

Lost in Digital Transformation? The role of Enterprise Social Networks in facilitating digital collaboration



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Preface

Social media are fundamentally changing the way we communicate, collaborate, consume, and create. They represent one of the most transformative impacts of information technology on business, both within and outside firm boundaries.
(Aral et al. 2013)

Digitalization is dramatically changing the competitive landscape for businesses (Prahalad and Ramaswamy 2003). In the age of globalization, exponential growth and disruptive innovation, organizations need to make faster decisions, as well as continually innovate and adapt to changing customer needs to ensure their long-term competitiveness (Kammerlander et al. 2018; Magnusson and Martini 2008). Product life and innovation cycles are becoming shorter and shorter, completely new and previously unimaginable business models are emerging, and competitors outside the industry, such as Amazon, Apple or Tesla, are outperforming traditional companies, by eroding their past competitive advantages (Chesbrough 2007; Christensen et al. 2015). Notably, large and established companies find it difficult to keep up with start-ups and smaller companies as well as with digital transformation (Christensen 1997; Christensen et al. 2015). In particular, they often fail to effectively bring together their globally distributed workforce and fully exploit their employees' potential in the face of rigid hierarchies, slow business processes and a lack of collaboration (Bartlett and Ghoshal 2002; Bonnet and Westerman 2014; Garmestani and Benson 2013; Giermindl et al. 2018).

In addition to these transformed competitive structures, digitalization is also fundamentally altering value creation within organizations (Johannessen and Olsen 2010). Digitalization can be defined as “the practice of taking processes, content or objects that used to be primarily (or entirely) physical or analog and transforming them to be primarily (or entirely) digital” (Fichman et al. 2014). Owing to the influence of digitalization, the economy has transitioned from a manufacturing economy, in which organizations' raison d'être was the production of their tangible products, to a service and knowledge economy, where the success and survival of firms depends on their capability to meet the customer needs with a portfolio of services and digital products (Grant and Parker 2009). Digitalization thus places the customer at the center and individual customer expectations become the driving force behind the design of business strategies (Kane et al. 2016). The fast provision of customized, high-quality services requires greater flexibility and more coordination from organizations (Bonnet and Westerman 2014;

Parker et al. 2001). Thus, traditional boundaries between departments and organizations are blurring and organizations need to become more integrated and networked, by opening up to external partners and customers, enabling new forms of participation, such as open innovation, co-creation, and crowdsourcing (Parker et al. 2001; Prahalad and Ramaswamy 2004).

These developments and radical changes are only made possible by the pervasive influence of digital technologies (Yoo et al. 2012). The emergence of new digital technologies, such as – mobile technologies cloud computing, social media, 3-D printing, Internet of Things, embedded devices, virtual reality, intelligent autonomous systems and big data analytics – are transforming the way people work in organizations and how firms organize themselves (Bonnet and Westerman 2014; Fichman et al. 2014; Lucas et al. 2013). New types of teams, such as virtual, interdisciplinary, cross-company and dynamic project teams, as well as working in network structures, continue to grow and replace work in hierarchical structures (Hertel et al. 2005, Johns and Gratton 2013). In light of the rising importance of knowledge work and the prevalence of digital collaboration tools, employees are increasingly flexible where and when they work (Giermindl et al. 2017; Leonardi et al. 2013; Parker et al. 2001). Thus, the advancing digitization is changing almost all professions and the whole world of work (Carlsson 2004).

Among these digital technologies, social media have become ubiquitous and one of the most powerful and influential technologies. With their explosive growth and widespread application, they have revolutionized communication in people's lives (Cao et al. 2013). Social networks, such as Facebook, LinkedIn or Twitter, have changed not only how individuals communicate and bond with each other, but also the way and speed in which information is disseminated around the world (Friedman et al. 2014). As a consequence, social networks have already disrupted entire industries, such as the media, news and publishing sector (Aral et al. 2013; Dellarocas et al. 2013; Kwak et al. 2010) and are in the process of redefining other sectors, such as the retail or entertainment industry (Aral et al. 2013; Byers et al. 2012). Social networks are defined as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (boyd and Ellison 2007, p.211). For companies, social networks offer new avenues to engage with their customers to solicit and co-create new ideas (Greer and Lei 2012; Parker et al. 2001) as well as to attract and recruit new talent (Kane et al. 2016; Kaplan and Haenlein 2010).

The popularity and proliferation of public social media has pressurized organizations to adopt social networks in the workplace to adapt to individuals changing communication behaviors (Kuegler et al. 2015; Wehner et al. 2015). Thus, organizations are increasingly providing their workforce with Enterprise Social Networks (ESNs) as intra-organizational social software platforms. ESNs are digital technologies and represent a set of business-internal applications such as blogs, wikis, social networking sites, social tagging, and microblogging (Treem and Leonardi 2012). They are usually cloud-based solutions supplied by external providers, such as Yammer, IBM Connections, Jive, Tibbr or Socialcast (Chin et al. 2015). The mushrooming of these technologies has attracted the attention of IS and organizational researchers, who have largely analyzed their potential for knowledge-sharing (Ellison et al. 2015; Leonardi et al. 2013; Razmerita et al. 2014; von Krogh 2012). This growing body of research has mounted in a large diversity of terms to refer to these emerging technologies, such as Enterprise Social Media (ESM) (Kane 2015; Leonardi et al. 2013), Organizational Social Media (OSM) (Treem and Leonardi 2012; van Osch and Cousaris 2013), Enterprise Social Software (ESS) (Kuegler et al. 2015; Pirkkalainen and Pawlowski 2014; von Krogh 2012), corporate social networks (Kleinbaum and Tushman 2008; Majchrzak et al. 2009), and most commonly Enterprise Social Networks (ESNs) (Chin et al. 2015; Ellison et al. 2015; Turban et al. 2011; Wehner et al. 2017).

ESNs hold great promises for organizations and their employees (Mäntymäki and Riemer 2016). Thus, ESNs can support companies to adapt to these changed environments and to overcome the described challenges. By enabling easy access to knowledge and exchange of expertise, ESNs can simplify best practice sharing, streamline processes and accelerate problem solving and decision making (Leonardi and Neeley 2017; Kuegler et al. 2015; Razmerita et al. 2014). Further, ESNs can facilitate enterprise-wide knowledge sharing across organizational hierarchies, geographic and departmental boundaries, hence fostering cross-silo collaboration and reducing inefficiencies due to lacking interaction (Bala et al. 2015; Behrendt et al. 2015; Cetto et al. 2016; Kleinbaum and Tushman 2008; Stieglitz et al. 2014). Therefore, researchers hold that ESNs ideally support virtual knowledge workers as well as the emerging forms of working and team structures (Johns and Gratton 2013; Teigland and Wasko 2003). Furthermore, ESNs allow employees to crowd source and quickly test new ideas (Di Gangi and Wasko 2009; Vaast and Karganer 2013), hence accelerating the development of new products and innovation (Aral et al. 2013). Apart from company-internal communication, they are also destined for open innovation and co-creation with external partners, helping organizations to become more integrated and networked (Mäntymäki and Riemer 2016, Turban et al. 2011).

Thus, ESNs offer excellent opportunities to increase organizational agility and responsiveness to clients' needs (Vaast and Karganer 2013) and can help especially large corporations to foster more open and participative communication practices (Denyer et al. 2011).

While there is consensus among researchers about the transformative power of ESNs, most ESN initiatives are not successful (Alarifi et al. 2015; Cao et al. 2013; McAfee 2009). Recent studies predict that a massive 80 % of ESN initiatives will fail to leverage and exploit the intended benefits and accomplish the stated objectives (Chin et al. 2015; Kuegler et al. 2015; Li 2015; Mann et al. 2012). Since scholars have only begun to explore this phenomenon, empirical research still remains at a nascent stage (Alarifi et al. 2015; Chin et al. 2015; Leonardi 2014; Wehner et al. 2017). Initial research has attributed the high failure rates to employees' underutilization (Alarifi et al. 2015; Chin et al. 2015; Denyer et al. 2011; Li 2015; McAfee 2009) and to the fact that "doubts persist about the value of these collaboration tools even when they are being actively used" (McAfee 2009, p.2)

This dissertation seeks to address these research gaps and to raise the understanding by opening up the black box behind this seemingly paradoxical relationship.

Research Questions and Dissertation Outline

This dissertation comprises four studies that are guided by the following research questions:

R 1: How do different types of users (posters and lurkers) differ in their motivations for participating in ESNs? (= Paper 1)

R 2: Why do employees deliberately not use the ESN? (= Paper 2)

R 3: How can ESNs be successfully implemented and improved to overcome the challenges perceived by employees? (= Paper 3)

R 4: Does ESN usage impact on individual task performance? And how can ESNs be used effectively to increase performance outcomes? (= Paper 4)

These research questions are interrelated, as are the four papers of this dissertation:

Thus, the first and second paper both analyze different types of users, and their respective motivations and reasons for using (Paper 1) or not using (Paper 2) ESNs. Although both lurking behaviors (Paper 1) and non-usage (Paper 2) are often subsumed as non-active form of participations, impeding a wider adoption by the workforce, our findings reveal that these behaviors vary widely.

