary.** In conclusion it has been found, that although the level, to which ESN fosters organizational learning vary between the interviewees' organizations, the majority emphasized that ESN in fact leverages knowledge creation, as it allows employees to share ideas about possible work improvements and to experience and learn from each other, leverages discussions, enables the exchange of best practices and lessons learned as well as enables the organization to speed up learning processes.. However some interviewees though emphasized, that it could be in some cases difficult to share knowledge through ESN compared to a brainstorming session having a white board.

#### **4.10 Differences among digital natives and digital immigrants**

As the literature review stated, there are some difference between digital natives and digital immigrants. Therefore, it was out of interest for us to analyse the interviewees perspective on these groups and if these groups exist within their organization, thus the interviewees where asked the question if they see a difference between digital natives and digital immigrants (Table 4-11).

**Table 4-11. Findings about digital natives and digital immigrants.**

	Differences among digital natives and digital immigrants
<b>A</b>	<ul style="list-style-type: none"> <li>• No visible difference</li> <li>• Depends on the person and experience rather than age</li> <li>• All employees at the organization are excited about technology</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Does not think there is a difference</li> <li>• Employees are used to computer and social technologies</li> <li>• Majority built on digital natives</li> <li>• But rest of the employees have a lot of knowledge about IT as well</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• Not a difference between digital natives and digital immigrants</li> <li>• Does not depend on the age, it relies on the individual use and curiosity.</li> <li>• most active users are those who experienced the great potential hidden in ESN</li> <li>• Digital natives might have smaller hurdles to use the ESN compared to those, where it is firstly of task to build up media competence.</li> <li>• There are both, digital natives, who are not so “digital” in their mind as it assumed, and digital immigrants, who rapidly grasp the potential behind a new technology.</li> <li>• it is about the leadership standing behind the implementation of ESN</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• Majority of the staff are digital immigrants, where he would see a need to particularly train these employees regarding the usage of ESN than digital natives. Not of task to provide trainings about the system itself, but moreover to change the minds of these digital immigrants in terms of when they should use the ESN</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• There is a difference how digital natives work and the digital immigrants</li> <li>• It is more normal for digital natives to have communications via Yammer than over e-mail.</li> <li>• Possibly a pressure from the digital natives in the long term to use tools like Yammer</li> <li>• Minority of the organization are digital natives</li> </ul> <p>Big group that will use Yammer, that has higher employee age, so their knowledge of information systems differs, some of them are really quick and think using such a tool is very easy, whereas others think it is difficult and not so easy to understand</p> <ul style="list-style-type: none"> <li>• Both of these groups will have training, as it is just not only to know how the system works but it is also to know how the organization wants their employees to use the tool</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• Employees at the organization are used to computer and social technologies</li> <li>• Both of these groups will need a training for the system, as it is just not only to know how the system works but it is also to know how the organization wants their employees to use the tool</li> <li>• Successful adoption does mainly depend on the understanding about how to use the ESN and thereby about convincing the employees about the benefits and illustrate them how it generates a sustained added value, regardless of their age</li> </ul>

In IA's, IB's and IC's opinion there is not a difference between digital natives and digital immigrants, as IC thinks it depends on the person and of its experience and curiosity, instead of the time they grew up. However IA mentioned that his department is very biased as there are only software engineers who are doing computer stuff. And his co-workers live with the technology everyday so for him there is not much of a difference. Hence, from his side, there is not a big gap between younger and older employees. He furthermore stated, that everybody at his organization are very excited about technology so that might also be one reason. The same goes for organization B and F, as both, IB and IF stated that the employees at the organization are used to computer and social technologies. Besides that organization B is in majority built of digital natives, but rest of the employees have a lot of knowledge about IT as well. However, IB stated that if he were not working at an IT organization there might be some differences between digital natives of others employees. However, IE's opinion is that there is a difference how digital natives work and the digital immigrants work. As he stated that people born after 1980 are raised with technology and his thought is that this generation does not even like e-mail, which it is very old tool and they would rather skip to use. Therefore, it is more nor-

mal for digital natives to have communications via Yammer instead of via e-mail. And interviewee E even thinks that there will be a pressure from the digital natives in the long term to use tools like Yammer, and this group could even have affects to other employees that are not counted as digital natives. So the employees that do not fall under the group of digital natives will be pulled in when they see that other employees are already using Yammer.

IC pointed out, that the most active users are those, who experienced the great potential hidden in the ESN. He argued that generally digital natives might be more familiar with social networks and thus more open to adopt ESN within the workplace. However, it does not guarantee, that they know already straight from the beginning how to use it properly. IE and IF supports this by stating that even though there is a difference between digital natives and digital immigrants, both of these groups will need a training for the system, as it is just not only to know how the system works but it is also to know how the organization wants their employees to use the tool. However, he assumes that the training for the digital natives may take shorter time than for others. Moreover, ID reported that the majority of the staff are digital immigrants, where he would see a particular need to train these employees regarding the usage of ESN than digital natives. Thereby, he believes it is not of task to provide trainings about the system itself, but moreover to change the minds of these digital immigrants in terms of when they should use the ESN, what topics should be included, how they should behave within the platform and how open they deal with it.

As in organization D, at organization E the minority of the employees fall under the group of digital natives. However according to IE there is of course a big group that will use Yammer, that has higher employee age, so their knowledge of information systems differs, some of them are really quick and think using such a tool is very easy, whereas others think it is difficult and not so easy to understand. IC supports IE last saying, by indicated that, there are both, digital natives, who are not as “digital” in their mind as it assumed, and digital immigrants, who rapidly grasp the potential behind a new technology. When someone is curious about new technologies, then he or she cares about it, regardless of the age. He thus concludes it is not about distinguish between digital natives or immigrants. It is about getting people’s interest. Indeed, IF has the same view and stated that the successful adoption does mainly depend on the understanding about how to use the ESN and thereby about convincing the employees about the benefits and illustrate them how it generates a sustained added value, regardless of their age. As a matter of fact, IC argued, it is about the leadership standing behind the implementation of ESN. When superiors sees the value resides in the ESN, they will then ensure that it will be used, no matter how old the employees are within the department. He claimed, that it is still a fact, that we live in a world, where hierarchy is lived and hence, the idea of a bottom-up approach might be very useful, but there are many organizations being hierarchical structured and changes in such large organization as organization C is, are seen as a revolution, rather than something that can be accomplished overnight.

**Summary.** To summarise: almost all interviewees agreed on the fact, that there is no difference between digital natives and digital immigrants to be considered. Quite the contrary, it has been emphasized that it does not depend on the age of the employees how they make use or perceive the ESN, but moreover on the individuals understanding, curiosity and perceived benefits. However, on the other hand, it has also been reported, that some interviewees see a difference between those two groups, where it was claimed, that digital immigrants would have a greater need of training regarding the ESN and it is assumed that a pressure occurs from the digital natives in the long term to use social tools such as ESN in a business’ context.

## 4.11 Interoperability with business processes and organizational infrastructure

While we aimed explore the required capabilities regarding the structural readiness, interviewees were asked how the ESN is integrated in their business processes and overall organizational infrastructure (Table 4-12).

**Table 4-12. Findings about interoperability with business processes and infrastructure**

Interoperability with business processes and organizational infrastructure	
<b>A</b>	<ul style="list-style-type: none"> <li>• Yammer is not used to store documents</li> <li>• Employees are not required to check Yammer for important information as they go through e-mail</li> <li>• Nothing would fall apart if ESN would be shut down</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Yammer is not used to store documents</li> <li>• Operates side by side with intranet (i.e. SharePoint) where they are used for different purposes</li> <li>• Yammer is not attached to any business processes</li> <li>• New projects are released on the intranet</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>• Highly integrated in business processes</li> <li>• If ESN would be turned off it would endanger existing processes</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• No integration in business processes as the adoption failed.</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• When the decision of the strategy of Yammer has been taken, it will probably only be used in context with their intranet (SharePoint)</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• It would not impact the overall business when IBM Connections would be shut down, but it would have an immense impact on his everyday work, e.g. Creation of customer presentations</li> <li>• Main platform for seeking information</li> <li>• Entire ESN platform is integrated with the existing infrastructure</li> </ul>

At organization A and B, Yammer is not used often to store documents. Instead, intranet (i.e. SharePoint) is used or in case of conversations with longer nature, e-mails are also used. In addition, there is no specific integration at organization A, as the employees are not required to check Yammer for important information, as all important information are sent through e-mail. Moreover, IA believes that nothing would fall apart, when the ESN would be shut down as for example key elements in the chain or business processes. IB further stated that Yammer is not attached to any business processes, and when releasing news or projects they use the intranet (i.e. SharePoint). However this differs from organization C, where the business processes at many places are already integrated within the ESN platform. However, IC argued that there is always something to improve and thus he stated it is indeed improvable. It is seen as a continuous process and the longer the process lasts, the more processes can be integrated. Nevertheless, he also indicated that they once asked themselves if they could turn off the ESN without endanger the overall business performance, where the answer was clearly no, due to the high integrity of ESN in their existing business processes.

Although IF believes, that it would not impact the overall business when IBM Connections would be shut down, i.e. it is not especially integrated in business processes, he still argued, that it would have an immense impact on his everyday work. Since many customer data is stored in the ESN, he would not know how accomplish his work tasks as for example the creation of customer presentations. Since in his view it is the main platform for seeking infor-

mation, where all information from several consultants concerning diverse topics are to be found in the ESN, it would definitely slow down his work processes and resulting in a higher effort to find the required information.

Organizations A, B, C, and E all use intranets, where organizations B and C have ESN integrated to it. At organization A ESN is implemented as a standalone tool, and at organization E they aim to integrate ESN to their intranet (i.e. SharePoint) and the e-mail. In more details, apart from Yammer, organization A uses e-mails, which are very big within the organization and that will not change and intranet (i.e. SharePoint) is used for business rated things, like for reports, meetings and other things. Furthermore, their ESN is integrated in the IT strategy of the organization, in a way that it is regulated in the same way as other systems and uses the same security things. Different from organization A, organization C and F integrated the entire ESN platform with the existing infrastructure, i.e. as previously mentioned, it is connected with their document management system (i.e. SharePoint), and also with their e-mail software. Thus, it is possible to see within the e-mail software, who is online in the ESN platform, who has written new blog posts, where it is at the same time possible to transfer an e-mail as a task or to a specific community in the ESN platform as well as transfer documents attached in e-mails per drag-and-drop in the document management system. Hence, both, IC and IF confirmed, that the different software are highly integrated, which was a crucial point in the adoption of ESN. They found it in particularly important to ensure the interoperability of the tools and the harmonisation among each other, rather than having separate islands, resulting in information silos again.

**Summary.** In conclusion, in regard to the interoperability with business processes and organizational infrastructure, the interviewees' responses are somewhat two-fold: where one part of the interviewees report, that the ESN is not integrated within their existing software landscape nor in their work procedures, other interviewees emphasized, that the ESN is indeed integrated with other technologies such as e-mail program and further pointed out that when the ESN would be shut down, it would have an immense impact on the everyday work or even on the overall business performance.

## 4.12 Key challenges

While we aimed to explore the capabilities needed in order to adopt ESN successfully and thereby examine possible impediments affecting a more effective usage of ESN, the interviewees were asked about their most obvious key challenges faced by the organization associated with ESN (Table 4-13).

**Table 4-13. Findings about the key challenges associated with ESN.**

	Key challenges/ What hinders a more efficient use
<b>A</b>	<ul style="list-style-type: none"> <li>• Lack of commitment from managers</li> <li>• Lack of clear expectations</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>• Driving engagement is a crucial point for effective use of ESN</li> <li>• When an ESN platform is installed but no one is using it, then ESN is 100% useless</li> <li>• Give a reason to employees to use ESN</li> </ul>

<b>C</b>	<ul style="list-style-type: none"> <li>• Lack of commitment from managers</li> <li>• When management do not see the need of ESN and rejects it, it is difficult to adopt ESN successfully as a bottom-up action</li> <li>• Individuals' participation and engagement including a proper stakeholder management are crucial points in order to implement ESN successfully</li> <li>• The individual employee and its fear of changes</li> <li>• Organization do not know what ESN should be used for and how to use it properly</li> <li>• It is crucial to align the implementation of ESN with the organizational culture</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>• Idea of the adoption of Tibbr arose in first line in the process and IT department, rather than being initiated from the top-management level</li> <li>• The biggest issue was ta lack of a clear message from the top, indicating the need of an ESN and hence, it had his own momentum resulting in a failed adoption</li> <li>• The major reason for the failure of the adoption was that the persons, normally have the ownership and who are responsible for internal and external communication, were not involved in the project.</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>• Lack of commitment from managers</li> <li>• Managers need to be open for ESN as employees are not ready to use ESN unless they see their managers doing so as well</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>• Lack of commitment from managers</li> <li>• Continuous active participation is needed for higher utilization rate within the organization</li> <li>• For only if the employees are being guided, aware of the benefits and know how to integrate the ESN in their procedures, it will be actively and efficiently used from all employees over time</li> </ul>

**Lack of leadership and management support.** According to IA, IC, IE and IF, the major reason hindering a more efficient use of ESN is lack of commitment from managers. According to IE, the managers need to be open for ESN, because people are not ready to use ESN unless they see their managers doing so as well. If the manager is unwilling to use ESN then it will be difficult to get employees to participate within ESN, and it might even just stop there. Furthermore, he claimed, that if the employee feels *“like the managers do not like that their employees are using ESN, the employee will not use it”*. In addition, IC stated that when the management do not see the need of the ESN and thus reject it, it is difficult to adopt an ESN successfully as a bottom-up action. As many organizations are still structured hierarchical, it is almost impossible to introduce an ESN based on a bottom-up approach. Besides this, he views the individuals' participation and engagement including a proper stakeholder management as crucial points in order to implement an ESN successfully. Indeed, the case of the failed implementation in ID' organization could demonstrate the importance of the management support. As ID argued, the idea of the adoption of Tibbr arose in first line in the process and IT department, rather than being initiated from the top-management level, where the lack of a clear message from the top, indicating the need of an ESN was particularly the issue. ID further believes that social collaboration was not supported enough from the top level management, where they had in his opinion too little thoughts on it. It thus had its own momentum, whilst it was not clearly defined, what path they aimed to take and thus lead to a missing crucial requirement in order to continue resulting in a failed adoption. He further indicated, that the other major reason for the failure of the adoption was the lack of involvement and motivation by the department of corporate communication within the adoption of ESN, while they are normally responsible for internal and external communication and hence, should have the ownership of the ESN project. Indeed, ID argued, that the lack of willingness among management and corporate communications was the main reasons for the failure of the adoption. However, he further stated, that other areas of concerns such as possible security breaches and the uncertainty of what information should be shared within the ESN as well as where the boundaries should be drawn led to the failure.