The second and the third paper have in common that they both deal with the non-adoption phenomenon and barriers for a more active usage. While study two exclusively focuses on actual non-users and their reasons for not participating in ESNs, study three includes all users and endeavors - from a more practice-oriented perspective - to provide suggestions how to overcome the perceived challenges of ESNs and to improve digital collaboration. The third and the fourth paper share that the potential of ESNs is perceived very differently by the workforce and are linked by the question how ESNs can be used more effectively. Study four closes the circle to study one by considering distinct usage practices (Paper 4) and usage types (Paper 1), highlighting that ESNs can be adopted very differently even within one organization.

This dissertation follows a multi-method research approach, including both quantitative survey data (Paper 1 + 4), qualitative coding of free-texts comments (Paper 2 + 3) and qualitative interviews (Paper 4). The organization I studied is a large multinational, high-tech company that offers a wide variety of knowledge-intensive products, solutions, and services. In light of its large size, its globally distributed knowledge workers and the prevailing challenges regarding internal information exchanges and knowledge sharing, the organization introduced an ESN in 2013 to all its employees worldwide, and thus serves as an excellent case for my studies. The quantitative findings are based on a large-scale survey which I prepared, designed and conducted in July 2016 in collaboration with this industry partner. Additionally, I conducted semi-structured, in-depth interviews with employees from this company, in summer 2017, to gain richer insights and explanations for the quantitative results.

Next, I will briefly summarize the goals, findings and implications of all four studies:

The first paper, titled „*How Do They Differ? Analyzing the Motivations of Posters and Lurkers for Participation in Enterprise Social Networks*”¹, sheds light on different types of users and explores how posters and lurkers differ in their motivations for participating in ESNs. By integrating social exchange theory (Blau 1964) with literature on posting and lurking behaviors (Alarifi et al. 2015; Preece et al. 2004; Ridings et al. 2006), we explicate why and how posters and lurkers engage in social exchanges. Based on an extensive literature review, we identify a set of motivational factors that researchers have not yet studied in the context of ESNs: Reputation, common identity, common bond, social interaction, and community commitment.

¹ This paper is a joint work with Franz Strich and Prof. Dr. Marina Fiedler. This project was presented at the Pre-ICIS Workshop on Enterprise Systems in Dublin in 2016 and the 77th Annual Meeting of the Academy of Management in Atlanta in 2017. The paper is published in the Journal of Information Technology Theory and Application Volume 19, Issue 2, Paper 4 (June 2018).

We tested how posters and lurkers differ in these motivations by means of a quantitative survey with 4,892 participants in a multinational and knowledge-intensive high-tech company. We found support for our hypotheses that posters and lurkers significantly differ in their motivations for participating in ESNs, with posters displaying overall higher motivations than lurkers. Moreover, we introduce an in-depth and nuanced classification of participant roles to distinguish five user groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers). We provide evidence that super frequent posters showing significantly higher mean values for all motivational factors to use an ESN compared to the other user groups.

This study makes several theoretical and practical contributions. As one of the only studies to analyze posting and lurking behaviors in the ESN context and by integrating the literature on posting and lurking behaviors and social exchange theory, we generate novel theoretical insights for the knowledge management and IS community. By analyzing different subgroups of posters and lurkers regarding their motivational differences, introducing and empirically analyzing an in-depth and nuanced classification of participant groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers), we address numerous calls for research on a nuanced consideration of user types (Alarifi et al. 2015; Preece et al. 2004; Ridings et al. 2006). Moreover, by highlighting that lurkers are indeed active participants, our research adds to the emerging conversation on re-evaluating the role of lurkers and supports organizations and managers to recognize the importance of all user groups and to enhance participation in ESNs by specifically addressing lurkers' needs and motives.

The second study, named “*Why do you NOT use the Enterprise Social Network? Analyzing Non-Users' reasons through the lens of Affordances*”² focuses on non-users of ESNs as largely ignored group in IS research (Brown and Venkatesh 2003; Selwyn 2003). Using an affordance lens (Gibson 1979; Volkoff and Strong 2013), this paper addresses the research question why non-users do not actualize the affordances of ESNs (Majchrzak et al. 2013; Treem and Leonardi 2012) and seeks to explore their reasons for not participating in ESNs. Since the affordance perspective focuses on the relationship between people's goals and a technology's material features (Ellison et al. 2015; Markus and Silver 2008; Orlikowski 1992; Seidel et al. 2017), we

² This paper is a joint work with Franz Strich and Prof. Dr. Marina Fiedler. This project was discussed in a Pre-AMCIS MIS Quarterly Paper Development Workshop in Boston and presented at the 38th International Conference on Information Systems (ICIS) in Seoul, both in 2017. The paper is published in the Proceedings of the 38th International Conference on Information Systems.

argue that it provides great utility for analyzing reasons for non-usage in the context of ESNs. We propose a theoretical framework and three assumptions about the potential interplay between affordances and non-usage behavior. To answer our research questions, we qualitatively examined a group of 553 non-users of the ESN within a multinational knowledge-intensive company, via questionnaire free-text comments and manually coded their answers. We found that reasons for non-usage can be classified into 17 different categories, which are rooted in six affordances: visibility, persistence, editability, association, accessibility, and practicability. Further, we provide empirical evidence for our three propositions on non-usage and were able to assign the emerged categories and affordances to the three propositions.

This research yields numerous theoretical and practical implications: We are the first to explore both actual non-users in the ESN context as well as to study non-usage in the IS context through the lens of affordances. Therefore, and by giving voice to a large number of actual non-users, we offer a novel approach for understanding the motives of non-users to deliberately not participate in the ESN and enhance the understanding of the non-adoption phenomenon. Further, we propose a theoretical framework and generate new insights about the interplays between affordances and non-usage behavior, contributing to the broader IS literature on technology adoptions. Finally, we provide detailed guidelines for practitioners on how to encourage participation in ESNs.

The third paper, entitled “*Improving Digital Collaboration: Understanding the challenges of Enterprise Social Networks and employees' suggestions for improvement*”³ follows up on the non-adoption phenomenon and seeks to explore the challenges employees face in their daily interactions with ESNs (Bala et al. 2015; van Osch and Cousaris 2013). Further, the study’s goal is to provide a practical framework based on actual employee suggestions how these challenges can be overcome. Moreover, it aims to provide a systematic overview of the opportunities of ESNs with respect to the changing nature of work. To address these goals, we pursued a qualitative case study approach by manually coding 1,679 free-text comments of ESN users and employees of a multinational company. In analyzing our data, we identified four major challenges and their respective solutions. Further, by categorizing the suggestions for improvement by employees, we derived ten categories of improvement suggestions.

³ This paper is a joint work with Franz Strich and Prof. Dr. Marina Fiedler. This project was discussed in a Pre-ICIS Workshop des MISQ Executive in Seoul in 2017 and presented at the 18th Annual Meeting of the European Academy of Management (EURAM), Reykjavik (2018).

Based on these findings, we are able to provide valuable lessons learned for practitioners and managers and offer implementable guidelines on how to improve and successfully adopt ESNs. In addition to these rich contributions to practice, our study also makes three primary contributions to the field of IS and ESN adoptions: First of all, we provide a comprehensive literature review on the unique opportunities of ESNs with respect to the changing nature of work, going beyond prior work and highlighting promising new perspectives for ESN and IS researchers. Second, we advance the understanding of the challenges employees face in their day-to-day interactions with the ESN, adding to the literature on non-adoption and barriers for knowledge sharing. Third, by discussing how our findings substantiate and complement prior research on the adoption of information technologies and ESNs in particular, we are able to show that while some of the identified categories are applicable to various information systems, others are idiosyncratic to the context of ESNs, offering numerous theoretical implications for IS and knowledge-management researchers. Overall, our results exemplify the importance of integrating practice and theory as integral approach, in order to improve information systems and increase their adoption by the workforce.

The fourth and final paper is titled “*Do Enterprise Social Networks Really Enhance our Performance? Exploring the Relationship between Usage Practices and Individual Task Performance*”⁴. This study scrutinizes the effect of ESN usage on employees and investigates whether and how ESN usage impacts on their perceived individual task performance. Its research goals are to empirically validate the relationship between ESN usage frequency and perceived individual task performance as well as to explore whether different ESN usage practices result in different task performance levels. This study builds on a wealth of IS research examining performance outcomes of IT usage (Brynjolfsson 1993; Brynjolfsson and Yang 1996; Delone and McLean 2003; Devaraj and Kohli 2003; Goodhue 2007; Pentland 1989; Rai 2002), yielding mixed findings. Owing to this ambiguous results and since existing literature on the influence of ESN usage on performance outcomes is scarce (Ali-Hassan et al. 2015; Kuegler et al. 2015; Suh and Bock 2015), I address these goals with a quantitative and qualitative analysis of a knowledge-intensive large multinational company.

⁴ This paper is a single author study. An early version of this study was presented at the 23rd Americas Conference on Information Systems (AMCIS) in Boston in 2017. This paper was later further developed jointly with Franz Strich and Marina Fiedler, and was presented at the 39th International Conference on Information Systems (ICIS) in San Francisco in December 2018. It is also published in the Proceedings of the 39th International Conference on Information Systems.

By conducting a quantitative survey of 9,541 participants followed by 15 in-depth interviews in the aforementioned global company, I found strong evidence that participants who use the ESN more frequently, perceive a higher individual task performance. Further, my findings reveal that the relationship between ESN usage and task performance varies depending on the respective usage practice and how the ESN is used.

This research makes various notable contributions to IS research: First, by shedding light on the use-performance relationship in this still under-researched context, this study contributes to IS research that seeks to understand the effect of IT usage on job performance. Second, by empirically validating the positive impact on ESN usage frequency on performance, with a dataset of more than 9,500 respondents, my results broaden prior IS research, Third, by providing both quantitative evidence as well rich qualitative insights into the different prevailing ESN usage practices, my results answers numerous calls to consider how ESNs are used (Ali-Hassan et al. 2015; Kuegler et al. 2015b; Richter and Riemer 2013; Suh and Bock 2015). Additionally, my paper advances the managerial understanding of how practitioners can effectively deploy, design, and improve ESNs to increase employee performance.

Overall, the four studies contribute to a better understanding of the non-adoption phenomenon of ESNs, provide rich insights on employees' underlying reasons and challenges regarding ESN usage, while underscoring the potential value of ESNs. In total, the results of all four studies show that employees are still in a transition process of digital transformation, struggling to find their way around ESNs and sometimes feel lost and overwhelmed by the new way of digital working and the new digital collaboration tools. This is why I decided to title this dissertation „Lost in Digital Transformation? The role of Enterprise Social Networks in facilitating digital collaboration “

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1 **How Do They Differ? Analyzing the Motivations of Posters and Lurkers for Participation in Enterprise Social Networks**

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How Do They Differ? Analyzing the Motivations of Posters and Lurkers for Participation in Enterprise Social Networks

Abstract

Organizations have increasingly begun to implement Enterprise Social Networks (ESNs) due to their potential to afford enterprise-wide collaboration, knowledge sharing, and interaction. Despite their proliferation, many companies still struggle to motivate a sufficient number of employees to actively participate in these collaborative networks. Consequently, many ESNs fail due to a lack of contributions. While most employees only read and consume content (lurking), few actively create content (posting). Little research has examined the differences between posters and lurkers and their underlying motivations, particularly in the ESN context. Building on social exchange theory (SET), we identify and test a set of motivational factors that researchers have scarcely studied in corporate social networks: reputation, common identity, common bond, social interaction, and community commitment. By investigating a rich data set of 4,892 respondents in a large knowledge-intensive multinational company, we provide evidence that posters and lurkers significantly differ in why they participate in ESNs. Further, we introduce a nuanced classification of participant roles to distinguish five user groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers) with super frequent posters showing significantly higher mean values for all motivational factors to use an ESN compared to the other user groups. Our findings yield important theoretical and practical implications regarding different usage behaviors and on how to enhance participation in ESNs.

Keywords: Enterprise Social Networks, ESN, Enterprise Social Media, Corporate Social Networks, Social Exchange Theory, Lurker, Poster, Community, Usage, Type, Motivational Differences, Group Comparison

Introduction

Because many organizations have and continue to become increasingly globally distributed, digitized, and networked, they strongly rely on social technologies to enable the flow of information through time and space (Burke and Ng 2006). They turn to Enterprise Social Networks (ESNs) to foster speed and connectivity and to promote global collaboration and information exchange among their widespread workforce (Kane 2015; Treem and Leonardi 2012). ESNs are organizationally bound social networks and operate as platforms for internal communication, social interactions, and social connections (Alarifi et al. 2015; Leonardi et al. 2013). Since these platforms are digital, they allow anyone in an organization to access content and share knowledge at any time from any place (Kane 2015).

ESNs are destined to transform how people interact in the workplace (Cao et al. 2013). Not only are they changing the ways employees communicate, share, and create expertise and ideas, they also yield the potential to vastly increase knowledge workers' efficiency and allow employees to connect across geographical boundaries and organizational hierarchies (Behrendt et al. 2015; Cao et al. 2013; Stieglitz et al. 2014). Accordingly, they promise to accelerate problem solving and decision making and to foster employee engagement, innovation, self-organization, and productivity (Alarifi and Sedera 2013; Kuegler et al. 2015b).

Yet, companies still battle to leverage and materialize these benefits (Giermindl et al. 2017). Recent studies highlight that most ESN platforms struggle to gain momentum (Alarifi and Sedera 2013; Alarifi et al. 2015; Kuegler and Smolnik 2014), and only 25 percent of all companies manage to widely diffuse their ESN (Li 2015). Researchers and practitioners have attributed this situation to employees' underusing ESNs and not actively participating in them (Chin et al. 2015a; Giermindl et al. 2017). Considering the high investment costs for implementing ESNs and the resulting enormous potential economic losses, scholars and practitioners face a pressing need to understand why companies still battle to engage their workforce and why a substantial number of employees do not actively use ESNs.

As with any other user community, ESNs depend on a substantial number of active participants who consume, read, and contribute content to the community (Ridings et al. 2006). Research on online communities suggests that the vast majority of users are lurkers who do not create content

(Alarifi and Sedera 2014; Nonnecke and Preece 2000; Rafaeli et al. 2004). The widely used 90-9-1 distribution estimates that 90 percent of members in online communities only absorb content but do not actively engage in the community, nine percent edit or like content or contribute sparingly, and only one percent regularly create new content (Alarifi et al. 2015; Arthur 2006; Koch and Richter 2009). Therefore, organizations need to enhance participation by harnessing lurkers' capabilities and knowledge in order to prevent ESNs from failing and to promote the workforce to more widely adopt them. To accomplish these goals, for practical and theoretical reasons, we need to understand and analyze the motivational differences between posters and lurkers regarding their ESN usage behaviors (Kane et al. 2014; Leonardi et al. 2013; Ridings et al. 2006). Thus, we address the following research question:

How do posters and lurkers differ in their motivations for participating in ESNs?

Interestingly, while many studies have examined why individuals participate in online communities and social networks, we know little about the factors that distinguish posters and lurkers, particularly in the ESN context. To address this research gap, we integrate social exchange theory (Blau 1964) with the literature on posting and lurking behaviors and empirically investigate the motivational differences of posters and lurkers.

Building on the premises of social exchange theory, we know that individuals base their interactions with others on a subjective and self-interested cost-benefit perspective that compares current intangible costs with the expected future social benefits (Blau 1964; Ridings et al. 2006; Shore et al. 2004). If individuals find value in the expected socioemotional resources, they will be motivated to perform a particular behavior, such as to share their knowledge in social networks (Shore et al. 2006; Rode 2016). Results from prior research on online communities provide evidence that factors such as reputation, common identity, common bond, social interaction, and community commitment strongly influence whether members participate in and adopt a community (Fiedler and Sarstedt 2014; Ren et al. 2012; Ren et al. 2007; Wasko and Faraj 2000; Wasko and Faraj 2005).

In this paper, we analyze how posters and lurkers differ in these motivational factors to use ESNs. To do so, we conducted a survey with 4,892 participants in a multinational and knowledge-intensive high-tech company. We found support for our hypotheses that posters and lurkers

significantly differ in their motivations for participating in ESNs: posters display overall higher motivations than lurkers. Moreover, we introduce an in-depth and nuanced classification of participant roles to distinguish five user groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers). We provide evidence that these user groups significantly differ in their motivations to use the ESN.

Our research makes several theoretical and practical contributions. First, as one of the only or few studies to analyze posting and lurking behaviors in the ESN context, we generate novel theoretical insights by integrating the literature on posting and lurking behaviors and social exchange theory. Second, we go beyond prior work on posting and lurking behaviors by identifying and analyzing different subgroups of posters and lurkers regarding their motivational differences to participate in ESNs. Third, by investigating a rich dataset with almost 5,000 participants, we introduce an in-depth and nuanced classification of participant groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers) in the work context and, thus, provide valuable insights for the knowledge management and IS community. Fourth, we add to the emerging conversation on re-evaluating the role of lurkers by highlighting that they are active participants and acknowledging their role. Fifth, we provide managers and IT architects with numerous implementable guidelines to recognize the importance of all user groups and to enhance participation in ESNs by specifically addressing lurkers' needs and motives.