**Lack of clear expectations.** Furthermore, as stated by IA, the lack of clear expectations might be seen as one other challenge, where another possible challenge is driving employee's engagement, which in IB's opinion is a crucial point in gaining an effective use of ESN. IB furthermore explained that if an organization has an ESN platform installed but no one is using it then ESN is 100% useless. Employees also need a reason to use the tool, where it is not possible just put technical things in their lab and say like go ahead and use it. There needs to be some incentive for them to use it. Moreover, IC believes that one of the major challenges regarding the adoption of an ESN is the individual employee and its fear of changes. As IF argued, it is not sufficient, to just provide the technology as it was done in their organization and then assume that all employees just use it. He stated, in order to reach a higher utilization rate within their organization and thereby having a continuous active participation, it is needed, that the management clearly communicate precise instructions for using the ESN. Moreover, he believes, that the organization has to go even one step further back and analyse in detail the expectations and requirements of the employees in order to gain an understanding how it can be important and useful in the day-to-day work of the individuals. He thereby reasoned, that for only if the employees are being guided, aware of the benefits and know how to integrate the ESN in their procedures, it will be actively and efficiently used from all employees over time. IC claimed, that ESN can be a very powerful tool, but when an organization does not know what ESN should be used for and how to use it properly, it is just waste of time and useless. Thus, he concludes, it is crucial to learn how to deal with an ESN correctly in the first place in order to adopt an ESN successfully. Moreover, he believes, it is crucial, that an organization align the implementation of the ESN with the organizational culture, while several aspects need to be considered: what management culture exists, how employees treat one another, what fundamental values are anchored in the organization, if a corporate team exists and if there are common work procedures or practices presented in all areas within the organization. Analysing these aspects, he contended, that it allows organizations to gain a broader understanding enabling a more successful adoption of ESN.

**Summary.** In summary, the major reason hindering a more efficient use of ESN found by the interviewees is lack of commitment from managers, where it has been argued that managers need to be open for ESN, support the ESN adoption and need to clearly communicate precise instructions for using the ESN. In addition, another stated challenge associated with the ESN is the lack of involvement and motivation by the department, who normally holds the responsibility of internal and external communication. Further challenges were mentioned such as lack of incentives for employees to use it, missing awareness about the possible individual benefits, alignment with the organizational culture, driving employee's engagement and lack of clear expectations.

## 5 Discussion

This chapter is to discuss the results of the empirical findings in relation to our literature review, where the discussion has been divided in two main chapters, mainly capabilities in terms of organizational, cultural and structural readiness, and key enablers. Furthermore, both of the main chapters include subchapters that have been used throughout the study.

### 5.1 Capabilities in terms of organizational, cultural and structural readiness

In order to discuss the capabilities in terms of organizational, cultural and structural readiness, we have divided the topic into few subchapters, where firstly, the organizational readiness regarding ESN is discussed within the subchapters of strategy and shared vision, digital natives and digital immigrants, types of adopters, and ESN as a socio-technical system. Secondly, cultural readiness is covered in the subchapters of innovative vs. standardized driven organization and organization value, and organizational culture. Lastly, then, structural readiness are discussed in the subchapters of cross-side and hierarchical structure, and organization size.

#### 5.1.1 *Organizational readiness*

While analysing the organizational readiness and how the organizations have implemented the ESN within their work environment, it becomes clear, that their strategy, organizational needs and individual engagement vary.

#### **Strategy and shared vision**

On the very basis, our study confirms the findings of prior studies (e.g. Barnes & Barnes, 2009) that without a clear strategy and defined goals in terms of what path should be followed for the implementation of ESN, it is difficult if not impossible to adopt an ESN successfully. Thereby, the empirical findings clearly show, that by those interviewees, where the implementation has not followed a clear strategy and have not at all being supported by the management are either still remaining in the test phase without having an active participation (IE) or the implementation process has fully failed, as it had its own momentum, whilst it was not clearly defined, what path they aimed to take and thus lead to a missing crucial requirement in order to continue with the implementation (ID).

However, beyond that, our empirical data shows, that the level to which the implementation followed a structured approach varies, where some interviewees claim (IA, IB), that although the implementation was less structured, the employees are still using the ESN on a regular basis today. Therefore, it could be assumed, that to what level of detail the approach should be defined in order to succeed with the adoption of the ESN, does not only depend on the organizational settings, but also on the industry in which the organization is primarily associated

with. In this regard three interviewees from organizations which core business are mainly in the IT industry (IA, IB, IF), states, that they have a fairly high participation rate, even though the implementation was characterized by no special structure. At the time the ESN was firstly introduced in their organizations, they report that the employees were just informed that the ESN has now been installed as the new social tool and they should start using it. While interviewee IB for example points out that the employees were told “*here is a link to Yammer, let's start using it*”, interviewee IF explains, that the employees in his organization were informed about the ESN through an e-mail, that it is now available for being used, but without defining any specific instructions or purposes. Both, IA and IB assume, that the possible reason for this approach was that it was expected that the employees knew how to use the ESN as they are very technically oriented and used to deal with such technologies. Contrary, another interviewee (IC), who works at an organization acting as an automotive industry supplier, points out, that the ESN implementation was the first project where it has been so widely communicated while they invested very heavily in the communication within the implementation of ESN and thereby used every conceivable channel.

Besides the communication approach, it is further worthwhile to dig deeper into the prior phase of the implementation, as we also detect differences in this respect. Interviewee IA and IB outline hereby, that there was no pre-project before the implementation, whereas both, IF, and IC, had initiated an evaluation project prior the actual implementation of the ESN, although the purposes of these pre-projects varied. On the one hand, IF's organization aimed in first line to gain expertise of the ESN, driven by the fact that they aimed to sell the product itself to their customers, where they want to explore the functionalities and the possible benefit. On the other hand, IF's organization were initiated to find out the needs of the organization, where they analysed their existing software landscape and the individual needs and based on these conditions searched for ESN solutions available on the market.

With these evaluation projects of ESN, the organizations were able to show clear measurable success and gained information of the organization's and employees' needs as well as showed how they could benefit from ESN in order to succeed with the adoption of ESN. As a result, the organization's management did not demand for any further KPIs to convince and based on the successes occurring in the test phase, investment decision concerning the roll-out in the entire organization were taken, while official resources have then been allocated (IC, IF).

In contrast, as already mentioned earlier in this section, organizations D did not follow any approach when introducing the ESN and thereby the adoption was first just seen as an experiment, where they had the ESN technology available but have not defined any strategy or goals, nor were the management involved and engaged. Furthermore, as our empirical findings demonstrate, the communications between departments were not sufficient, leading to the fact that other departments also experiment with other ESN solutions without any success. In addition to that, the department that is usually responsible for corporate communication and thus, should in ID's opinion have the ownership of the ESN adoption, was not involved within this project nor have they been motivated to drive the adoption. Hence, having the lack of management commitment, missing clear approach, strategy and goals as well as no central leadership, it resulted in a failed implementation at organization D. Similar characterizations can be found in the case of interviewee's IE organization, where the ESN adoption is still at the test phase, being far away from an active employee's participation, where no proper introduction has been made yet, as neither goals nor strategy have been defined for the ESN. Although some participation has been recorded in the beginning, as employees signed up in the

ESN caused by curiosity, the participation rate quickly dropped again as the individuals did not know how and for what purposes they should use it.

**Summary.** Thus, our empirical findings confirms the view of McAfee (2009b), who states that in order to drive employees' engagement and support the adoption of such technologies as ESN, it is crucial to define a clear strategy and intended goals, where simultaneously the individual needs and expectations have to be taken into account. With the case of ID and IE we further have proven true that Leroy et al. (2013) are right, by stating that implementing ESN without any explanation of structure nor illustrating the benefits lead to a decreased usage by employees over time and finally might result in an inactive ESN. In addition, concerning the evaluation projects prior the implementation of an ESN, based on the aforementioned facts illustrated by the case of IC and IF, we argue, that it may not be necessarily needed to run a pre-project in every organization, but as the empirical findings reveal, when there has been a pilot study showing short quick wins, it can in fact be very helpful to demonstrate the achievable benefits and thus gaining management and employees' motivation to adopt the ESN. Therefore, in our opinion, it is not only the strategy and goal setting that impact a successful implementation of ESN, but moreover can also depend on the organization's industry and the need to analyse in details expectations and needs of the individual in order to be able to align it with the overall organization.

### **Digital natives versus digital immigrants**

In the literature of our study, the assumption has been made that there is a difference between digital natives and digital immigrants in how they perceive and make use of new technology, where it was claimed that digital natives are quicker in adopting new technology than digital immigrants (section 2.1.2). However, it has been recognised, that our empirical findings are not in line with our assumption in the literature review. After analysing the interviewees' responses, we clearly noticed that the majority of our interviewees disagreed with the literature review and thus our assumptions about the distinction of digital natives and digital immigrants concerning the usage and adoption of ESN did not hold true. Some of the interviewees did not see any particular difference between digital natives and digital immigrants on how they adopt and use ESN (IA, IB, IC), as it has been claimed, that how the ESN is used and perceived by employees rather depends on the employees interest curiosity (IA, IC), and the understanding on how to use ESN (IF), instead of the age (IA, IC).

Moreover, despite the employees' age, our empirical findings reveal that another factor that could affect the employees' adoption of ESN is their work environment. Three of our interviewees working at an IT department thereby indicates, that the employees at their organizations have not experienced any difficulties in adopting the ESN as their work is related to computer and social technologies, where they are used to deal with such social technologies and having further a high interest in new technologies and its development (IA, IB, IF). It has also been found, that the leadership's interest on the implementation of ESN and the value they see with adoption of ESN were also among the reasons that triggers employees' adoption of ESN (IC). It should also be mentioned, as indicated by one interviewee (IC), that the most active employees' are not always the youngest one at the organization, but rather it depends on the individuals' curiosity and if they see the great potential hidden within the ESN. Moreover, one interviewee indicates that it does not necessarily mean that the digital natives are as "digital" as one might think, since there are also digital immigrants who rapidly grasp the potential and benefits behind a new technology (IC). Thus, he reminds us, when individuals are curious about new technologies, then they care about it and are more likely to make use of it, regardless of their age. Based on this fact, the interviewees further claim, that no matter if one con-

cerns to the group of digital natives or digital immigrants, it is important to provoke employees interest on ESN, show them the possible benefits and the values that ESN will provide them (IC, IF). However, it has to be acknowledged, that few interviewees had the opinion that there is a difference between digital natives and digital immigrants (ID, IE), where it is emphasized, that digital immigrants would have a greater need of training regarding the ESN (ID) and it is assumed that digital natives would rather want to use ESN instead of e-mail for communication as it is more natural for them (IE). IE's view is in line with a study provided by Tapscott (2009), where it is claimed that digital immigrants are preferring e-mails, whilst the digital natives rather want to use instant messaging. In addition, IE further believes that digital natives will pull other employees into ESN, and further assumes that a pressure will occur from the digital natives in the long term to use social tools like ESN in a business' context and force organizations implementing an ESN. This view is supported by Palfrey and Gasser (2013), as it is thereby stated that digital natives are one of the key drivers for social collaboration changes at an organization.

Another argument put forward by the interviewees is that digital natives could be more familiar with social network due to the reason that they use it in a private sense and therefore might be more open to adopt ESN (IC, IF). This is supported by a study from Oblinger and Oblinger (2005), where they declare, that as digital natives are using social technologies heavily, it could be easier for them to use the ESN in business context and integrate the ESN in their work life, rather than for the digital immigrants. However, it has also been emphasized, that it does not mean that digital natives know how to use a social network technology in their work environment (IC, IE, IF). Therefore, it has been argued that whatever their age, depending on their knowledge and skills, they should have a training in the usage of ESN in order to drive employees' engagement (IC, IE, IF).

**Summary.** Thus, our empirical findings from majority of the interviewees, has demonstrated that there is no specific difference between digital natives and digital immigrants, but it is rather based on the person itself, on the perceived benefits through the ESN and his or her curiosity and interest of technology. In addition, it is not possible to make the assumption that the implementation of ESN is better when there are more digital natives within the organization, as organization C comprises employees of all age and they in fact adopted ESN successfully. Furthermore, it has also been shown that even if the digital natives might be quicker to adopt ESN compared to digital immigrants, because they are used to deal with social networks and prefer social technologies for communication rather than e-mails, they still need training on how to make use of a social network technology in a business' context.

### **Types of adopters**

One other aspect mentioned in the theoretical part of our thesis, which can be further related to digital natives and digital immigrants, is the type of adopters, where it has been assumed that digital natives belongs to the group of early adopters (section 2.4.1). To recap the definition of the type of adopters: as stated by Rogers (1983), there are five type of adopters: innovators (enthusiastic in trying out new technology); early adopters (gains a leadership within the social system and gives information and advice to later adopters); early majority (not in a leadership position but adopts the technology before the average individual); late majority (adopts the technology right after the average individual); laggards (almost isolated from social network, need to be sure that the technology works before adoption). In contrast to the literature review where it states that digital natives are seen as early adopters (Vodanovich et al., 2010), our empirical findings demonstrate that digital natives are not the only group to be defined as early adopters. By taking organization E as an example, it can be argued that this

organization has all the types of adopters, where the adoption of ESN was firstly initiated by an employee at IE's department, where this employee belongs originally to the group of digital immigrant, but is still always trying out new things related to technology. Thus, that employee is a type of innovator. Furthermore, IE stated they have not introduced the ESN properly nor take the full step in implementation, even so there are employees that have already signed up for Yammer out of curiosity and to see how the tool works. Hence, these employees can be defined as type of early adopters and early majority. However, the last two groups of late majority and laggards also exist in organization E, because as IE states, there are digital immigrants at the organization that most likely needs to get pulled in by the others as they are not so open to changes.

Based on other interviewees responses, it can further be stated, that in fact innovators can be identified in our empirical findings, as mentioned by one interviewee (IA), that they have employees who are more active than others, where he particularly outlines, that some individuals at his organization are very enthusiastic and engaged in the ESN. Furthermore, at organization C and F early adopters can be identified, where the voluntary employees at organization C that are guiding other employees through the implementation of ESN, and the employees at organization F, who initiated the ESN adoption and that took part in the test phase of the implementation of ESN, are the early adopters. Thus, it can be said that the types of adopters can in fact be identified within the organizations.

In addition to the types of adopters, there are five attributes that characterizes the individual's different rate of adoption (section 2.4.1): relative advantage (is the innovation better than the old one it replaces), compatibility (innovation is stable with existing values, past experiences, and needs of potential adopters), complexity (is the innovation difficult for the individual to understand and use), trialability (can the innovation be tested at the implementation stage), and observability (are there results of the innovation visible to others) (Rogers, 1983). Two of our interviewees mentioned that using ESN lowers their e-mail usage, and breaks down information silos since as well as with ESN information and knowledge sharing are more consolidated in one place (IC, IF). Thereby, the response from the two interviewees can be seen as an attribute of *relative advantage*. The *complexity* attribute can also be identified in our empirical findings, as two interviewees explained that the ESN is integrated in their work practices and aligned with their day-to-day work (IC, IF). In the context of *complexity*, our empirical findings show, that those individuals that see their benefits in using ESN are more likely to be active than others (IF), where as well individual's curiosity and interest of ESN matters (IA, IC). The *trialability* attribution can further be found in the empirical findings, where one of the interviewee stated that his organization had an evaluation project before the actual implementation of ESN, in order to figure out what was the actual organization's need (IC), where another interviewee claimed that his organization had a pilot rollout, where employees experiment with the ESN in order to explore the functionalities and possible benefits of the ESN (IF). In accordance to the *observability* attribute, two of the interviewees explained that the introduction of ESN was well communicated (IA, IC), where one of them stated that their implementation was widely communicated as they used every conceivable channel for the communication (IC), whereas one interviewee stated that ESN was sort of communicated, as employees were informed through e-mail, with flyers and webcasts.

**Summary.** In sum, then, our empirical findings prove, that the diffusion of innovation model, its characterization of adopters and their attributes concerning the individuals' rate of adoption can generally be identified within the implementation process of ESN. Although, we do not have enough evidence if their different needs and expectations are in particular taken into account during the implementation, since the interviewees have not confirmed that they dis-

tinguish between these certain types, we still argue, that differentiating individuals along the types of adopters proposed by Rogers (1983, 1995), identifying the individual rate of adoption and thus analysing the individual needs and expectations in a greater detail can in fact be helpful in a way, to understand and meet their needs in a more effective manner and thus could support to succeed with the adoption of ESN.

### **ESN as socio-technical system**

It has been argued in our literature review, that ESN can be defined as a socio-technical system as it is an open tool that takes both social and technical aspects into account (section 2.4.2), where a successful adoption depends on both, ESNs' social and technical aspects and its interdependencies (section 2.3). We found in our empirical findings, that majority of the interviewed organizations, who all turned out to have a successful adoption of ESN, have taken the social aspects into account (IA, IB, IC, IF), where they took different aspects of STS and its principles into account in the implementation approach of ESN. One interviewee stated that they had an evaluation process before the actual implementation, where the existing software landscape was analysed, needs from employees were gathered, where then available ESN tools on the market were analysed (IC). By doing so, the organization ensured that both, the social and technical aspects were in place. Another interviewee explained that the socio-technical aspects were not sufficient taken into account in their implementation, where he argues that due to this fact, the active participation within ESN is more sporadically and thus is indeed improvable (IF). However, he believes that the organization has to take one step back, to analyse the employees' needs in order to have an understanding on how the ESN can be used in the employee's daily work processes and hence stimulate the individuals engagement and achieve a higher participation rate (IF). Two of the interviewees were not with the organizations before and during the implementation process of ESN, consequently they gave us their own opinion on how ESN was implemented, which according to them was not with any special structure (IA, IB), therefore, we have a hard time to claim if these two organizations had the social and technical aspects in mind in the implementation process. However, concerning the remaining organizations, our empirical findings shows, that they did not take the social and technical aspects into account during the implementation (ID) or have not considered them yet (IE). This causes us to assume that these missing investigations could be one reason, that the implementation of ESN fully failed (ID) or still remains in its test phase (IE).

Furthermore, our empirical findings agree with Cherna (1976), that in order to succeed with the adoption of ESN, the work system needs to be aligned with the organization's goals, adapted to the organization's environment, and individuals should be grouped together in autonomous work groups in order to facilitate information, knowledge and learning sharing. This is demonstrated with answers from few of the interviewees, where one of the organizations had an evaluation project, aiming to analyse the organization's needs, where additionally its environment has been considered, by taking the existing culture and processes into account (IC). Moreover, two of the interviewees have integrated ESN with their work processes, where they use it on a daily basis (IC, IF). Then the majority of the organizations have autonomous work groups, represented by communities within the ESN where employees are able to exchange either formal or informal information (IA, IB, IC, IE, IF), in order to gain information and knowledge from a certain group of individuals.

In the concern of characterizing effective socio-technical work design, few principles have been provided in our literature review: compatibility, minimal critical, variance control, multifunctionality, boundary location, and design and human values (Cherna, 1976, 1987), where

our empirical findings shows that these principles can in fact been referred to the adoption of ESN:

- *Compatibility* is in place at one of the interviewed organization, where their implementation process was aligned to their culture (IC).
- *Minimal critical* can be seen in majority of the organizations as they do not have any special rules or policies for the usage of ESN (IA, IC, IE, IF). Additionally, the interviewees either mentioned that there were no specific rules or policies for ESN (IA, IF), or that they followed the motto as much rules as necessary, as less as possible (IC). Even so, there is a social media guide in place at two of the organization (IC, IF), and where other organization plan on having general behaviour rules for their ESN system (IE).
- *Variance control* has been considered by one organization, where the interviewee points out that the responsible department for the implementation were clearly defined (IC)
- *Multifunctionality* can be assumed to be taken into consideration as by allowing the usage of ESN, organizations are enabling information and knowledge sharing between employees' (IA, IB, IC, IF), where everyone can respond to questions (IF) and therefore show their skills in more than one area.
- *The boundary location*, is supported with our empirical findings as all employees within the organization can participate within ESN (IA, IB, IC, IF), where further, one interviewee mentioned that ESN enables knowledge sharing in a way that when an employee is located at e.g. customers side, he is able to share the achieved knowledge via ESN (IB).
- *Information flow* is supported with our empirical findings, where ESN is indeed designed in a way that employees are allowed to share the information they have, by posting them either on project-related communities within ESN (IF) or other groups or communities that have been formed within the system, where e.g. one interviewee (IC) reports, that they have 9500 communities.
- *Support congruence* can also be discovered, since the social behaviour has been strengthen through the ESN, and as stated by one of the interviewee, an individual gets to know his or her co-workers better through ESN (IB).
- *Design and human values* can further be identified, as two of the interviewees have the ESN integrated to their work processes (IC, IF), where they perceive great benefit from the integration.
- *Incompletion principle* is also supported, where one of the interviewee claimed that his organization acknowledge that the implementation of ESN is an ongoing process as there are continually follow-up projects generated (IC).

**Summary.** In sum, aligned with our literature review, where it is stated that ESN system can be seen as a STS (section 2.4.2), our empirical findings confirm that ESN is indeed a STS, and therefore our findings are aligned with the view of Kügler and Smolnik (2013), who stated that in order to have employees adopting a system, the organization needs to understand the possible benefits of the system. Furthermore, the statement of Jackson et al. (2007), that employees consider social technologies, herein ESN, useful when it improves their work and where they see benefits by using it, has been proven up to a certain degree in our empirical findings. Because two of the interviewees use the ESN on a daily basis by seeing great benefits in doing so (IC, IF). Therefore, in general we agree that in the cases where STS and its principles are partly taken into account, an organization are more likely to succeed with the adoption of ESN.



### 5.1.2 Cultural readiness

While we examined how the existing organizational values and culture affects the implementation, our empirical findings shows, that the degree to which the organizational culture is align with the principles of ESN vary. In the following the organizational values and culture are discussed.

#### Organizational values

From our empirical findings, the interviewed organizations were categorized into groups of innovative driven (IA, IB, IF), standardized driven (ID, IE), and mix of both innovative and standardized driven (IC). We define innovative driven organization as a modern organization with transparent culture, which is open for adoption of new technology, as they want to be on the leading edge of new technology. A more standardized driven organization is then stricter, has a strong hierarchical structure, being traditional and not as open for adopting new technology. Mixed driven can then, e.g. be traditional but still open for new technology. Where for example one interviewee (IA) claims, that the organization is characterized by comprising risk takers, another interviewee (IF) views his organization as young and modern, whereas another interviewee (IC) further insists, that his organization has a good balance between being tradition-conscious and take today's modern requirements seriously, while other interviewees claim that they have strict hierarchical structure (ID), and are conservative (IE). By analysing our empirical findings, it becomes clear, that the innovative and mixed driven organizations (IA, IB, IC, IF) have relatively high participation rate, while the standardized driven organizations (ID, IE) have either failed to adopt ESN (ID), or are still working on forming a structure in order to align ESN with the organization's culture (IE). The higher participation rate within the innovative driven organizations, might rise from the fact that the organizational culture is aligned with ESN, as well as due to the openness of the organization, where the managers are also open for changes (IC), where they may encourage their employees to use ESN with showing their support with being active on ESN, by sharing their views and opinions (IA).

**Summary.** In sum, our empirical findings have shown that the innovative organizations have had more success in adopting ESN, than the standardized organization. Where the innovative organization are more likely to have a success with adopting an ESN, with generally higher participation, as they are seen as more open, modern and with transparent culture, as well as strong hierarchical structure. However, it should be acknowledge that standardized organization can also adopt ESN without having a failed implementation, as these organizations even might have a greater need in preventing information silos and overcoming hierarchical barriers for improved business performance. Even so, our empirical findings have shown that the adoption of ESN might take more effort for the standardized driven than innovative driven organizations to adopt ESN. Therefore, we conclude that the adoption of ESN depends on the organizational values as they need to be considered and analysed to align the organizational values with the principles of ESN, to enhance greater usage of ESN.

#### Organizational culture

The literature review in relation to the organizational culture (section 2.3.2) is in line with our empirical findings, where the usage of ESN depends on its alignment with the organizational culture. We found that two of the interviewed organizations do not have the culture yet to support ESN (ID, IE), while the remaining four all have a culture that supports ESN (IA, IB, IC, IF). One of the organizations took the culture into account in the implementation phase,

where they had a culture initiative running parallel to ESN, with a focus on establishment of four core pillars: freedom, connection, trust, and winner mentality (IC). IC thereby states, that having the culture initiative running parallel to the ESN was important for the implementation of ESN, as if they would not have done so, the implementation would have been more difficult, and moreover, without the trust from superiors, they would not have had successful adoption. Furthermore, he claims, that if an organization is spread all over the world, each location should be taken into account when it comes to cultural aspects, where they had no strict implementation rules, enabling each location to choose its own process on how to introduce ESN and hence each location was able to align its own culture with ESN. Thus, the statement of Koch et al. (2012) that it is crucial to align the introduction of ESN with the cultural values residing in the organization, has been confirmed in our study, since our findings demonstrate, that when an organization have a focus on the cultural alignment, they tend to succeed more likely with the adoption of ESN resulting in a higher participation rate than those organizations, where such initiatives are not taken into account.

Additionally, from the empirical findings, it can be interpreted that the organizations that succeed with the implementation of ESN and have a high participation rate, they all have a transparent culture (IA, IB, IC, IF). We hereby define transparent culture in a way, that there is an open collaborative culture within the organization established. For instance, two interviewees (IA, IF) mentioned that social collaboration and networks are very important for their organizations in order to have an easier information flow, and make it easier for new employees to establish their personal networks. Another interviewee mentions, that they are driven by dynamic and openness (IF) while yet another interviewee reports that the employees' have received guidelines from the CEO where they got informed that they should act transparently by providing positive feedback public using open communication channels such as ESN (IC). It can therefore be assumed, that organizations need to have an open collaborative culture, fostering social collaboration in order to succeed with the adoption of ESN. Our empirical data supports thereby the statement of Denyer et al. (2011), that a successful adoption of social technologies, herein ESN, needs to be supported by open and collaborative culture. Furthermore, another interviewee (ID) points out that his organization does not have a high level of social engagement, nor do they focus on information sharing, and therefore he sees a need of improvements in their knowledge and sharing culture, which could be one of the reasons for the failed implementation. However, few of the interviewees also confirm, that if the implementation is taken with small steps it could lead to changes within the organization culture (ID, IE), and moreover, the culture will further change and become more visible through the ESN (IC). Therefore, in order to adopt an ESN successfully, it is important for organizations to take the culture into account and align the implementation of ESN with the existing culture of the organization, even when this is done in small steps.

**Summary.** Hence, with our empirical findings we can argue that the cultural readiness plays a role for adopting an ESN- When the organizational culture is more aligned with the principles of ESN, the adoption of ESN is more likely to be successful, whilst the organizations that do not take these values into account will have more difficulties in adopting ESN. Even so, this does not mean that the information and knowledge sharing culture needs to be in place before the implementation, as our empirical findings have shown that the culture may be changed within the implementation process, where it also becomes more visible. However, our empirical findings agree with the view of Kamath (2008), that in order to build a collaborative culture, the organization culture must have been analysed before the implementation. We have evidence in our study, that organizations need to analyse whether its culture supports collaboration before implementation or not, and when the culture is insufficient in a way that it does not support further participation in the ESN, then more effort might be needed in order to

trigger the support of the management and individuals' engagement. Therefore, our empirical findings have proven that the differences between existing culture and needed culture have to be examined in order to succeed with the adoption of ESN, where it is needed to analyse whether the organizational culture already supports collaboration or if cultural development prior or during the implementation is necessary.

### 5.1.3 Structural readiness

By analysing the structural readiness needed to succeed with the adoption of ESN, our study demonstrates, that both, the hierarchical structure as well as organizational size may influence the implementation of the ESN.