This paper proceeds as follows: in Section 2, we provide an extensive literature review on posting and lurking behaviors. We also describe the theoretical foundation of our paper, social exchange theory, and outline how posters and lurkers engage in social exchanges in the ESN context. Based on social exchange theory, we identify key motivations for posting and lurking behavior in ESNs and provide an overview of prior research. In Section 3, we outline our research methodology to empirically examine how posters and lurkers differ in these motivational factors. We report our mode of data collection, sampling procedures, and measurements in detail. In Section 4, we present our results and further analysis with a nuanced classification of user groups. In Section 5, we discuss how our empirical findings advance our understanding on how posters and lurkers differ in their underlying motivations and their expected benefits. Further, we discuss the theoretical and practical implications of our study, its limitations, and avenues for future work. Finally, in Section 6, we conclude our paper by summarizing our findings.

Theoretical Background

Posting and Lurking Behaviors

Researchers mainly differentiate between two dominant user groups in ESNs: posters and lurkers (Lai and Chen 2014; Preece et al. 2004). Researchers generally define posters as core content producers who regularly post and contribute online content (Ridings et al. 2006). Moreover, scholars have described them as individuals who contribute an above-average number of postings to a group and regularly visit a website (Taylor 2002) and members who have posted at least one message in a community forum in the past three months (Lai and Chen 2014). Drawing on prior research (e.g., Marett and Joshi 2009; Nonnecke et al. 2004), we define posters as members who post and actively create content in an ESN community.

Since posters are a community's visible and active members, most research on online communities has focused only on why posters share their knowledge in ESNs. By contrast, we know surprisingly little about lurkers and their motives, even though they arguably constitute the large majority of users in communities (Lai and Chen 2014; Marett and Joshi 2009; Nonnecke and Preece 2001; Preece et al. 2004). Lurking is a popular online behavior that digital and social technologies afford since it gives users access to information without having to publicly participate or leave visible traces (Edelmann 2013; Soroka and Rafaeli 2006). Thus, researchers usually associate lurking with non-participation and non-posting behavior (Edelmann 2013) and generally understand it as regularly visiting a community but not posting or posting very infrequently (Ridings et al. 2006).

Although the notion of lurking behavior is clear, definitions of lurkers vary significantly across studies (Edelmann 2013; Lai and Chen 2014; Ridings et al. 2006). Definitions of lurkers range from community members who never post in a community (Farzan et al. 2010; Nonnecke et al. 2004; Ridings et al. 2006) to members who never or only occasionally post a message (Nonnecke and Preece 2000; Nonnecke and Preece 2001; Nonnecke and Preece 2003), or members who have not created content in the past month (Alarifi et al. 2015). Researchers also refer to lurkers as passive members (Malinen 2015), as a persistent yet silent audience (Rafaeli et al. 2004), as consumers of information (Muller et al. 2010), and as silent members who regularly participate in online discussions but post less often (Preece et al. 2004). In line with recent research (Edelmann 2013; Lai and Chen 2014; Marett and Joshi 2009; Nonnecke et al. 2004; Preece et al. 2004; Ridings

et al. 2006), we apply a strict no-posting definition and define lurkers as members who never post in a community but regularly log into a system and use an ESN to read, browse, or consume content and follow discussions.

Lurking implies negative and pejorative connotations (Edelmann 2013). Thus, research initially portrayed lurkers as non-productive and selfish free-riders who take without reciprocating, as loafers or free-loaders, and as non-members or second-class community members (Kollock and Smith 1996; Preece et al. 2004; Sun et al. 2014; Wellman and Gulia 1999). Further, research accused non-contributors of eroding communities, threatening online groups' vitality, and hiding and assuming false or multiple identities (Edelman 2013; Rafaeli and Raban 2005).

Scholars have only recently acknowledged that lurking is a normal or even positive and helpful behavior (Preece et al. 2004). Thus, researchers highlight that lurking behavior occurs for various reasons, including altruistic and pro-social reasons (Nonnecke and Preece 2001). Table 1 (Appendix A) summarizes the identified reasons and major findings and definitions of the most important empirical studies on posting and lurking behaviors. Current studies also argue that lurkers are not non-users or non-participants since they do use the technology and visit a community and call on researchers to redefine lurking in positive terms (Cranefield et al. 2015; Edelmann 2013). Lurkers dedicate considerable time studying the community and provide the audience for posters (Rafaeli et al. 2004; Ridings et al. 2006). Therefore, one can describe lurking as listening and social reading, which is not solitary, unconnected, or unproductive but occurs in a social context (Muller 2011). Correspondingly, one should regard lurkers as goal-driven actors who engage in different activities and employ a range of strategies (Edelmann 2013).

In an effort to fully comprehend their roles and influence, scholars have even observed that lurkers will use the information they have gained by lurking in a community and take the knowledge outside the application to exchange it with others in offline settings, offline network, and ties (Muller et al. 2010; Takahashi et al. 2003). Consequently, lurkers enhance both the reach of posters and the community by increasing the number of persons who are influenced by the insights which they acquired in the social network (Muller et al. 2010). These online-offline interactions are particularly relevant in the organizational context of ESNs since lurkers will use their newly acquired knowledge by, for instance, sharing it with their colleagues, applying it in their daily work, and/or contributing to projects or improving processes for the benefit of their corporation

(Farzan et al. 2010). Therefore, lurking behavior has spillover effects outside a community's boundaries (Edelmann 2013). As a result, lurkers also help to bring new users into a community (Farzan et al. 2010), acquire social capital (Rafaeli et al. 2004), and gain new perspectives and useful information and insights (Katz 1998) while lurking.

Lurking is a way for newcomers to learn about a group or online community and to become a part of it, and, hence, one can view it as a kind of learning and transformation process (Nonnecke et al. 2004; Preece et al. 2004; Rau et al. 2008). Most users start as lurkers in a new community, and, once they become more familiar with the community, they sometimes begin to *de-lurk* (Lai and Chen 2014; Malinen 2015; Rafaeli et al. 2004). Researchers have studied this transformation process from poster to lurker and described it as moving from the periphery of a community to its center (Bryant et al. 2005; Gray 2004; Malinen 2015) while emphasizing that the process is not straightforward since members move back and forth between being active and passive users (Gray 2004; Malinen 2015). Further, scholars have discovered that users can vary in their involvement in different communities or even different groups in the same community by actively participating in some groups and at the same time being silent lurkers in other parts of a community (Wellman et al. 2001).

Prior studies stress that whether lurking constitutes a problem and other members or managers of a community perceive it as a negative, neutral, or welcome behavior largely depends on the community's size and context (Preece et al. 2004; Ridings et al. 2006). In active and larger online communities, lurkers are not only required but also desirable since information overload would occur if all members posted or duplicated irrelevant content (Farzan et al. 2010; Preece et al. 2004; Ridings et al. 2006). Conversely, lurking behavior can threaten smaller or less active communities if it becomes dominant (Preece et al. 2004; Rau et al. 2008; Ridings et al. 2006). In such communities, community managers need to step in and take actions to encourage active participation and seek new contributors, which they can find in the lurking population (Preece et al. 2004; Ridings et al. 2006).

Building on the above premises, we argue that lurkers are active and valuable community members and that we should see lurking as a “positive and helpful behavior, a way of giving, receiving, providing/obtaining support or learning” (Edelmann 2013, p. 646). At the same time, an ESN—as with any digital platform or online community—strongly depends on content creation and will fail

if too few users contribute (Alarifi et al. 2015). Thus, we understand lurkers both as valuable, standalone user type (no matter whether or not they will become posters) and as possible future posters. Moreover, we believe that posters and lurkers are not diametrical opposite groups but distinct usage types and that some intermediate subgroups or gradual steps between these two types exist (Ridings et al. 2006). Accordingly, we expect posters and lurkers to differ in the ways they engage in social exchange and their underlying motivations for participation in ESNs.

Social Exchange Theory

Social exchange theory (SET) is a major theoretical lens for explaining employee behaviors and relationships in the work context. Since its origins in the 1920s, SET has bridged various disciplines and has been applied to diverse organizational study fields (Cropanzano and Mitchell 2005), such as networks (Faraj and Johnson 2011; Wong and Boh 2010), online communities (Liang et al. 2008; Wasko and Faraj 2005), and leadership (Liden et al. 1997). Although different perspectives have emerged over time, scholars agree that social exchange results in relationships that evolve into loyal and mutual support, commitments, and investments (Cropanzano and Mitchell 2005; Tsui et al. 1997). Researchers envision social exchange as a key process in social life that underlies all kinds of relationships—both dyadic relationships and relationships between groups and individuals (Blau 1964; Cook and Rice 2003).

Social exchange implies a series of interactions that generate indefinite, unspecified, unquantified, and open-ended obligations (Cropanzano and Mitchell 2005; Shore et al. 2009). Thus, when an individual does another party a favor, the former expects some future return (Blau 1964; Coyle-Shapiro and Conway 2005; Emerson 1976; Shore et al. 2006; Tsui et al. 1997). Since an individual does not know when and how another party will return a favor or benefit, exchange partners must invest in the relationship (Shore et al. 2009). Owing to the immanent uncertainty and risk that the investment will not be repaid, social exchange relationships require trust (Blau 1964; Molm et al. 2001; Shore et al. 2006). Therefore, reciprocal behavior, which implies that each partner in a social exchange relationship has an obligation to repay received benefits, represents one underlying principle of SET (Gouldner 1960). Over time, reciprocal behavior results in a cycle of mutually discharging obligations via each party's providing more benefits (Hom et al. 2009; Dulac et al. 2008). Nonetheless, the favor returned does not need to involve the same resource but can include rewards such as recognition, status, or liking (Gouldner 1960; Wong and Boh 2010).

Social relationships differ from economic exchange in two central aspects: the exchanged resource types and the duration of the exchange process. First, one can divide resources into economic resources and socioemotional resources (Foa and Foa 1974; Blau 1964). In economic exchanges, employees and employers trade time, effort, and work tangible incentives such as pay and fringe benefits (Armeli et al. 1998). Social exchange refers to all socioemotional aspects of an employment relationship that the economic exchange relationship does not include and addresses employees' social needs (e.g., approval, caring, status, approval). Second, social exchange relationships are repeated, long-term-oriented interactions characterized by mutual investments and trust given that they lack explicit agreements or rules and open-ended and diffuse obligations (Blau 1964; Shore et al. 2006). As such, they clearly differ from economic exchange relationships, which are fairly short-term-oriented and are regulated by agreements or contracts and, therefore, do not depend on trust or mutual investments (Ridings et al. 2006; Shore et al. 2006).

In ESNs, individuals exchange socioemotional resources, which presumes that companies do not provide economic rewards to employees for using and knowledge sharing in them. Indeed, most companies, including the case organization we investigated, do not provide such rewards. Whereas employees receive pay for their job duties, they voluntarily contribute knowledge into an ESN platform's community, and their contributions fall outside the scope of prior agreements. Thus, posting in a community and responding to others' needs represents a social investment and bears costs such as time, effort, and empathy (Ridings et al. 2006). Nonetheless, many employees make such investments even though they have no guarantee that community members will reciprocate because they "expect to be rewarded in some way which is important to them" (Ridings et al. 2006, p. 333). So, we might ask what rewards and resources motivate employees to participate in ESNs and share their valuable knowledge and time.

SET and Individual Motivations to Participate in Digital Communities

SET assumes that individuals have different resource levels and opportunities and motivations to exchange resources (Faraj and Johnson 2011). According to Blau (1964), social exchange "refers to voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others" (p. 91). When exchanging resources with others, users balance and manage their interactions with others based on a self-interest analysis regarding the costs and benefits of such interaction, seeking to maximize their benefits and minimize their costs

(Liang et al. 2008; Molm et al. 2001). Therefore, they will engage in an exchange only if they expect it to give them some social reward (e.g., approval, status, respect) and if they consider the exchanged resources to be desirable (Rode 2016; Wasko and Faraj 2005). Johnson, Faraj, and Kudaravalli (2014) suggest that key motivating factors for online participation are “access to information, advice seeking, experimentation, reputation building, expertise signaling, altruism, empathy, reciprocity, bonding with others, and commitment to community goals” (p. 796).

From a SET perspective, posters and lurkers experience their social exchanges, the social context, and the overall community differently (Ridings et al. 2006). By taking over an active role, posters participate more in social exchange than lurkers do and expect to receive a benefit via recognizing, influencing, or helping the community (Ridings et al. 2006). Posters have direct social ties with other community members and directly interact with others in the community (Ridings et al. 2006). Correspondingly, they also invest much more time, have higher exchange costs, and bear more risks and uncertainty since they depend more on the community’s goodwill, audience, and reciprocity (Ridings et al. 2006). Thus, from a SET perspective, we can reasonably assume that posters have higher expectations that a community will reward them than lurkers.

While lurkers also participate in a community in the sense that they invest their time and attention as costs, they do not invest other resources such as their valuable knowledge, empathy, or reputation (Ridings et al. 2006). They expect a reward for their investment, which likely differs from posters and might include learning something new, being part of a community, or reading something interesting (Ridings et al. 2006). By not engaging in a give-and-take relationship, lurkers invest in fewer social exchange costs. As a result, “lurkers play a much lower stakes game when participating in their social exchange in a virtual community” (Ridings et al. 2006, p. 334) and expect fewer social exchange benefits than posters.

Nonetheless, recent research emphasizes that lurkers also engage in social exchanges and gain social capital (Cranefield et al. 2015; Rafaeli et al. 2004; Takahashi et al. 2003; van Uden-Kraan et al. 2008). Studies on health online support groups propose that lurkers benefit equally from participation and feel similarly empowered as posters (van Uden-Kraan et al. 2008). Apparently, lurkers feel that their needs are met and that they receive informational support by purely reading others’ posts and seeing that those posts represent and reflect their personal opinions (van Uden-Kraan et al. 2008). Takahashi et al. (2003) observed that lurkers apply acquired knowledge in their

organizational activities and daily work and found that merely reading and following their work community changed lurkers' thoughts regarding their company and work-related topics. They also recognized that many lurkers use or propagate information that they gain from an online community in their outside environment. Thus, lurkers transfer, share, and exchange their acquired knowledge with colleagues in their offline work environment and often even wield strong and wide influence outside a community; that is, they engage in boundary-spanning, behind-the-scenes, and knowledge-brokering activities (Cranefield et al. 2015; Takahashi et al. 2003).

Related Work on Motivations for Participation in ESNs

To succeed, any digital platform, online network, or community needs to motivate users to participate in community activities and to contribute to discussions (Malinen 2015; Koh et al. 2007). Accordingly, a major strand of research has long sought to understand why people use public social media and participate in online communities (e.g., Faraj et al. 2009; Fiedler and Sarstedt 2014; Ren et al. 2007; Ren et al. 2012; Wasko and Faraj 2005). Among a wide range of identified factors, researchers have emphasized that reputation, common identity, common bond, social interaction, and community commitment constitute essential motivations for active participation and community membership.

However, these findings have limited generalizability to the ESN context because ESNs differ from public networks and online communities in several aspects: members of online communities usually participate voluntarily and anonymously, they can decide whether they want to disclose information about their identities, and they can choose when they want to enter and exit a community. In online communities, an individual's online presence is not necessarily related to the individual's offline presence, nor do offline contacts necessarily overlap. Thus, online community users often do not face offline consequences for their online postings or behaviors. In contrast, in the organizational context of an ESN, members act with their full name, which automatically reveals their department, job function, and position in the hierarchy. Thus, members' colleagues, supervisors, and senior managers can fully trace their actions and postings in an ESN (Giermindl et al. 2017). As a result, bureaucratic roles and their hierarchical interdependence influence the relationships between members (Behrendt et al. 2015). As employees contribute to the ESN in the context of their work performance, their online behavior can also result in direct offline consequences in form of praise or sanctions (van Osch et al. 2016). Accordingly, successful

contributions may lead to offline benefits, such as raises, promotions, and increased visibility in the workplace, while critical or negative contributions may lead to negative consequences, such as an unfavorable reputation (Giermindl et al. 2017; van Osch et al. 2016). Thus, since a variety of the assumptions in the literature on online communities do not apply to ESNs, we have several reasons to expect that private and corporate usage patterns of social networks differ significantly (Kuegler et al. 2015b; Rode 2016).

Yet, few studies have focused on identifying the factors that influence employees to actively participate in social media platforms in work environments, and researchers have called for more dedicated research into ESNs (Kuegler et al. 2015a; Wattal et al. 2010). To date, most studies have been qualitative studies that have explored different reasons, purposes, and outcomes of ESN usage (Chin et al. 2015b; Kuegler et al. 2012; Löcker et al. 2014; Meske and Stieglitz 2013; Richter et al. 2013; Riemer et al. 2015). Conversely, few quantitative studies have examined why employees use ESNs (Kuegler et al. 2015a; Kuegler and Smolnik 2014; van Osch et al. 2016). Most recently, Rode (2016) has revealed that extrinsic motivations (such as reputation and reciprocal benefits) have larger effects on knowledge-sharing processes in ESN participation than intrinsic motivations. Still, we need to investigate more motivational influencing factors for social technology usage, and scholars have called for further quantitative studies with large sample sizes and cross-cultural settings to understand employees' usage roles and behaviors in ESNs (Alarifi and Sedera 2013; Alarifi et al. 2015; El Ouiridi et al. 2014; Ren et al. 2012; van Osch et al. 2016).

Further, research has looked at the ESN community only as a single group without distinguishing user groups. Thus, to date, almost all ESN studies have focused on posters' motives and adoption behaviors but have disregarded the much larger user group (i.e., lurkers). They may have done so in part due to the difficulties of assessing lurkers in an ESN platform (Muller et al. 2010). Alarifi et al.'s (2015) study on promotional messages' influences on four major motivations to use an ESN provides one exception. The authors found that extrinsic and intrinsic benefits significantly predicted posting and that intrinsic and extrinsic costs significantly predicted lurking.