#### **Hierarchical structure**

Our empirical findings show that the organizations with low hierarchical barriers (IA, IB, IC, IF) tended to have less problems with implementation than the other organizations with higher hierarchical barriers (ID, IE). Nevertheless, few types of hierarchy were mentioned by our interviewees, i.e. no hierarchical bounds (IA, IB), there are some hierarchical structure (IC, IF), or strict hierarchy (ID, IE). According to the interviewees within the organizations, where no hierarchical bounds exist, the implementation process was with little effort, as according to them, the employees were informed either by managers or via e-mail that it had been decided to implement ESN, and therefore they should start using it (IA, IB). Within the organizations that have some hierarchical structure, there was a test implementation before the actual implementation (IC, IF), where the employees were informed either with an e-mail (IF) or well-structured guidelines about the ESN (IC) that ESN was up and running. Whereas the organizations with the strict hierarchy have either had failed adoption (ID) or no success with the adoption of ESN (IE). However one of the strict hierarchy organization (ID), had a prototype mode to experience the ESN platform, but as there were no clear communication nor defined strategy or vision, it led to the failed adoption, whilst the other organization with strict hierarchy, has not defined any clear goals for the usage of ESN (IE). In addition, one of the interviewee stated that hierarchies do normally exist within today's organization, and therefore he claims, that although ESN might leverage the bottom-up collaboration, it is still needed that the implementation is supported by the top management, where changes in the hierarchical structure and in the managements' 'mind' can take time to be developed and therefore, the changes are seen as a revolution instead of the changes that can be accomplished overnight. Therefore, we can claim that bottom-up approach can be leveraged by ESN (Richter et al., 2013), but the support of managers are also needed in order for successful changes.

**Summary.** Therefore, as our empirical findings have proven, the organizations with no hierarchical bounds and some hierarchical bounds had a successful adoption of ESN, whilst the organizations with strict hierarchical have not been able to succeed with the adoption of ESN. Therefore, we assume that it is easier to gain a wider adoption of ESN within an organization with less strict hierarchy. However, as already mentioned in previous section (5.2.1.1) it has become clear that well-defined vision and strategy on how to use ESN is also important in order to have a successful adoption and to leverage structural readiness.

#### **Organizations' size**

The size of organizations vary, where in our findings we use the terms of small and large organization as follows: small organization has 100 employees or less, where large organization

has more than 100 employees. Therefore we can categorize the interviewed organizations into a large organization (IA, IC, ID, IE, IF), or small organization (IB). By having the definition of each organization size in mind, we have found in our empirical findings that the larger organizations are in greater need of ESN than the smaller one. On the one hand, larger organizations are spread over many locations, they see the need of adopting ESN to enable more efficient communications between locations (IA, IC, IF), in order to make it easier for employees to find the person with the information they need (IA, IF), and further to enable knowledge and information sharing and gathering between employees that are not at the same locations (IA, IC, IE, IF). On the other hand, in smaller organizations it is more likely that all employees are located at the same place and therefore they do not have the physical distance, since employees are more likely enabled to contact each other face-to-face instead of through ESN (IB). This supports a study by Saldanha and Krishnan (2012), where they claimed that social networks, herein ESN, can be of more use within larger organizations than the smaller ones, as larger organizations use the ESN in order to find the right employee to contact, while the employees at smaller organizations are more likely to know one another. However it should though be acknowledged, that even if the above findings show that larger organizations are in greater need of adopting ESN, it does not mean that the smaller organizations do not have the need for collaboration and communication enabled by ESN, as they might need the tool for instance to enhance the team spirit within the organization as well as sharing work related information (IB). Hence, there is no difference between large or small organizations, even if the larger ones may see successes faster, the small organizations still have the need of communication and information and knowledge sharing as well and thus, they can also benefit from the core functions of ESN (IC).

**Summary.** In sum, a study from Saldanha and Krishnan (2012) has stated that larger organizations are more likely to benefit from Web 2.0 technologies, herein ESN, than smaller organizations, and further, G. Lee and Xia (2006) argued that the size of an organization can positively affect the organization capability when adopting new technology, herein ESN, because they are more complex and diverse than smaller organizations. Our empirical findings only partly proof these statements as the larger organizations do indeed need ESN because of their diversity, where the smaller organizations also see the need and benefits from using ESN, in order to e.g. enhance the team spirit and leveraging communication as well as information and knowledge sharing. Furthermore, the larger organizations may also face problems with their size, as it can be assumed that the adoption within the larger organizations can be more difficult as they possibly have more employees that has to be guided and might have a higher amount of employees, who are not ready to use ESN (ID, IE), because e.g. of their conservative minds, while smaller organizations have fewer employees which leads to relatively easy roll-out of ESN (IB). Nevertheless, it should be acknowledged that we only interviewed one small organization and thus the results might have been different if more small organizations would have been interviewed.

## 5.2 Key enablers

While one of the main purposes of our study is to analyse how organizations benefit from the use of ESN and how it leverages information and knowledge sharing, it becomes clear, that all three determinants, defined in our framework (Figure 2-5, p.20), namely information and knowledge sharing, organizational learning and social capital are supported with ESN, however the degree to which each determinant is leveraged vary. In the following the influence of ESN on each determinant will be discussed.

### 5.2.1 Information and knowledge sharing

By comparing the interviewee's view on the effect of ESN on information and knowledge sharing, it can be concluded that in line with our literature review, an ESN indeed lower temporal, physical and social distance (section 2.2.1). While two interviewees, namely ID and IE, indicate, that it does not facilitate information and knowledge sharing, this is due to the fact, that the implementation failed (ID) or a proper strategy has not been developed yet (IE). The other interviewees (IA, IB, IC, IF) confirmed that their ESN system significantly leverages knowledge and information sharing, while they use the ESN for different actions. While interviewee IA uses it for announcements, discussions, project status updates, informal, polls and formal communication (IA), interviewee IB use the platform for example for share and seek information and knowledge, informal and formal communication as well as asking and answering questions or posting ideas. IC seems to be by far the most intensive user, where he refers to ESN among others for general communication, information processing, arrangement of appointments, joint preparation of information, proceeding and debriefing of agendas, knowledge database or for polls, tasks lists and distribution of templates. A detailed description of the individual usage by the interviewees can be found in the previous chapter (Table 4-6, p.62).

**Temporal distance and expertise locating.** The interviewees agree, that ESN provides the ability to overcome temporal distance, where individuals can decide on their own if and to what time they want to access particular information stored in the ESN. This supports the argument from Saldanha and Krishnan (2012), that ESN provides more control to its users. Moreover, having information and knowledge stored in ESN rather than in individual e-mail inboxes, it was confirmed that ESN enables the reuse of information and knowledge at any time (DiMicco et al., 2008). As for instance, when employees is not able to attend a specific meeting, they still have the ability to access the information and contribute to the discussion on a later time, when their schedule allows (IA). Additionally, whilst the information is illustrated chronological within the ESN, it allows employees to access the persistent information history from bottom to the top (IF). This is indeed seen as beneficial, as e.g. employees joining a community in ESN are able to access the historical record, whereas when one is being added to an e-mail distribution group, the e-mail history will be hidden to the user (IA). Additionally, while ESN is a place where customer specific information, project proposals or protocols are stored (IF), it has been confirmed that ESN is in fact used for expertise locating, i.e. when an employee access information and knowledge, without contacting the expert who holds the original knowledge (Jarrahi & Sawyer, 2013).

**Physical distance and reaching out.** Concerning the physical distance, it has been recognised by almost all interviewees, that ESN enables the communication and information and knowledge exchange beyond geographical barriers by connecting employees throughout different countries, divisions and business units (IA, IB, IC, IE, IF). Thus, the statement found in prior literature, that ESN provides the ability to interact and share information, opinions and ideas with other employees outside the immediate working group (Lea et al., 2006), holds true. However, one interviewee (IA) indicates, that when he knows who to address with a particular issue, he would still refer back to other communication channels as e-mail, where other interviewees (IB, IF) indicates to use instant messaging instead to reach a specific colleague. Thus it can be assumed, that the knowledge sharing practice reaching out, i.e. seeking knowledge and reach out for others to find an answer to a specific problem (Jarrahi & Sawyer, 2013), is then more likely done through ESN, when someone does not know who to address specifically. Thereby, it has been confirmed by most of the interviewees (IA,IB,IC,IF), that

ESN is helpful to reach out for others, when they do not particularly know who to address, want to reach a larger audience or simply gather feedback from multiple employees.

**Expert locating.** Our empirical findings further confirm, that ESN is used for expert locating (IC, IF), i.e. when employees seek for advice and information from co-workers (Jarrahi & Sawyer, 2013). Thereby, it has been acknowledged that ESN is used to seek for employees within the entire organization (IA), as an employee database (IC) and to facilitate and speed up the process of finding experts, by either search for specific keywords or asking questions to the audience residing in the ESN, where they normally prompt get answers (IF).

**Breakdown of information silos.** In addition, all interviewees agree with prior literature on the fact, that ESN enables the breakdown of information silos (Kuikka & Äkkinen, 2011). Thereby, it is recognised that when an ESN is integrated in the organization, it indeed enables the elimination of information silos. Especially IC and IF support this argument, by stating that data stored in the ESN is now consolidated, accessible and searchable for everyone in the organization and not dispersed on several drives, hidden behind e-mail inboxes and thousands of folder structures.

However, in contrast to the improved efficiency of information and knowledge perceived by the interviewees and despite the fact that it indeed lowers information silos, we found that it has also one disadvantage, as some interviewees, namely IA, IB, IC and IF acknowledged, that the data are to some level redundant. This is due to the fact, that data stored in ESN is often simultaneously saved in the intranet, as an official hub of organizational information. Our own view is, that it should be hereby either defined which data should be stored at what place or it should be just linked in the ESN to the original content instead of uploading it to the ESN in order to avoid such a data redundancy.

**E-mail usage.** While we aimed in our study to analyse the impact of ESN on the e-mail usage within organization, the empirical findings clearly shows that an ESN does not only lower information silos but also the e-mail amount (IC, IF). Although one interviewee believes, that ESN does not lower the e-mail usage in general, since the organization itself is highly addicted to sending out e-mails and the management does not encourage employees to use ESN as a communication channel instead of e-mail (IA), other interviewees (IC, IF) claim, that the e-mail usage has been significantly decreased within the organization, especially when it comes to the event of addressing multiple recipients within the firm. However, in contradiction to other organizations, which tried to totally abandon e-mail from the work place<sup>4</sup>, our empirical findings clearly show, that it would be too far-fetched to assume, that an ESN could replace the e-mail as the main communication channel yet. Both, IC and IF acknowledge, that e-mail is at some point not replaceable with an ESN and view it as an almost utopian vision to think e-mail could be totally abandon, since e-mail is still needed for communicating with customers or when it is just of concern for two particular persons and being highly personal and confidential. Thus, we contend, that although ESN might decrease the amount of e-mails sent within the organization, firstly, e-mail will still remain as the main communication channel for external communication and is needed for confidential communication and secondly, the

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<sup>4</sup> One popular example in this regard is the project “Zero email”, where the IT organization Atos aimed in 2011 to reduce the e-mail amount to zero within 3 years, while replacing their internal emails by modern collaboration platforms such as ESN. Although Atos did not achieve zero emails, it is still worth to mention, that they were able to reduce their email traffic by 60% in 2013, where further reduction is targeted. (R. Jones & Dearsley, 2014)

fact that ESN is used for communication rather than e-mail depend on the support and encouragement by the management .

**Social distance.** Regarding the decrease of social distance, our empirical findings are somewhat divided. On the one hand, some interviewees indicate, that the ESN indeed helps to get to know each other better (IB), leveraging the visibility and recognition value among employees through profile pictures, posted information and the participation within the communities of the ESN (IF). On the other hand, it is clearly stated by IA, that ESN does not replace the personal social interaction among employees. Therefore, we believe, that ESN is in this way helpful to overcome social distance when employees do not know each other before or when they are not able to communicate personally, i.e. when they are not physically located at the same place, while personal interaction and face-to-face communication should be still preferred when possible to lower social barriers.

**Socializing.** Nevertheless, despite the fact, that it has a limited influence on social distance, our empirical findings demonstrate, that ESN is definitely used for socializing, where people aim to create and strengthen social ties in order to reach a better directed and targeted knowledge sharing (section 2.2.1). Several interviewees (IB, IE, IF) indicates, that ESN is used for both, leveraging business-related communication as well as fostering social communication by sharing social posts and establishing certain communities based on personal and professional interests. Hence, we can conclude that it is confirmed, that ESN provides a social sharing space (Mäntymäki & Riemer, 2014), where it supports socializing and helps employees to stay updated about information and news as well as connects those, who need to share and those who hold the knowledge (Patrick & Dotsika, 2007).

**Horizon broadening.** Lastly, referring to the knowledge sharing practice horizon broadening, defined as the action when employees seek for information beyond the immediate demands of the current work (Jarrahi & Sawyer, 2013), our empirical findings are again two-folded. Because on the one hand, interviewees (IA, IF) indicate, that they use ESN only if they have a specific purpose related to their immediate work and when they seek for information from others in order to accomplish a certain task, rather than seeking for random information without any specific purpose related to the current work. On the other hand, interviewees agree, that the ESN is used for gathering interesting information about the latest technology-related news without any specific purpose (IA, IB) as well as acknowledge, that sometimes information is unconsciously absorbed about other topics, where it has not been searched for in the first place (IF). Thus it is confirmed, that the ESN does leverage the action of horizon broadening, but only to a limited degree, depending on the personal interest, where it is at the same time often done indirectly.

**Summary.** In sum, then, while it was outlined in our literature review, that the adoption of ESN allows organizations to create an collaborative environment, where expertise and expert locating, reaching out, socializing and horizon broadening can be done (section 2.2.1), our analysis has proven true that ESN is used for all of these actions, however the degree to which it is used vary. Moreover, our empirical findings support the statement of Schneckenberg (2009), that an ESN provides the ability to converge collaboration, communication, communities and content in one technology and thereby overcoming temporal, physically and social distance. However, we agree with Polaschek, Zeppelzauer, Kryvinska, and Strauss (2012)'s view, who stated, that collaboration tools have to be tied together in order to unfold the full potential, and thus we have evidence in our empirical findings that it does heavily depend on the degree to which the ESN is integrated in the organizational infrastructure, supported by

the management as well as that it is limited to internal rather to external communication, since none of the interviewees uses ESN for external communications.