To bridge these gaps, our paper sheds light on how posters and lurkers differ in their motivations to use a corporate social network. We focus on five motivational factors that are central to the characteristics of social exchange relationships and the exchange of socioemotional resources: reputation, common identity, common bond, social interaction, and community commitment.

According to SET, reputation strongly relates to the exchange of socioemotional resources such as status and approval, and serves as a desirable extrinsic social reward in the cost/benefit analysis. Willingness for social interaction serves as a key prerequisite for engaging in social investments. Finally, identity- and bond-based attachments and community commitment strongly relate to the long-term-oriented relationships and the strong psychological attachments created in social exchanges.

As Table 2 (Appendix B) summarizes, researchers have widely investigated these factors and demonstrated that they are among the most salient motivational factors in the context of online communities and private social networks. Conversely, scholars have only recently begun to investigate what role these factors have in social technologies in the workplace. Due to the aforementioned idiosyncratic organizational and social influence factors of corporate social networks, these motivations are highly relevant for ESN participation. Further, most of these studies have examined only active contribution or community members as one research subject without differentiating between different usage types (Appendix B). To address these research gaps, we explore the motivational differences between posting and lurking behaviors in organizational context of ESNs. In Sections 2.2.3 to 2.2.6, we discuss each of the selected motivational factors in further detail.

Reputation

Owing to the cycle of open-ended obligations, cooperation in social exchanges requires individuals to build relationships and have a reputation for trustworthiness. Following Baker and Bulkley (2014), we define reputation as “a person’s history of actions toward others—specifically, how helpful the person has been to others in the same social system” (p. 1496). In line with previous research that highlights that to have a reputation implies to be known for something (Emler 1990; Wong and Boh 2010), such as competence (Kilduff and Krackhardt 1994), expertise (Phang et al. 2009), trustworthiness (Burt 2005), or effectiveness (Tsui 1984), we argue that employees typically desire to have a good reputation at work. Thus, we hold that employees will want to actively participate in an ESN if they consider reputation to be a desirable resource and believe that participation will enhance their reputation. If so, we believe they will be willing to trade resources such as their time, effort, information, and knowledge in order to receive socioemotional resources such as reputation, approval, status, and respect.

Research on electronic networks and online communities has shown that building reputation represents a strong motivator for why people actively participate and contribute knowledge (Wasko and Faraj 2005). Studies have revealed that posters perceive more benefits from a community than lurkers (Preece et al. 2004) that posters care more about the reputation and status of their online identities and will, therefore, cultivate and manage their reputation and status by sharing information and contributing value to a community (Marett and Joshi 2009). In contrast, by posting no messages or only a few, lurkers lack visibility and, hence, will not significantly enhance their reputation (Lai and Chen 2014).

Building on this research, we hold that employees can earn respect, improve their image, signal their personal expertise, and draw attention to their competencies by contributing their knowledge in ESNs (Rode 2016; Kankanhalli et al. 2005). Since other organizational members over a long period can view members' posts in an ESN, posters become visible and identifiable (Lai and Chen 2014; Ma and Agarwal 2007; Treem and Leonardi 2012) to a large number of employees and can build reputations as experts (Phang et al. 2009). Further, and particular to ESNs, is that the aforementioned benefits of reputation in the ESN may directly impact on offline relationships. Accordingly, employees can increase their social recognition among their colleagues, in their team as well as among their supervisors and senior managers by posting in the ESN, which may even indirectly result in individual rewards and resources (e.g., positive performance reviews, career opportunities, promotions). Based on a recent study (van Osch et al. 2016), we even have reasons to expect that a subset of individuals may engage in ESNs primarily to boost their reputation in their company. Therefore, we argue that posters will care more about enhancing their reputation than lurkers. Accordingly, we hypothesize:

H1: Posters exhibit a higher motivation to gain reputation than lurkers.

Common Identity and Common Bond

To benefit from direct and indirect reciprocal behavior, workers must develop ties in a community and must mutually invest in long-term-oriented relationships since the unspecified return of a given benefit requires interactions that exceed single transactions (Cropanzano and Mitchell 2005). Frequent interactions will reduce uncertainty and risk, will improve the relationship quality, and will create personal bonds of attachment and a sense of a common identity (Flynn 2005).

Researchers consider common identity attachment and common bond attachment to be key factors for member attachment and user behaviors in online communities (Prentice et al. 1994; Ren et al. 2007; Ren et al. 2012; Utz and Sassenberg 2002).

The two concepts derive from social-psychological theory and distinguish two distinct member attachment types according to people's different motivations for being in a group or community (Prentice et al. 1994; Ren et al. 2007). With identity-based attachment, people value a group as a whole and feel connected to a group's purpose, goals, norms, or character (Sassenberg 2002). In the context of online communities. Common identity implies that users feel a commitment to an online community's purpose or topic and a sense of belonging to the community (Fiedler and Sarstedt 2014; Ren et al. 2007). In the case of bond-based attachment, users develop relationships and foster interpersonal ties with other individuals of a group (Ren et al. 2007; Ren et al. 2012). Users who experience common bond attachment feel emotionally and socially attached and close to specific members of a community (Ren et al. 2007; Fiedler and Sarstedt 2014).

From a social exchange perspective, employees exchange not only help, knowledge, or information, but also socioemotional resources such as esteem, approval, sense of belonging, understanding, or emotional support. By regularly exchanging resources, employees create strong emotional attachments to the community, and, hence, the community becomes part of their social identity (Dholakia et al. 2004; Hom et al. 2009). Evidence from the open-source community shows that users who adopt a collective identity orientation are "likely to develop and maintain a norm that emphasizes unilateral giving without direct reciprocation" (Flynn 2005, p. 741). Thus, users with a collective identity are willing to sacrifice their personal investments to benefit the collective without expecting that they will receive direct reciprocation as the "community serves as a powerful target of identification" (Flynn 2005, p. 741). Yet, presuming all other contributors to share this willingness, these users expect reciprocal help at a later stage, although they do not necessarily expect this support to come from those they helped in the past but from the whole community (Flynn 2005; Ridings et al. 2006).

Building on these premises about bond-based or identity-based attachments, we hold that employees will want to actively participate in an ESN more if they identify with the community and enjoy membership in it. This study constitutes the first effort to apply identity-based and bond-based attachment in the ESN context. However, we need to analyze these factors in the

organizational context because ESNs have several unique characteristics: for instance, in an organizationally bound network, employees also share a corporate or organizational identity and feel a commitment to a company's values and goals, which will certainly influence the identity-based attachment to the network (Kane 2015). Further, in contrast to an online community in which most members do not know one another's offline identities, ESN members often share existing interpersonal bonds from the offline context, which explains why relationships in the offline and online context will influence each another.

Interestingly, studies indicate that posters view lurkers more as community members more than lurkers consider themselves to be community members (Nonnecke et al. 2004). Owing to frequent interactions and resource exchanges, posters have a greater sense of belonging to a community than lurkers and build stronger emotional attachments and bonds with other members (Flynn 2005; Preece et al. 2004). Since lurkers have no interaction history and, hence, lack the motivation to respond to the needs of others, they are unlikely to adopt a collective identity orientation (Flynn 2005). Nonetheless, some studies also indicate that lurkers can feel a sense of belonging to a community (Beaudouin and Velkovska 1999; Nonnecke and Preece 2000). Therefore, we argue that identity-based attachment and bond-based attachment represent key motivational factors for both lurkers and posters but that posters will exhibit higher scores than lurkers. Accordingly, we hypothesize:

H2: Posters exhibit a higher common identity-based attachment than lurkers.

H3: Posters exhibit a higher common bond-based attachment than lurkers.

Social Interaction

The concept of social interactions and interpersonal exchanges represents a central idea in social exchange theory (SET). Only by engaging in mutual social interactions can individuals build relationships, benefit from resource exchanges, and generate obligations to reciprocate (Coyle-Shapiro and Shore 2007). Accordingly, Faraj and Johnson (2001) note: "Whether the resource exchanged be facts, know-how, answers to questions, or social niceties, the interactions are social in nature and thus, by definition, aim to influence others" (p. 1466).

Previous research on online communities highlights that individuals in these communities require social interaction to establish social cohesiveness and shared values (Chang and Chuang 2011; Chiu et al. 2006; Fiedler and Sarstedt 2014; Ren et al. 2007). In online communities, the frequency with which users interact with one another determines the extent to which they build social connections and relationships with one another (McKenna et al. 2002). Further, interactions provide ample opportunities for people to get acquainted, become familiar, and build trust (Ren et al. 2007).

ESNs offer a forum for enterprise-wide social interaction and a broad range of possibilities for social exchange and self-disclosure (Preece and Maloney-Krichmar 2003). Thus, employees can use an ESN to exchange information; to share their thoughts and ideas, skills, and abilities; and to engage in discussions with other organizational members (Fiedler and Sarstedt 2014). Moreover, they can broaden their network, connect with new members, or strengthen their existing interpersonal connections in the ESN (Kane 2015). Thus, we anticipate that social interaction represents a key motivation for why people participate in ESNs.

While lurkers do not directly exchange or socially interact with other members in the community, they do contribute to it by giving posters an audience and public awareness for their messages (Ridings et al. 2006). Their frequent visits to a community and followership also underline their general willingness for social interaction. Furthermore, owing to the idiosyncratic nature of ESNs, lurkers may read postings and may transfer the content to share and interact with posters or other members in an offline context (Muller et al. 2010; Takahashi et al. 2003).

In addition to reading others' posts, posters also share direct social interactions with other contributors in a community and engage in reciprocal relationship-building processes (Preece et al. 2004). They actively invest in maintaining relationships and in building new connections in their community by sharing skills and knowledge in ESNs. Therefore, we contend that posters will have a greater willingness and motivation for social interaction than lurkers. Accordingly, we hypothesize:

H4: Posters exhibit a higher willingness for social interaction than lurkers.

Community Commitment

The perspective that commitment is rooted in an exchange relationship has a long history (Gouldner 1960; Mowday et al. 1982; Shore et al. 2006). Drawing on SET, we know that the extent to which employees believe in their company's values and feel that it cares about their wellbeing determines the extent to which they feel obliged to repay with affective commitment (Eisenberger et al. 1986; Shore and Wayne 1993). Accordingly, research on SET indicates that "commitment is best conceptualized as a social exchange relationship, in which perceived organizational support (POS) represents the employer side of the exchange and affective and continuance commitment represents the employee side of the exchange" (Shore et al. 2006, p. 837).

Commitment reflects a duty or obligation to engage in future interaction (Wasko and Faraj 2005), and we can define it as "an interpersonal attachment leading persons to exchange repeatedly with the same partners" (Cook and Rice 2003, p. 64). Researchers also see it as a necessary condition for developing ongoing long-term relationships (Hur et al. 2011; Kim et al. 2008; Ye et al. 2006) and that it predicts a wide range of business outcomes (Harter et al. 2002; Mayer and Schoormann 1992; Mowday et al. 1979). Ye et al. (2006) stress the importance of community commitment as a collectivistic and principal motivator since people contribute knowledge because they care for the community's wellbeing, feel morally obliged, or pay less attention to self-benefits such as extrinsic motivated reciprocity or reputation.

Research on online communities and electronic networks has found that commitment "conveys a sense of responsibility to help others within the collective on the basis of shared membership" (Wasko and Faraj 2005, p. 42). Thus, individuals participate in ESNs due to a sense of obligation to their organization and a perceived moral duty to pay back the network, assist other members, and contribute knowledge (Bateman et al. 2006; Gupta and Kim 2004; Kim et al. 2008; Wasko and Faraj 2000). Therefore, commitment is a stronger motivational factor for posters than for lurkers (Fan et al. 2009; Sun et al. 2014). In line with this research, we hold that employees will want to interact and participate in an ESN if they feel a strong commitment to the community and its values, and goals. Accordingly, we hypothesize:

H5: Posters exhibit a higher community commitment than lurkers.

Method

Sampling Procedures

We conducted a survey in a large multinational engineering company that offers a diverse portfolio of knowledge-intensive products, solutions, and services. The organization is active in various industries, mainly in the B2B sector, and has its headquarters in Germany. Due to its worldwide locations, it has a geographically dispersed knowledge-intensive workforce that depends highly on technologies to share business-related information. To promote innovation and global exchange across geographical and hierarchical boundaries, the organization introduced an ESN platform as internal collaborative platform in 2013 for all employees worldwide. Since the company has successfully completed the implementation and adoption phase of the ESN and due to its size and global presence in several sectors, we believe this company provides a representative sample and that it highly suits our study.

The ESN has a similar interface to public social networks such as Facebook and allows its users to create a personal website that reveals personal and business-related contact information. The newsfeed on the ESN's front page displays a steady stream of content and recent activity that users can browse via keywords, topics, or hashtags. Additionally, it includes Web 2.0 features such as searching, tagging, following, and social networking, in order to enhance interconnectivity between employees. Employees can use the ESN to send and receive personal messages, collaborate, and exchange information in open or closed groups in virtual meetings or chats. All community members can see the published information and can access it via the Intranet or an app for mobile devices.

Measures

We recruited respondents via email, which meant we could reach all user groups and non-users of the ESN equally. To assess how frequently they actively participated in the ESN, we asked the participants to answer the question "How often do you create your own posts or comment on other posts?" on a five-point Likert scale with the following anchors: daily (1), several times a week (2), several times a month (3), less than once a month (4), never (5). Drawing on recent research (Lai and Chen 2014; Marett and Joshi 2009; Nonnecke et al. 2004; Preece et al. 2004; Ridings et al.

2006), we applied the strict no-posting definition for lurkers: members who stated that they never (5) post or comment on other posts in the ESN community. Conversely, we classified posters as members who posted and created content daily (1) to less than once a month (4), which agrees with prior research (Marett and Joshi 2009; Nonnecke et al. 2004).

We used well-established measurements for the motivational constructs (i.e., reputation, common identity, common bond, social interaction, and community commitment) in order to investigate the research question in the ESN context. We slightly adapted the items in order to match the organizational context. We rated all answers on a five-point Likert-type scale (with anchors from strongly disagree (1) to strongly agree (5)). Due to restrictions by the case company regarding questionnaire length, we used two items to present each factor. To enhance our measures' validity, we submitted the shortened version of our questionnaire to a group of seven experts; they revised the items in terms of understandability and face validity as Rossiter (2002) proposes. We also conducted preliminary interviews with eight participants and discussed our selected questions concerning relevance to the context. We then conducted a pretest with $N = 36$ participants. After analyzing the retrieved data, we chose two items of each scale to include in our survey. We excluded all participants engaged in the preliminary survey from the final sample.

We evaluated reputation using a shortened version of the reputation scale that Wasko and Faraj (2005) deploy. We asked respondents to indicate to what extent they agreed with the statements: "I earn respect from others by participating in [the ESN]" and "I feel that the participation in [the ESN] improves my status within [the company]". The scale showed good reliability ($\alpha = .89$). We measured common identity, common bond, and social interaction using adapted versions of the respective scales from Fiedler and Sarstedt (2014). We represented each scale with two items. We assessed common identity with the items "Belonging to the [ESN] community is very important to me" and "I feel a strong attachment to the [ESN] community". The scale showed good reliability ($\alpha = .85$). We measured common bond with the items "I feel very close to the other members of the [ESN] community" and "Many members of the [ESN] community have influenced my work-related thoughts and attitudes". The scale showed good reliability ($\alpha = .82$). We evaluated social interaction with the items "In the [ESN] community I share information about a particular subject with other members" and "In the [ESN] community I share my skills and abilities with other members". The scale showed good reliability ($\alpha = .82$).

Finally, we examined organizational community commitment using a shortened version of Mayer and Schoormann's (1992) scale. We asked respondents to indicate to what extent they agreed with the items "I am proud to tell others that I am part of the [ESN] community" and "I am willing to put in a great deal of effort in order to help the [ESN] community to be successful". Again, the scale showed good reliability ($\alpha = .81$).

Results

The final sample comprised $N = 4,892$ participants (30.1% female). On average, participants were 42 years old ($M = 41.60$, $SD = 10.75$) and had been working 13 years for their current employer ($M = 13.10$, $SD = 10.41$). Participants spent about one hour per week in the ESN ($M = 1.25$, $SD = 1.82$). Our results classified most users as posters (66.5%), with an average usage time of one-and-a-half hours per week ($M = 1.52$, $SD = 2.11$), while lurkers spent significant less time in the ESN ($M = 0.71$, $SD = 0.79$). This difference was significant ($t(4757) = 19.70$, $p = .000$) with a small effect size ($d_{\text{Cohen}} = 0.46$ (95 % CI [0.40, 0.51])).

To check for differences between posters and lurkers regarding the five motivational factors, we conducted an analysis of covariance (ANCOVA), including gender and age as covariates. We only present the respective covariates if they reached significance. Due to differences in group size between posters and lurkers, we report the effect size d_{Cohen} with pooled standard deviation (Cohen 1988) and respective 95 percent confidence intervals (CI).

Overall, posters showed significant higher mean values for all five motivational aspects compared to lurkers. Specifically, we found a significance difference between posters and lurkers regarding reputation: posters showed higher motivational values ($M = 2.46$, $SD = 1.10$) than lurkers ($M = 1.78$, $SD = 0.94$) ($F(1,4892) = 452.25$, $p = .000$) with a medium effect size ($d_{\text{Cohen}} = 0.64$ (95% CI [0.58, 0.71])). Age was a significant covariate in the model ($F(1,4892) = 22.92$, $p = .000$, $\beta < .01$).

For the motivational aspect of common identity, posters showed significant higher mean values ($M = 2.70$, $SD = 1.07$) than lurkers ($M = 1.95$, $SD = 0.96$) ($F(1,4892) = 575.14$, $p = .000$) with a medium effect size ($d_{\text{Cohen}} = 0.73$ (95% CI [0.67, 0.79])).