### 5.2.2 Organizational learning

While it has been argued in prior literature, that an ESN could foster the creation of knowledge and thus leveraging organizational learning within an organization (section 2.2.2), the degree to which organizational learning is actively supported by ESN vary between the interviewees. Where for example IC and IF have a strong focus on transparency and joint learning, they indeed use ESN more frequently as a tool to leverage organizational learning, compared to those who rather see it as a secondary activity and just make assumptions about it (IA, IB, ID, IE). However, almost all interviewees confirm (except ID), that ESN leverage knowledge creation in a way that employees are enabled to contribute to discussions, commenting on information shared by others or sharing their own ideas and thus allows employees to experience and learn from each other. Moreover, it is confirmed by some interviewees (IC, IF), that the ESN in their firms fosters the empowerment of employees to contribute with their knowledge and thereby leverage the development of a collaborative environment, where employees are enabled to share best practices and lessons learned and based on that, optimizing their own work processes. Interestingly, it could be contended that the level of organizational learning supported by ESN depends on how the implementation of the ESN was communicated. As where IC had a high transparency and clear communication, he reasoned with several examples that they have a high level of organizational learning, whereas e.g. in IA's or IB's organization, where the implementation did not follow a clear approach, they indicate, it may lead to organizational improvements and knowledge creation, enabled by discussions and provided feedback, but these were just assumptions and they have not been sure about whether the ESN in fact positively impact the overall organizational learning or not.

**Socialising.** Nonetheless, as already proven true in the previous section, ESN leverages in all organizations (except ID, as the implementation failed) the first mode in the knowledge creation process, socializing, by providing a space for social interaction and thereby enables the sharing of tacit knowledge in social interactions (Nonaka & Takeuchi, 1995).

**Externalization.** Secondly, concerning the second mode, externalization, this action, as outlined in the literature review takes place when employees share their tacit knowledge and know-how by transferring it in explicit knowledge in order to make it more tangible, permanent and easier to capture for others (Dalkir, 2013). The view of the interviewees, if ESN support externalization is two-fold. Thereby, one interviewee, namely IB claims, that some employees simply do not have the time to make their knowledge available for others and believes, that it is difficult to make tacit knowledge visible through ESN in comparison to a brainstorm session having a whiteboard and a face-to-face discussion. Another interviewee (IA) supports this, by stating that he believes that the ESN is rather used for information sharing than for knowledge creation, since employees are more likely to switch to e-mail or drawing on whiteboards in order to share tacit knowledge and to transfer it into explicit knowledge. Contrary, IB also reports, that he once used ESN to share and explain some specific code developed by himself helping him to optimize his work processes, so that others might benefit from it as well. We contend, that this action can indeed be seen as externalizing the knowledge, as by transferring his knowledge into the ESN, it is accessible and useable for others. Moreover, it is additionally confirmed by other interviewees, that externalization in fact takes place within ESN, where one state, that employees are writing down their own knowledge by creating blog posts, thereby sharing it with their co-workers in order to allow



others to learn from it (IC). However, it has become clear, that making knowledge available to others does further depend on the degree, on which employees are willing to share their information and knowledge. Although most interviewees agree, that in general the employees at their organization are keen and engaged in knowledge sharing (IB, IC, IF), it is also confirmed from some interviewees (IB, IC, ID, IF), that in fact some employees might not share their knowledge caused by the fear of losing power or authority or by the fear of becoming blamed. Hence, we can conclude, that our study affirms the statement of Riemer and Richter (2012), that ESN leverages the learning from other employees and thus facilitates generally the process of externalization, however up to a certain degree, depending on the personal time, the complexity of the knowledge and the willingness to share knowledge. Based on our empirical findings, we would argue yet that in order to leverage organizational learning through ESN, it is crucial that managers as well as employees encourage each other to share knowledge by either clearly communicating that they not have to worry about their power and authority (done by superiors) or employees leaving rewarding comments, giving constructive feedback or simply like one others content in order to take the possible occurring fears away.

**Combination.** Referring to the process of combination, it is clearly confirmed by almost all interviewees (IA, IB, IC, IF), that the ESN is a place of crowdsourcing and enables the combination of knowledge from various sources (Richter & Riemer, 2013). Thereby, it has been reported that ESN allows every employee to contribute with their knowledge by uploading, editing and recommending knowledge and information and enables them to provide feedback, generate polls to evaluate alternatives, or co-create information and knowledge (IA, IB, IC, IF). Specifically, the interviewees witnesses that ESN allows the upload of different information as reports, agendas, project-related documents, e-mails, videos or links to external information (IA, IB, IC, IE, IF) and thus enable the combination of knowledge within the ESN platform.

**Internalization.** In the same way, it is confirmed, that ESN fosters the process of internalization, as employees are enabled to reflect the knowledge stored in the ESN and use it for their own purposes, building up on the accessible knowledge and information in order to generate their own knowledge (IC, IF). However, we also identified in our empirical findings, that the level to which internalization is leveraged with ESN, has a high dependency on the participation rate (IB, IC, IF), as the more are engaged within the ESN, the more knowledge is shared and thus the more organizational knowledge can be created.

**Summary.** Overall, then, we believe ESN indeed could lead to the improvement of organizational learning, as it fosters the joint learning and enables the organization to speed up learning processes, while the entire knowledge creation process becomes at the same time more visible enabling the individuals to follow the process (IC, IF). However, we also acknowledge, that to which degree organizational learning is enabled by ESN does depend on the implementation approach, on the support of the management as well as on the willingness and available time of the employees to share knowledge. Moreover, our empirical results provide evidence for the suspicion of Hall and Goody (2007), that organizational learning within ESN is profoundly influenced by both, the values anchored within the organization as well as how knowledge and information is treated as assets.

### 5.2.3 Social capital

**Structural social capital.** Recall from section 2.2.3, that the structural social capital refers to the overall pattern of connections enabled by ESN, our empirical findings have proven cor-

rect, that an ESN improve the structural social capital by enabling individuals to draw new connections beyond the boundaries of physically and timely constraints and thus provides the ability to increase the intensity and density of the social network within the organizations. In this respect, it is confirmed by multiple interviewees (IA, IB, IC, IF), that the ESN generates and strengthens social relationships among employees and provides the ability to expand the personal network. Our empirical findings support the notion of DiMicco et al. (2008), that one of the key activities within ESN is indeed the generation of connections beyond one's own local network. As an example, one interviewee (IF) states, referring to his project-related work, that many different employees are participating in certain communities within the ESN, from sales, over consultants to software engineers and thus, brings all individuals together involved in the customer project and thereby generates new communication ties.

However, particularly in regard to the hierarchical structure of the network, one of the arguments put forward by the interviewees is, that ESN leverage the cross-hierarchical communication, by facilitating communication and interaction with superiors and hence lowers the hierarchical barriers (IA, IC, IF). While everybody, regardless of their hierarchical position is able to contribute and to interact with each other within the ESN, our study confirms the view of Ardichvili et al. (2006), that ESN fosters an open communication and breaks down hierarchical barriers (IC, IF). Thus, there is evidence in the interviews, that ESN supports the reduction of both, physically and social distance among employees as well as hierarchical distance by bringing employees and managers closer together and as a result generates and strengthens the social ties, which in turn enhances the structural social capital. Nevertheless, it has to be acknowledged, that to which degree an ESN lowers the hierarchical distance and thus further leverage the structural social capital, heavily depend on the well-being of the management and its commitment within the ESN. Thereby we naturally agree with T. H. Davenport, De Long, and Beers (1998)'s view, that when superiors and management functions do not have a general motivation to foster an open communication and are not engaged in the cross-hierarchical communication, it cannot be realised to build a bridge between employees and its superiors, while the hierarchical barriers will then remain, even with such a social tool as ESN.

**Relational social capital.** Furthermore, concerning the relational social capital leveraged by ESN, our empirical results proves the statements of Hall and Graham (2004), that ESN facilitates the establishment of trusting social relationships and increases the feeling of belonging and closeness. In this respect, the interviewees indicate, that since the ESN has been implemented, the level of trust has been increased, while the openness of ESN allows employees to receive feedback and opinions from a larger audience (IB, IF). Moreover, it has been confirmed, that while ESN leverages the visibility among employees and promotes the recognition value, employees are able to being part of the overall community, where many others are involved and thus fosters the feeling of belonging as well as contributes to the team spirit (IA, IB, IE). Indeed, an opinion, as expressed by one interviewee shows, that particularly ESN is seen as an important factor for leveraging the sense of community, where he indicates, that when the organization would stop using ESN, they would lose a significant part of the team spirit (IB). Thus, our study confirms, that ESN in fact enables the development of trust and supports the establishment of team spirit (Gunawardena et al., 2009) and hence improves the quality of relationships and thereby increases the relational social capital. However, it has herein also to be acknowledged, that to which degree the relational social capital is improved by the ESN, depends again on the individual willingness to contribute to the community and the support of the management encouraging employees to being active within the ESN.

**Cognitive social capital.** While it has been already outlined in the previous section, that an ESN fosters the process of joint learning and collective thinking, our study confirms the statements of Ali-Hassan and Nevo (2009) and Kamel Boulos and Wheeler (2007), that ESN holds the potential of improving a shared understanding and mutual perception by fostering social interactions between employees and thus provide the ability to increase the cognitive social capital. Indeed, as our empirical findings reveal, anyone within the organization is enabled to submit information, ideas and feedback (IA, IC, IF) and thus, ESN harnesses the collective intelligence, which in turn reinforce cognitive social capital within the organization.

*Summary.* Thus we have evidence in our study that ESN indeed leverages social capital within the organization, whether if it is the structural, relational or cognitive social capital. However, it has here again to be acknowledge, to which extend ESN influences the social capital depends on the support of the management as well as on the individual willingness to contribute to the community and to share information and knowledge.

### 5.3 Major obstacles

In light of the aforementioned discussion about the key enablers provided by ESN, it becomes clear that in order to foster information and knowledge sharing, organizational learning and social capital, it is not sufficient to only provide a social technology, but moreover having an appropriate approach and the support of management and fostering individuals' engagement in order to adopt an ESN successfully and drive thereby business performance. While we analysed in our study how the ESN was implemented in several organizations and thereby especially seek for the key challenges faced during and after the implementation of ESN, it allows us to draw conclusions about the major obstacles associated with the use of ESN in a corporate environment and hence pointing out the adoption consideration needed for a successful implementation of ESN. Thereby, we are quite in line with prior literature and findings, where it is suggested, that the main challenges are mostly related to lack of management and leadership support, cultural barriers as well as lack of employees' engagement and the interoperability of ESN with existing enterprise systems and business processes (e.g. Bennett, 2012; Brzozowski et al., 2009; Corso et al., 2008; Paroutis & Al Saleh, 2009; Turban et al., 2011).

#### 5.3.1 Management and leadership support

While most of the interviewees (IA, IC, ID, IF, IE) claim, that the major reason hindering a more efficient use of ESN is the lack the commitment from management, our empirical findings support the view of Brzozowski (2009), that managers are the key influencers of the adoption of ESN. As already indicated earlier in this chapter, our empirical findings clearly show, that the organizations, where the implementation has not at all being supported by the management (ID, IE), have not managed to develop and successfully introduce the ESN within their organization.

**Active participation and promotion of the use of ESN.** Our study proves, that the user acceptance and herein the success of the adoption in the entire organization is particularly influenced by the degree on which managers are firstly, actively participating within the ESN and secondly, promote the use of the ESN in the entire organization. However, it is particularly crucial to outline both of these actions because it is not only sufficient, that managers are active, but moreover show their commitment by encouraging employees to use the ESN. Be-

cause on the one hand, at one organization (IA), the managers are indeed active and participate in the communities within the ESN by being involved in discussions held in the ESN. Moreover, at organizations B and F the managers are active in the ESN where they communicate with employees, which therefore allow the employees to ask questions and give feedback to the managers. Additionally, another interviewee (ID), indicates that due to the lack of the willingness amongst management being active in the ESN, they were not able to adopt the ESN and led finally to a project failure.

However, on the other hand, IA also claims, that although the managers are actively participating in the ESN, they do not encourage the employees to use it more actively, where he hereby contends, that the absence of a clear message concerning the ESN should be more used by the employees, hinders the ESN platform to be better adopted. He thereby believes, when there would be instructions send by the management using the ESN more frequently, it would lead to a shift away from their heavy e-mail usage towards an increased use of the ESN. Moreover, although IF reports, that some managers are indeed actively participating in the ESN, he also insists, that it would be desirable that managers would promote the use of ESN more intensively in order to increase the participation rate. In addition, IC states that when the management do not see the need of the ESN and thus reject it, it is difficult to adopt an ESN successfully as a bottom-up action. Hereby, IE also agrees with this view, by stating it is needed that the management encourage their employees in order to drive an active usage of the ESN throughout the entire organization.

**Clear ownership.** What is further interesting, is the fact that the support of the management is not only crucial for leveraging the ESN's usage, but also it depends on the degree to which a clear ownership and responsibility is defined regarding the rollout of the ESN. Because by analysing our empirical findings, it becomes clear, that in those organizations, where a clear ownership was defined, as e.g. in organization C, where the department of change management and organizational development holds the responsibility for the ESN project and drives the implementation, the adoption was more successful compared to those organizations, where no central role has been defined (IE) or no willingness and motivation from the responsible department, namely corporate communication occurred (ID).

**Summary.** Thus, we can conclude, that both is needed, the active participation of the managers as well as the promotion of ESN by sending strong messages to the employees to encourage them to use the ESN platform. In sum then, our empirical findings show evidence for both, the view of Brzozowski et al. (2009), that an active participation from the management positively influence the awareness of the ESN by individuals as well as the view of Bennett (2012), Turban et al. (2011) and Figueroa and Cranefield (2012), that it is more likely that the employee's awareness and motivation to use the ESN will raise, when the ESN is embraced by the executive team and the significance of the platform is clearly communicated.

### 5.3.2 Cultural barriers

While we outlined in the literature review, that one other possible challenge faced by organizations concerning the adoption of ESN is the overcoming of cultural barriers (section 2.3.2), our empirical findings demonstrates, that the existing culture might prevent a successful adoption. All the interviewees agreed that culture is an important factor regarding the adoption of ESN. However, it can be seen from the interviews analysis that the cultural barriers vary and can be addressed from different perspective. Thereby, some organizations indeed see there organization's culture as one aspect hindering the successful adoption of ESN (ID, IE), whilst

other interviewees claim, that they already have an organizational culture supporting an open and collaborative environment and thus do not see the existing culture as a barrier to a more effective usage of ESN (IA, IB, IF). Furthermore, ID and IE acknowledge, that the organizational culture is not in alignment with the principles of ESN, where their culture is characterized by being strict hierarchical, conservative and do not have a focus on information and knowledge sharing. Especially one interviewee (IE) reports, that they are still trying to find out how to align the culture with the adoption of the ESN, as he believes, it is highly complex and in order to being able to use the ESN efficiently would mean, that significant changes in the culture are necessary. Another interviewee (IC), views the cultural barriers from a totally different perspective, where he believes, that the existing culture should not be regarded as a barrier, but moreover suggests to see the ESN implementation as a chance to change the culture. He emphasises, that they do not have one single culture, due to the reason that the organization is spread across several countries, but he still claims, that they have a fairly high transparent culture. However, this confidence might arise from the fact, that the organization itself has a strong focus on the development of the culture and as it has been mentioned previously, they have a culture initiative running parallel to the ESN implementation. Although he reports, that the culture initiative were not initiated on the basis of the ESN implementation, though he acknowledge, that without having this culture development, they would have had a harder time to implement the ESN in such a successful way.

**Summary.** Thus, we believe that Denyer et al. (2011) is right, by stating that a shift towards an open and collaborative culture is needed in order to enable a successful adoption of ESN. However, we contend, that it is not of need that the organizational culture already fully support an open collaboration and social communication straight from the beginning or has to be changed before the ESN will be implemented, but moreover, having then a stronger support and focus on the cultural alignment during the implementation process. As interviewee IC says: *“First, the culture becomes visible through the introduction of the ESN and then it changes by the use of the ESN.”* By supporting the view of Li (2012), stating that the culture needs to stress the necessity of community and collaboration in order to leverage the employees’ commitment and to be able to perceive value from the usage of ESN, we suggest, that such organizations, where ID and IE working, who are “not ready” yet, need to analyse in detail what actions are needed in order to overcome the cultural barriers and then taking small steps in order to lead thorough the change and to getting all employees “in one boat”.

### 5.3.3 Guidance

Another major impediment affecting a more effective usage of ESN is not only the lack of the management support or cultural barriers, but moreover the individual on its own and the uncertainty about the perceived benefits. Because it has been confirmed by the interviewees (IC, IF, IE), that no matter how the ESN has been announced by the management at the first place, when the individual does not see the benefits of using the ESN and thereby does not know how the ESN adds value to its individual work procedures, it will probably not be actively used in the long term. It has been reported, that there were in some cases (IE, IF), a higher participation rate in the beginning due to the employee’s curiosity about the new tool, but it has already weakened again after a while as the employees did not know how to make use of it. Thus, it is crucial that the management and the leading department give the employees a reason to stay in the ESN. Our analysis showed that explicitly the establishment of rough rules and guidance are effective in a way that it could enhance the participation of ESN and shows the employees how to deal with the ESN. This is in alignment with Van der Meulen and Rivera (2013) emphasizing that the development of a social business strategy is needed,

indicating the sense and purpose of social technologies for the organization in order to support a successful adoption. Thus, our study clearly shows, that the other factor hindering the effective use is missing guidelines. Hereby, we have evidence, that it is not about specifying strict rules, because as one interviewee (IC) argues, it is crucial to firstly give employees the time to get used to the new tool allowing experiments with it, before restricting the freedom and limit certain things straight from the beginning. However, despite providing a certain freedom, our findings support the view of Brzozowski (2009), that it plays a crucial role to train employees how to use a social network in a business context in order to leverage an active participation.

Some individuals, regardless of their age, might be more affine to social networks for the reason that they might use Web 2.0 technologies in their private time, where ESN, compared to Facebook, Twitter or Wikipedia, is based on similar principles. However, our study shows, it is still a fact that ESN highly differs from these technologies in a way that the information which individual publish in the ESN are represented with his or her real name, where they are not only seen by their friends, but judged by other colleagues and from those, who pay the salary and decide about their career (IC, IF). As stated by IF, this leads to the fear by some employees, to ask wrong questions and hence, prevent them to be active in the ESN.

**Summary.** Thus, we argue that it is needed, that the employees are being taught how to deal with the ESN and that guidance is provided in order to take the fear away with the result that employees feel more confident and hence, being more active in the ESN. However, as already mentioned earlier in the previous section, to which degree thereby guidance is needed, depends on the individuals, on their personal curiosity and the ability to integrate the ESN in their day-to-day-work. But we contend, that guiding throughout the change and taking the fear away is crucial in order to drive employee's engagement and reach a high participation rate.

#### *5.3.4 Interoperability with employees' work procedures and infrastructure*

Consensus of a majority of the interviewees emerged that another barrier, hindering the effective use of ESN is the degree to which employees are able to integrate the ESN in their work activities (IA, IC, IF). It has been argued in the literature review (section 2.3.3), that in order to foster employees' engagement and that the ESN becomes useful, it has to be integrated in the existing business processes and the organizational infrastructure (Li, 2012) as well as that the employees' active participation will not last long when the social technology is not integrated in their day-to-day activities (Chiu et al., 2006). By analysing our empirical findings, it becomes clear that both statements has been proven true and to reach a high level of employees' engagement it is crucial that the ESN is at least integrated in the work procedures of the individuals when not particularly in organizational business processes.

**Integration in the employees' work procedures.** While one interviewee (IB), indicate that employees need a reason to use the ESN and thus there need to be some incentive for the employees to use it, another interviewee (IF) claims, that the employees need to understand how to make use of the ESN and must be able to incorporate the ESN in their everyday work. He argues hereby, that it is hard to motivate employees staying active in the platform without having an individual benefit. Furthermore, interviewee IE believes, that the major reason for a lack of participation in his organization is the fact that it is not integrated in any work processes, as many employees have been active in the beginning due to curiosity, but after a period of time, employees lost their interest again as they did not know how to integrate it in their everyday work.

However, IA and IB reports a high participation rate of the ESN, but simultaneously argue, that it is not in particular defined for what organizational business processes or specific tasks it should be used. But, as they both indicate, that they use ESN for seeking information and solving occurring issues immediately related to their work, it can be assumed that it is to some level integrated in their own work activities. Based on these findings, we believe, it is not meant, that it has to be specifically defined for which business processes an ESN is used, concerning the previously mentioned freedom and the suggestion not to define strict rules, since the use can and should vary depending on the individual needs regarding for what specific purposes they use the platform. Nevertheless, we emphasize here again, that it is needed to show how the employees can benefit from the usage in their work procedures in order to drive the employees' engagement. It can be seen as a chain reaction: when the employees know how to integrate the ESN into their everyday work, they perceive benefits from the use as they then experience the "give-and-take" principle (IF), where they can solve occurring issues and be able to optimize their own work procedures. And in turn, the more benefits they perceive, the more likely employees share information and knowledge, the more frequently they are engaged and make use of the ESN, which immediately leads to a higher engagement and overall increased participation rate over time.

**Integration in the wider organizational infrastructure.** Concerning another possible challenge occurring with the adoption of ESN, it has been emphasized in the literature review, that organizations faces challenges with the integration of the ESN into the wider organizational infrastructure (Williams & Schubert, 2007). However, it is not clearly outlined in the interviews, that they see this integration in particularly as a current challenge. This can be due to the fact, that an ESN platform are mainly lightweight SaaS technologies and can be in general installed as a standalone solution, without losing its entire value, whereas systems such as intranet requires a more complex configuration (Decsey, 2012). However, two other interviewees (IC, IF) argues, that having the ESN platform integrated in the existing software landscape is an important aspects, as they both believe, if it would not be integrated, they would build up information silos again.

We argue, that the lack of integration in the overall software landscape could be still a barrier for a more effective use of ESN. Thereby, it is not meant, that an ESN cannot be effectively used without being connected to other existing technologies, but by analysing our empirical findings, it becomes clear, that in the case of some interviewees (IC, IF) where the ESN is fully integrated and linked to other technologies, such as integrated in the e-mail software, it leverages even more the efficiency of the ESN. Because through the connection with the e-mail software, the employees are able to e.g. attach e-mails directly to published posts in the ESN or see within the e-mail software, who is currently online in the ESN and who released new information. Thus, we contend, that when the ESN is connected to other existing technologies, the ESN is even more visible and enables the employees to benefit from the synergy effects and simultaneously facilitates the use of the ESN.

**Summary.** In summary, our empirical findings clearly demonstrate, that in order to adopt an ESN successfully and to unfold the full potential residing in the ESN, it is crucial that a clear strategy is defined, support and encouragement is provided by the management, appropriate guidance and trainings are established as well as cultural aspects are taken into account and the most important thing – employees' engagement is driven and the benefits of the ESN are demonstrated.

### 5.4 Summary of the discussion

Our discussion of the empirical findings shows, that ESN indeed holds the potential to leverage all three determinants: information and knowledge sharing, organizational learning and social capital. However, the findings also underline that to which degree an organization succeed with the adoption and implementation of ESN depends on the existing challenges as well as the capabilities in terms of organizational, cultural and structural readiness. Figure 5-1 summarizes the concepts of determinants, challenges and capabilities, including their connections and key aspects found in our study.

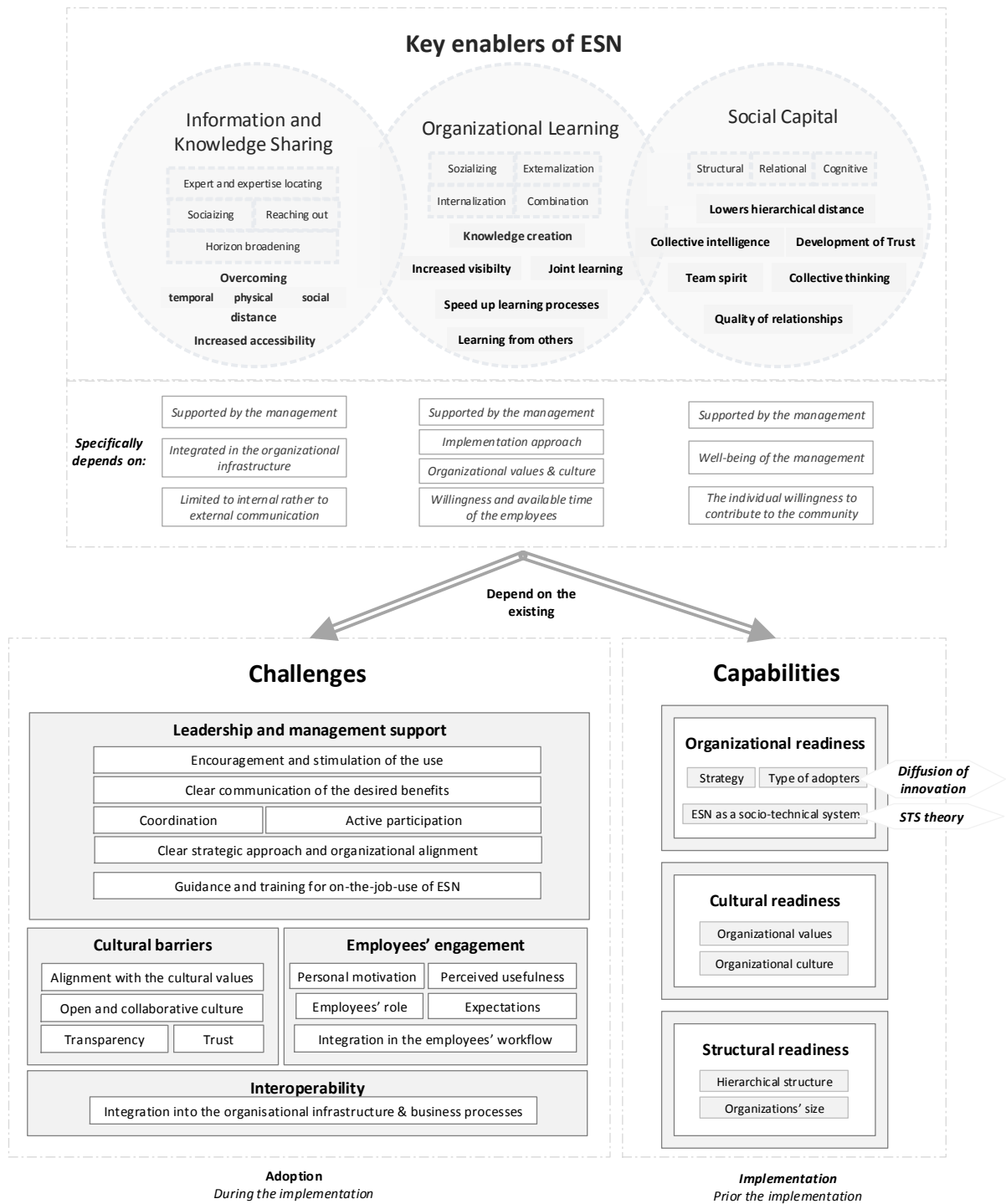


Figure 5-1. Connections between the concepts.



## 6 Conclusion

Our study set out to investigate the role of ESN within the today's organizations. Specifically, it aimed to build up on previous research about social network technologies in a business' context, and to provide an understanding about the required level of readiness, the key enablers provided and possible challenges hindering a more effective use of ESN. Since the previous literature on ESN did not advocate one single theoretical framework that could be adopted for the purpose of our research, we used several theoretical aspects and thus developed a broad framework suitable for our thesis, including the main determinants of the role of ESN in organizations (Figure 2-5, p.20), challenges occurring within the implementation of the ESN (Figure 2-6, p.25), Roger's diffusion model (Figure 2-7, p.29) and finally the STS theory approach (Figure 2-8, p.32). This approach allowed us to undertake our study, to reach our research aims and finally enabled us to find answers to the proposed research questions. In the following firstly, the main findings of the research will be outlined, categorized according to our research questions, secondly, practical implications will be made and finally recommendations for future research will be provided.

### 6.1 Main findings

#### 6.1.1 Required capabilities associated with the adoption of ESN

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***Research question 1: What capabilities in terms of organizational, cultural and structural readiness are needed in order to adopt ESN successfully?***

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#### Organizational readiness

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One aim of our study was to analyse the implementation approach and usage of ESN within organizations and thereby derive the required capabilities in regard to the organizational readiness enabling the adoption of ESN in a more efficient way. Thereby, it became clear, that specifically the strategy and the individual expectations and needs of the entire organization play a crucial role for leveraging the adoption of ESN, where we in particular found that viewing an ESN as a socio-technical system can be of great help in order to be aware of all social and technical aspects that have to be considered.

**Strategy.** Our study clearly demonstrated, that in order to being able to benefit from an ESN, it is of great importance to define a clear strategy and goals in terms of what path should be followed and what benefits are expected, where at the same the overall business goals as well as the needs and expectations of the individuals within the organization need to be taken into account. We have evidence in our study, that when the implementation does not follow a clear strategy nor defined goals, it may end up that the implementation will just remain in the test phase, without having an active participation or the implementation process fully fails. It is thus a crucial requirement to define the path to be taken in regard to the ESN in order to leverage the efficiency of the ESN in a corporate environment. Although we emphasise, that eve-

ry organization needs to have a clear strategy and goals defined, our study further showed, that to which detail the approach of the implementation has to be structured and how much guidance is needed, depends additionally on the industry in which the organization is primarily associated with. Thereby, it can be said, that those organizations which core businesses are mainly in the IT industry, can reach a high participation rate with less effort by adopting ESN in their work environment, since the employees are more likely to deal with such technologies and thus might require less guidance and training. Contrary, other organizations, being associated with other industries, might need to consider more resources and stronger communication in order to leverage the usage of ESN, foster individuals engagement and to unfold the potential residing in the ESN. In addition, our study revealed, that although an evaluation project prior the roll-out in the entire organization is not ultimately needed, it has been clearly showed, that when a pilot study is initiated, showing short quick wins, it can in fact be very helpful to demonstrate the achievable benefits and thus gaining management and employees' motivation to adopt the ESN. We therefore have evidence that not only a clear strategy and goals needed to be developed, but moreover, the organization's industry and the expectations and needs of the individual need to be considered in order to align the ESN implementation with the overall organization and thereby increase the chances of a successful adoption.

***Types of adopters - digital natives and digital immigrants.*** While we aimed to explore if and how there are any differences in a way of how digital natives and digital immigrants adopt an ESN in their work, our study yields, contrary to the literature that the assumptions about the distinction of digital natives and digital immigrants concerning the usage and adoption of ESN did not hold true. Thereby, our study showed, that the degree to which employees are likely to adopt ESN in their work routine does not depend on their age, but rather depends on the person itself, on the perceived benefits through the ESN and its curiosity and interest of technology. Thus we have evidence in our study, that although digital natives could be more familiar with social network due to the private use of social network technologies, they still need guidance on how to make use of a social network technology in a business' context. Moreover, it is important to provoke employees' interest on ESN, whatever their age, show them the possible benefits and the values that ESN will provide them. This requires a detailed analysis of the individual needs and in order to being able to analyse and meet the expectations and multiple needs of people as individuals, we suggest, that in contrast to the distinction between digital natives and digital immigrants, it could be of great help to categorize the employees in an organizations along the types of adopters according to Rogers diffusion model of innovation. Because by analysing our empirical findings through the lens of Roger's diffusion of innovation model, our study demonstrated, that the diffusion of innovation model, its characterization of adopters and their attributes concerning the individuals' rate of adoption can indeed be used to identify the multiple needs and expectations and their level of engagement within the implementation process of ESN. We acknowledge, that it has not been proven in our study, that the different types of adopters are in particular taken into account during the implementation, since the empirical findings have not confirmed if the organizations distinguish between these certain types or not. However, we still conclude, that differentiating individuals along the types of adopters and thereby identifying the individual rate of adoption and analysing the individual needs and expectations in a greater detail can in fact be helpful in a way, to understand and meet their needs in a more effective manner and thus could support to succeed with the adoption of ESN

***ESN as a socio-technical system.*** Based on our research's findings, we suggest to view the ESN as a socio-technical system, where both, social as well as technical aspects simultaneously have to be considered. In fact, our study demonstrated, the more the social and technical aspects are considered and aligned with each other, the more likely it is to succeed with the

adoption of ESN. Those organizations, who considered both, the social and technical aspects as the technology itself, the existing software landscape, the organizations' environment, the existing culture as well as the needs and expectations of the actors tend to have a higher participation rate than other organizations, who just focused on single aspects or have not considered them at all. Thus our study clearly showed, that viewing the ESN as a socio-technical system, where both elements are considered simultaneously, leverages the success of the ESN adoption and further allows to achieve a higher participation rate.

### **Cultural readiness**

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While we aimed in our study to analyse how the anchored organizational values and existing culture affects the usage of ESN in order to draw appropriate conclusions about the cultural readiness, our study discovered, that both, the organizational values as well as the organizational culture in fact has impact on the adoption of ESN.

**Organizational values.** Our study concluded that the values anchored in the organization and the degree to which the overall organization is innovative- or standardized driven may impact the success of the adoption of the ESN. Thereby, the study results showed, that those organizations, which are more seen as modern, having a transparent culture and are open for the adoption of new technologies, are more likely to adopt an ESN successfully and have in general a higher participation within the ESN as those organizations, where strong hierarchical structure and traditional-thinking prevails. However, we emphasize, that this does not mean, that standardized-driven organizations are not allowed to adopt an ESN nor that the implementation a priori will fail, as they might have even a greater need to breakdown information silos and overcome hierarchical barriers in order to improve their overall business performance. But, it became clear in our study that standardized-driven organizations are more likely to face difficulties and need a greater effort in order to being able to adopt an ESN successfully. Thus we conclude, that the organizational values need to be particularly considered and analysed in order to align the organizational values with the principles of ESN and hence, to leverage a more effective usage of ESN.

**Organizational culture.** Our study demonstrated, that those organizations, where the culture is aligned with the principle of ESN, in means of that the culture is characterized by transparency, trust and fosters social engagement and collaboration, the adoption is more likely to be successful. Whereas organizations where no information and knowledge sharing culture exists, being characterized by closeness rather than openness, have more difficulties to adopt an ESN, and even more likely that the adoption is not realisable. However, this does not mean, that the organizations' culture has to fully support an information and knowledge sharing culture before the ESN can be implemented, as our study revealed, that the culture does not only become more visible throughout the ESN, but moreover can be positively changed. But yet again, when the culture is not sufficient to leverage the participation of ESN, then more effort is needed to leverage the management and individuals' engagement, where our study showed, that e.g. an initiative for cultural development parallel to the implementation process can be helpful. Thus, we have evidence in our thesis, that the key is to recognize the gap between the existing culture and the needed culture for adopting an ESN successfully and analyse whether the organization culture supports collaboration or if initiatives of cultural development are needed.

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## Structural readiness

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**Hierarchical structure.** Our study demonstrated that the organizations with low hierarchical barriers tended to have less problems with the implementation of ESN, whereas the organizations with strict hierarchical structure were not be able to adopt ESN successfully. Thus our study showed, that although ESN might leverage bottom-up collaboration and lowers hierarchical barriers (section 5.2.1), it has been proven, that the adoption is unlikely to be realisable as a bottom-up approach. However, this is not to say, that organizations with very hierarchical structure are not able to integrate an ESN in their business' environment, but then it might be of great support, when those individuals concerning to the groups of innovators and early adopters within the organization, try to encourage and persuade the management about the possible benefits associated with the ESN, where our study further showed, that e.g. an evaluation project prior the implementation would help to showcase the great potential of ESN and to gain the commitment of the management.

**Organizations' size.** By analysing the effect of the organizations' size on the usage of ESN, our study confirmed, that larger organizations might have a greater need to adopt an ESN, where the usage of ESN may lead more quickly to visible successes, since employees are dispersed over several locations and thus have a greater need of collaboration and communication to overcome geographical barriers. However, our study also showed, that even smaller organizations, where employees are more likely to know one another and able to contact each other e.g. via face-to-face, can still benefit from the use of ESN by leveraging information and knowledge sharing. Thus, we conclude, that larger organizations might have a more urgent need to foster communication and collaboration and to breakdown larger information silos, but it is our belief, that every organization has a need for communication and information and knowledge sharing and thus all organizations can benefit from the usage of ESN, despite size.

### 6.1.2 Key enablers and major obstacles

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***Research question 2: What are the key enablers provided and the major obstacles hindering a more effective use of ESN?***

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#### Key enablers

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Based on the research' results, it is evident that implementing an ESN in an organizations' environment holds great potential for organizations. In the following the most important aspects of the three determinants information and knowledge sharing, organizational learning and social capital (Figure 2-5) are briefly outlined.

**Information and Knowledge Sharing.** While we endeavoured to analyse how ESN affects the efficiency of information management and how it leverages information seeking and sharing, our study revealed that the adoption of ESN in fact allows organizations to create a collaborative environment, where it significantly leverages knowledge and information sharing, enabling expertise and expert locating, reaching out, socializing and horizon broadening. Moreover, our empirical findings demonstrated, that ESN provides the ability to overcome temporal, physical and social distance. Concerning the temporal distance, it became clear, that employees benefit from the ability to access the persistent information history, where individuals can decide on their own if and to what time they want to access particular information stored in the ESN. In regard to the physical distance, it has also been confirmed that ESN enables the communication and information and knowledge exchange beyond geographical barriers by

connecting employees throughout different countries, divisions and business units. Furthermore, concerning the social distance, we have evidence in our study, that ESN indeed provides a social sharing space, where both, business-related communication as well as social communication are facilitated, by allowing the establishment of certain communities based on personal and professional interests. However, it has also been found, that reaching out for others' information and knowledge is more likely done through ESN, when someone does not know who to address specifically, while other technologies as e-mail and instant messaging play still a crucial role within the organizations. Although our study revealed, that ESN indeed provides the ability to breakdown information silos and thereby lowers the e-mail usage within an organization, it is unlikely that ESN replace the e-mail as the main communication channel yet, since e-mail is still needed for external and confidential communication among individuals. Thus, our study showed that the use of ESN in fact provides the ability to converge collaboration, communication, communities and content in one technology, where it is then particularly helpful in regard to information and knowledge sharing, when they are not located at the same place, do not particularly know who to address or want to reach a larger audience by targeting multiple employees. However, we have witnessed in our study that it does heavily depend on the degree to which the ESN is integrated in the organizational infrastructure, supported by the management as well as that it is limited to internal rather to external communication.

**Organizational learning.** Our study confirmed, that ESN could lead to increased knowledge creation and hence to the improvement of organizational learning, while it supports all 4 knowledge creation stages according to the SECI model of Nonaka and Takeuchi (1995). Our study showed that ESN provides a social space to share tacit knowledge (socialization) and moreover, the ability to experience and learn from each other (externalization), where employees share their knowledge, best practices and lessons learned with co-workers. Furthermore, it has been corroborated, that the ESN is a place of crowdsourcing, where employees uploading, editing and recommending knowledge and information and thus enables the combination of knowledge from various sources into the ESN platform (combination). Our study further emphasized, that having an ESN implemented within an organization, enables employees to reflect the knowledge stored in the ESN and use it for their own purposes, building up on the accessible knowledge and information in order to generate their own knowledge (internalisation). Thus, our study showed, that ESN in fact lead to a better organizational learning, where it provides a space for joint learning, sharing of best practices and lessons learned and enables the organization to speed up learning processes, while the entire knowledge creation process becomes more transparent, enabling the employees to follow the process. However, our study also clearly demonstrated, that the degree, to which organizational learning is actively supported by ESN vary, depending on the implementation approach, how knowledge and information is treated as assets within the organization, how it is supported by the management, on the complexity of the knowledge as well as on the willingness and available time of the employees to share knowledge. However, based on our studies' results, we acknowledge, that in some cases and when possible, it should still be preferred to create and share knowledge through personal and face-to-face communication, especially when it comes to tacit knowledge in order to facilitate the knowledge creation process.

**Social capital.** Our study confirmed that an ESN provides the ability to improve the overall social capital, where we demonstrated, that the ESN in fact enhances the structural social capital by enabling individuals to draw new connections and thereby allows employees to generate and strengthen social relationships beyond one's own local network. In addition, our study clearly indicated, that using an ESN in a business context, leverages the cross-hierarchical communication and thus lowers the hierarchical barriers by bringing employees and managers

closer together. However, we also found, that in order to lower the hierarchical barriers through the ESN, it is needed that superiors and management functions do have a general motivation to use the ESN, foster an open communication and being engaged in the cross-hierarchical communication. Referring to the relational social capital, our study further verified, that ESN could lead to a higher level of trust among employees and facilitates the establishment of trusting social relationships and team spirit as well as fosters the feeling of belonging. Moreover, concerning the cognitive social capital, our study revealed, that ESN provides the ability for anyone within the organization to submit information, ideas and feedback and thus, using ESN in a corporate environment holds the potential of improving a shared understanding and mutual perception, where it simultaneously harnesses the collective intelligence. To sum up, it can be seen, that an organization in fact can enhance their overall social capital by implementing an ESN. However, to which degree the ESN contributes to its improvement depends again on the well-being of the management and its commitment to encourage employees to being active within the ESN as well as on the individual willingness to contribute to the community.

### Major obstacles

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Besides the great potential of leveraging information and information sharing, organizational learning and social capital, another aim of our thesis was to explore challenges faced by organizations associated with the use of ESN (Figure 2-6) and thereby draw conclusions on the major obstacles hindering a more effective usage of ESN.

***Management and leadership support.*** By analysing the key challenges in regard to the adoption of ESN, our study agreed with previous literature, that the lack of management and leadership support is one of the greatest obstacles. Thereby, we have evidence, that managers are the key influencers of the adoption of ESN, as it is clearly demonstrated, that in those organizations, where the implementation has not at all being supported by the management could not realise to develop and introduce the ESN successfully within their organization. Interestingly, our study has proven, that the success of the adoption in the entire organization is particularly influenced by two conditions: firstly, by the degree to which managers are actively participating within the ESN and secondly, by the degree to which managers and superiors promote the use of the ESN in order to encourage the employees and drive an active usage of the ESN throughout the entire organization. Thereby, it is evident that particularly both of these actions have to be in place, since our study showed, that it is not only sufficient, that managers are active, but moreover show their commitment by encouraging employees to use the ESN. Furthermore, our study witnessed, that a lack of a clear ownership and responsibility regarding the rollout of the ESN can hinder an efficient use of the ESN as it has been demonstrated, that in those organizations, where a clear ownership was defined, the adoption was more successful compared to those organizations, where no central role was established and no willingness and motivation from the responsible department occurred.

***Cultural barriers.*** Concerning another common challenge, our study has verified that the existing culture might prevent a successful adoption. Thereby, it has been reasoned, that when an organizational culture is not aligned with the principles of ESN and does not support an open and collaborative environment yet, it is more likely that the ESN implementation fail or at least that more effort is needed, since then significant changes in the culture are necessary in order to leverage the effectiveness of the ESN. However, we have evidence in our thesis, that it is not needed that the organizational culture already fully support an open collaboration and social communication straight from the beginning, since knowledge sharing culture can also been established through the ESN. But moreover, when there is a considerable gap be-

tween the existing and intended culture, it is necessary to have a stronger support and focus on the cultural alignment during the implementation process, where we suggest that it is of need to be even more aware of analysing the needs and expectations of the organization and the individuals in detail in order to overcome the cultural barriers. Since changes in the culture are not done overnight, it is suggested, that organizations take small steps in order to lead thorough the change by getting all employees “in one boat”.

***Guidance – Rules and policies.*** Our study demonstrated, that another obstacle hindering a more effective usage of the ESN is the lack of guidance throughout the implementation of the ESN. Thereby, we have evidence, that particularly the individual on its own and the uncertainty about the perceived benefits are one of the major impediments. As our study showed, when the individual does not see the benefits of using the ESN and thereby does not know how the ESN adds value to its individual work procedures, it will not be actively used in the long term. Thus, our study witnessed, that it is crucial to give the employees a reason to stay in the ESN and thereby leverage the active participation over time. Based on our study, we can safely suggest, that employees need to be taught how to deal with the ESN by providing guidance through trainings, rough rules and social media guidelines in order to drive employee’s engagement and to take their fear away about the new technology, However, this does not mean, that organizations should define strict rule, nor limit the use of ESN to specific activities, since then it might limit the freedom and the ESNs’ characterization of open communication and collaboration. But moreover, promote and provide guidance in respect to how individuals can make use of the ESN, so that employees feel more confident and have no fear to lose power or becoming blamed by asking the wrong questions, which in turn results then in a higher participation rate over time.

***Interoperability with business processes and infrastructure.*** We have evidence in our study, that another barrier, hindering the effective use of ESN is the degree to which employees are able to integrate the ESN in their work activities as well to which the ESN is integrated in the organizational infrastructure. Our study demonstrated, that when individuals do not have the understanding about how to make use of the ESN and how to integrate it in their everyday work, they have more difficulties to be motivated to stay active in the platform and to adopt the ESN in their daily work routine. Our study showed that it can be seen as a chain reaction: when the employees know how to integrate the ESN into their everyday work, they perceive benefits from the use and be able to optimize their own work procedures, and in turn, they are more likely to share information and knowledge, where they are then more frequently active within the ESN, which immediately leads to a higher engagement and overall increased participation rate over time. In addition, although it is not ultimately said that an ESN cannot be effectively used without being connected to other existing technologies, however our study still demonstrated, that the lack of integration in the overall software landscape could be a barrier for a more effective use of ESN, since when it is integrated within other technologies, e.g. e-mail software, the ESN is even more visible, breaks down even more information silos and enables the employees to benefit from the synergy effects through the integration.

## 6.2 Final conclusion and practical implications

Our study revealed, that implementing an ESN offers great advantages, reaching from transparent information and knowledge exchange, over a faster joint generation of new ideas to the possible containment of a potential e-mail flood. Indeed, our study showed, that ESN could foster information and knowledge sharing, organizational learning and social capital. Howev-

er, our study also outlined, that organizations still have to overcome barriers such as management and leadership support, cultural barriers, driving individuals engagement or integrating the ESN within existing business processes and infrastructure in order to reach the full potential and succeed with the adoption of the ESN. As demonstrated in our thesis, it is not sufficient to only provide the technology and assume that it will take on its own momentum. Based on our research's findings, one suggestion derived from it, is to view the ESN as a socio-technical system, where both, social as well as technical aspects simultaneously have to be considered. Another suggestion is to use the different types of adopters to analyse the individual needs and expectations in greater detail in order to drive individuals' engagement and leverage the usage of ESN.

The implementation efforts may vary among organizations, depending on their size, hierarchical structure or organizational culture; where in some organizations radical changes need to be undertaken, which may not be done overnight. However, we emphasize, that the growing need for social communication and collaboration in the digital age should be taken seriously. Where we believe that when an organization has recognised the significant benefits to be gained by incorporating an ESN within the business' context, the value and improvements in activities induced by the ESN will become visible and then, one would recognise that it has been worth the investment. We are confident that all organizations regardless of their size, if just 30 employees or 2000 employees, all have a need to share information and knowledge and thus can benefit highly from the usage of ESN. To put it in other words:

*“As a general rule, the most successful man in life is the man who has the best information.” (Benjamin Disraeli. British Prime Minister 1874-1880)*

This study provides several potential implications for practicing managers, where the illustrated capabilities in terms of organizational, cultural and structural readiness as well as the key enablers and major obstacles can be used as a framework, for optimizing the efficiency of the ESN or to assess possible weaknesses of an already implemented ESN. Likewise, the study can be used for organizations considering the adoption of ESN in the future and thereby the outlined key aspects provides guidance to support the planning of the ESN implementation and development of a strategy in a way to know what major measures are needed in order to succeed with its implementation.

### **6.3 Implications for future research**

Whilst our study has met its aims by answering the research questions and thereby provided insight about the needed capabilities and key enablers as well as major obstacles associated with ESN, our study helps shed light on some theoretical underpinnings behind the usage of social technologies in a business' context. A unique contribution of our study is the developed framework of the three determinants of ESN including its underlying elements (Figure 2-5). As our focus and aim was in fact to provide a broad understanding and insights about the major opportunities and potential challenges associated with ESN and how it leverages information seeking and sharing, due to time and space limitations we have not analysed each element of the determinants in a great detail. Thus, it would be interesting to further investigate in the suggested framework and thereby analyse the impact of ESN on the 3 main determinants information and knowledge sharing, organizational learning and social capital and its underlying elements in a greater detail. As our study was limited to organizations which already had implemented an ESN, it would be interesting for example to conduct a long term



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study. This would enable us to measure the impact on these determinants over time by identifying their state prior to the implementation, the interim results during the implementation and finally the outcomes at the end of the implementation phase. Furthermore, it would be interesting, to make use of triangulation, where the researcher besides the conduction of interviews could observe, how employees act within the ESN in real time as well as determine what information and knowledge is shared. Furthermore it would then be possible to study how individuals behave within the ESN or how the knowledge creation process (according to the SECI model) actually takes place, by focusing e.g. on one specific process. In addition, it could be of interest to conduct a social network analysis, for example before and after the implementation of ESN in order to analyse how social ties are generated and how it strengthens the ties between hierarchical and cross-site structure and hence focusing on the impact of especially structural social capital in a greater detail. Due to time and space limitations, we did not strive to do interviews with several employees from the same organizations. But it would be interesting to gain more insights from multiple employees within several organizations, as our study revealed that the individual engagement can vary significantly. Therefore, future research could further investigate interviews with multiple employees at one organization in order to understand several views from different types of adopters, such as from those who are fully engaged within the ESN, being innovators or early adopters and others concerning to the groups of late majority and laggards.

# Appendix 1

## Interview Guide

As we are conducting a semi-structured interview, the questions may not follow on exactly in the way outlined in the following. Questions that are not included in the guide may be asked as they pick up on things said by interviewers.

The structure of the interview will be as follows: firstly we will ask some introducing questions about the organization in order to tap then deeper in the topic of the usage of Enterprise Social Network within your organization. When you have any questions during the interview, do not hesitate to interrupt and ask.

**Interview duration:** approximately 40 minutes

**Interview recording:** digital voice recorder

### 1. Introducing questions

<b>Q1</b>	<b>Please tell us more about your company and your current role.</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>When it was founded?</i></li> <li>➤ <i>How many employees are working in your company?</i></li> <li>➤ <i>In which department do you work and what is your current role?</i></li> </ul>
<b>Q2</b>	<b>How would you describe in general the organizational culture?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>Do you see your company as an innovative-driven company or rather a standardized company?</i></li> </ul>
<b>Q3</b>	<b>What social technologies or other workflow technologies are already in place within your organization?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>What other tools do you use for information sharing, communication and social collaboration?</i></li> </ul>

### 2. Main questions

<b>Q4</b>	<b>When have you implemented the ESN and which ESN system are you using?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>Over which period of time did the implementation phase take place?</i></li> </ul>
<b>Q5</b>	<b>Why did the company decide to start using ESN and what is it supposed to solve?</b>

PQ	<ul style="list-style-type: none"> <li>➤ <i>What is your organization trying to achieve with using ESN?</i></li> <li>➤ <i>For what specific (if any) purpose was the ESN implemented?</i></li> <li>➤ <i>Who initiated the adoption?</i></li> </ul>
<b>Q6</b>	<b>What is your organization trying to achieve with using ESN?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>What were the major purposes for the ESN initiative?</i></li> <li>➤ <i>What are the expectations of the usage of the ESN?</i></li> </ul>
<b>Q7</b>	<b>How was the ESN introduced within the organization (concerning the implementation strategy)?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>Has there been a clear approach for adopting the ESN?</i></li> <li>➤ <i>How has it been rolled out? Was the ESN rolled out via pilot role out or in the entire organization?</i></li> <li>➤ <i>Was it clearly communicated?</i></li> <li>➤ <i>Were employee trained to use ESN or was it just implemented without any training or introduction?</i></li> <li>➤ <i>Was it supported by the top management?</i></li> </ul>
<b>Q8</b>	<b>Could you say some more about your personal usage of the ESN and how is it used in overall from other employees within your organization?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>How often do you use enterprise social network for internal collaboration in average?</i></li> <li>➤ <i>How often do you use e-mail/instant messaging compared to the ESN for internal collaboration?</i></li> <li>➤ <i>Could you use ESN more often instead of e-mail?</i></li> <li>➤ <i>And when yes, why you are not using it?</i></li> <li>➤ <i>How are other documents exchanged in your organization?</i></li> <li>➤ <i>Why are you not using ESN for the exchange?</i></li> <li>➤ <i>Does everyone know her role in the ESN?</i></li> <li>➤ <i>Is the ESN aligned with the requirements of the employees and the management?</i></li> <li>➤ <i>Do you use it for locating other experts or expertise within the company?</i></li> <li>➤ <i>Do you use the ESN to inform yourself about topics, which are nto directly related to your work?</i></li> <li>➤ <i>(Depending on the above answer) When there is a low usage: What do you think why the usage is so low?</i></li> </ul>
<b>Q9</b>	<b>How does ESN affects the cross-site communication and between different hierarchies?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>Do you use it for communication with managers/your boss or more with equal employees?</i></li> <li>➤ <i>Is it used by managers as well?</i></li> <li>➤ <i>Who are the most active participants?</i></li> <li>➤ <i>What are the reasons for this?</i></li> </ul>
<b>Q10</b>	<b>How is the ESN system integrated with other technologies and your business process and is it used for particular collaboration processes or project pur-</b>

	<b>poses?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>Is it fully integrated in your business processes?</i></li> <li>➤ <i>Does it fit with your IT strategy, i.e. is it integrated in the overall software landscape?</i></li> </ul>
<b>Q11</b>	<b>Is there a difference in how digital natives perceive and make use of the ESN?</b>
PQ	<p><i>(Definition of digital natives and immigrants are provided to the interviewees)</i></p> <ul style="list-style-type: none"> <li>➤ <i>Are there more other employees than digital natives?</i></li> <li>➤ <i>Are they mostly digital natives, managers, other employees?</i></li> <li>➤ <i>Are elder employees also involved in ESN?</i></li> <li>➤ <i>Were specific introduction workshops for those?</i></li> <li>➤ <i>Is the information/knowledge transfer between digital natives and other employees ensured?</i></li> </ul>
<b>Q12</b>	<b>How would you describe the overall social engagement and the employees' engagement in information sharing?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>Would you say you have a culture that support enterprise social networking?</i></li> <li>➤ <i>Do the employees want to share information?</i></li> <li>➤ <i>Are there any specific knowledge management processes in place?</i></li> <li>➤ <i>Is social collaboration and engagement supported by the top executives?</i></li> </ul>
<b>Q13</b>	<b>How does your organization benefit of using an ESN and how does it leverage information sharing and seeking?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>What are the main benefits perceived from the usage of ESN?</i></li> <li>➤ <i>Has the way of how information and knowledge is shared changed significantly?</i></li> <li>➤ <i>Did the accessibility of information and knowledge increase?</i></li> <li>➤ <i>Does the ESN affects organizational learning?</i></li> <li>➤ <i>Do other employee learn from each other through the ESN?</i></li> <li>➤ <i>Would you say, it influences the knowledge creation within the organization?</i></li> <li>➤ <i>When yes/no - What are the reasons for it?</i></li> </ul>
<b>Q14</b>	<b>How does the ESN affect social relationships, work groups and your personal network?</b>
PQ	<ul style="list-style-type: none"> <li>➤ <i>Are the social relationships more intense than before the implementation of the ESN?</i></li> <li>➤ <i>Would you say it expanded your personal network within the organization?</i></li> <li>➤ <i>How does it affect the team work?</i></li> <li>➤ <i>Does the ESN leverages trust within your company? When yes, why?</i></li> </ul>

	<ul style="list-style-type: none"> <li>➤ <i>Would you say, that the ESN leverages a shared commitment and understanding?</i></li> <li>➤ <i>Do you know your colleagues better than before the ESN was implemented?</i></li> </ul>
<b>Q15</b>	<b>Can you think of any downsides regarding the usage of ESN?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>Do you think there is anything negatively related to the usage of ESN?</i></li> </ul>
<b>Q16</b>	<b>What difficulties hinder a more efficient use of ESN?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>Are there cultural barriers?</i></li> <li>➤ <i>Is it enough supported by the management?</i></li> <li>➤ <i>Are the employees willing to share knowledge?</i></li> <li>➤ <i>Is the ESN accepted by all employees?</i></li> <li>➤ <i>Why do you think it is/is not integrated in business processes?</i></li> <li>➤ <i>Are there financial or security issues concerned with the ESN?</i></li> <li>➤ <i>Is there anything missing concerning functionality in the ESN system?</i></li> <li>➤ <i>Depending on the above answer: asking for more details and the hidden reasons.</i></li> </ul>

### 3. Closing questions

<b>Q17</b>	<b>Is there anything more you would like to add?</b>
<i>PQ</i>	<ul style="list-style-type: none"> <li>➤ <i>Do you think we missed some crucial aspects during our discussion?</i></li> <li>➤ <i>What do you think how the ESN will continue and develop in the future?</i></li> </ul>

## Appendix 2

*Interview transcripts are not included in this version of the master thesis.*

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