Further, posters displayed significant higher mean values for common bond ($M = 2.61$, $SD = 1.03$) than lurkers ($M = 1.89$, $SD = 0.93$) ($F(1,4892) = 578.18$, $p = .000$) with a medium effect size (d_{Cohen}

= 0.73 (95% CI [0.67, 0.79])). Age proved to be a significant covariate in the model ($F(1,4892) = 12.75, p = .000, \beta < .01$). For the fourth motivational factor, social interaction, posters showed significant higher mean values ($M = 3.19, SD = 1.01$) than lurkers ($M = 1.90, SD = 0.96$) ($F(1,4892) = 1841.01, p = .000$) with a large effect size ($d_{\text{Cohen}} = 1.30$ (95% CI [1.23, 1.36])). Finally, posters displayed significant higher mean values ($M = 2.75, SD = 1.06$) than lurkers ($M = 1.99, SD = 0.97$) regarding the motivational aspect community commitment ($F(1,4892) = 595.13, p = .000$) with a medium effect size ($d_{\text{Cohen}} = .73$ (95% CI [0.68, 0.80])). Again, age proved to be a significant covariate ($F(1,4892) = 29.39, p = .000, \beta < .01$). Accordingly, our results support all five hypotheses. Overall, age proved to be a significant covariate in some of the models, but very small beta weights indicate it had little to no effect on the results.

Further Analysis

To more deeply understand the motivational differences between posters and lurkers, we also closely analyzed whether there are different subgroups of posters and lurkers that differ in their motivations for using ESNs. By further separating the different user groups, we answer the call for more detailed investigations into different user groups (e.g. Alarifi et al. 2015; Ridings et al. 2006). In addition to the proposed distinction between posters and lurkers, prior research has only differentiated the poster group into frequent posters (four or more posts per month) and infrequent posters (one to three posts per month) without discriminating the lurker group (Ridings et al. 2006). Extending this research, we further differentiated both the poster and lurker groups by not only asking participants how often they posted but also investigating their general usage frequency of the ESN. Thus, we additionally asked all participants “How often do you use the ESN platform?” on a five-point Likert scale with the following anchors: daily (1), several times a week (2), several times a month (3), less than once a month (4), and never (5).

By considering both the frequency with which users generally used, browsed, and read the ESN and the frequency with which they created content and commented, we can provide a more accurate picture of ESN usage and interactions. We identified three distinct poster subgroups. Employees who posted content daily (1) or several times a week (2) contributed the most content and were most likely to keep discussions going and to stimulate other participants (Ridings et al. 2006). Thus, we labeled those users super frequent posters since they shared content far more

frequently than the average. We expected them to differ from the group of frequent posters who created content several times a month (3) and, thus, regularly contributed to the ESN in that they had not integrated the system into their daily routine as much and participated less actively. Again, by contrast, infrequent posters posted or commented on others post on an irregular basis (namely, less than once a month (4)) and represent an intermediate user group between posters and lurkers.

We also differentiate the lurker group into frequent lurkers as participants who never (5) created content but used the ESN daily (1), several times a week (2), or several times a month (3) and infrequent lurkers who also never (5) created content but used the ESN less than once a month (4). We make this distinction since frequent lurkers may not create content but still use the ESN regularly and actively and even spread knowledge through active ESN use (Takahashi et al. 2003). Thus, these users provide much value to the community (Cranefield et al. 2015; Edelman 2013; Takahashi et al. 2003). In contrast, infrequent lurkers neither post content nor actively read the ESN. Nevertheless, one needs to leverage the potential of these rare users to widen the diffusion of and enhance activity in the ESN (Alarifi et al. 2015; Ridings et al. 2006). For an overview of the detailed distinction between the different user groups, see Figure 1. We do not include participants who never (5) use the ESN and never (5) create content in the analysis since we consider them as non-users.

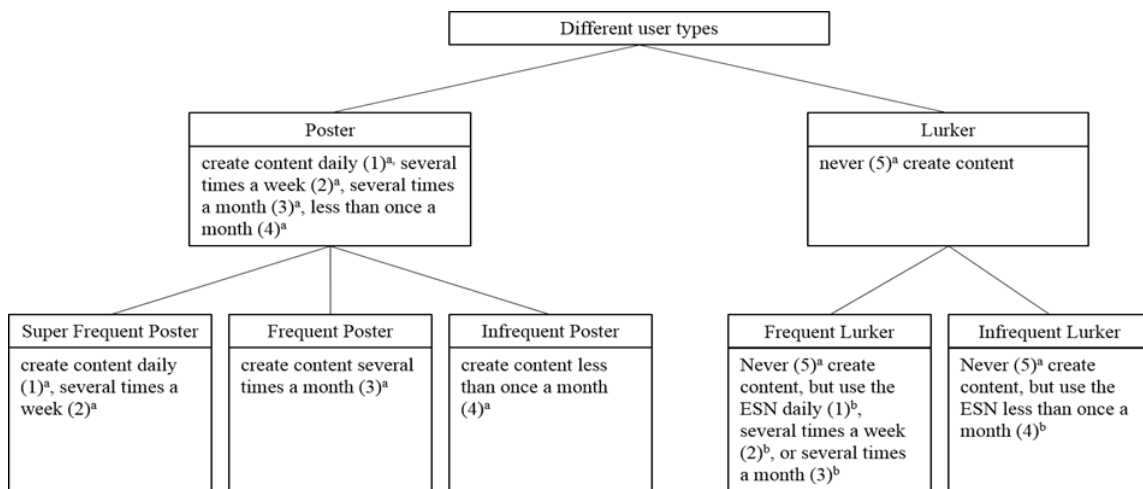


Figure 1. Classification of Different User Types¹

¹ ^a question: "How often do you create your own posts or comment on other posts?"; ^b question: "How often do you use the ESN platform?".

Most participants qualified as infrequent posters (37.4%) followed by infrequent lurkers (16.9%), frequent lurkers (16.5%), frequent posters (15.9%), and super frequent posters (13.2%). In the user groups, super frequent posters spent more than two hours per week in the ESN ($M = 2.53$, $SD = 3.63$) followed by frequent posters ($M = 1.63$, $SD = 1.77$), infrequent posters ($M = 1.12$, $SD = 1.25$), frequent lurkers ($M = 1.00$, $SD = 0.88$), and infrequent lurkers ($M = 0.45$, $SD = 0.58$), which indicates a gradual decline in usage time for each usage group.

	Super frequent posters		Frequent posters		Infrequent posters		Frequent lurkers		Infrequent lurkers		ANCOVA	
	M (SE)	CI	M (SE)	CI	M (SE)	CI	M (SE)	CI	M (SE)	CI	F(4,4891)	η^2
Reputation	2.97 (0.04)	[2.90; 3.05]	2.56 (0.04)	[2.49; 2.63]	2.23 (0.02)	[2.18; 2.27]	1.94 (0.04)	[1.87; 2.01]	1.62 (0.04)	[1.55; 1.69]	198.01***	.14
Common identity	3.30 (0.04)	[3.22; 3.37]	2.81 (0.04)	[2.74; 2.88]	2.45 (0.02)	[2.40; 2.49]	2.20 (0.03)	[2.13; 2.27]	1.70 (0.03)	[1.64; 1.77]	274.12***	.18
Common bond	3.14 (0.04)	[3.06; 3.21]	2.71 (0.03)	[2.64; 2.77]	2.38 (0.02)	[2.34; 2.43]	2.11 (0.03)	[2.05; 2.18]	1.66 (0.03)	[1.60; 1.73]	255.88***	.17
Social interaction	3.85 (0.04)	[3.78; 3.92]	3.38 (0.03)	[3.31; 3.44]	2.87 (0.02)	[2.83; 2.92]	2.04 (0.03)	[1.97; 2.10]	1.77 (0.03)	[1.70; 1.83]	666.20**	.35
Community Commitment	3.30 (0.04)	[3.22; 3.38]	2.87 (0.04)	[2.79; 2.93]	2.51 (0.02)	[2.46; 2.55]	2.16 (0.03)	[2.09; 2.23]	1.82 (0.03)	[1.75; 1.89]	251.25**	.17

Notes: *** $p < .001$, ** $p < .01$. Scales for the motivational constructs ranged between 1 (strongly disagree) and 5 (strongly agree).

Table 3. Differences for Groups of Users Regarding the Motivational Factors Reputation, Common Identity, Common Bond, Social Interaction, and Community Commitment

We performed Bonferroni adjusted post hoc analyses to examine mean differences across all levels between the user groups. All post hoc mean comparisons were statistically significant ($p = .000$) except for infrequent posters and frequent lurkers, which showed no significant difference regarding usage time. Gender ($F(1,4891) = 4.86$, $p = .028$, partial $\eta^2 < .01$) and age ($F(1,4891) = 6.09$, $p = .014$, partial $\eta^2 < .01$) were significant covariates in the model but had little to no effect on the results as one can see in the very small effect sizes.

We conducted an analysis of covariance (ANCOVA) that compared the groups of users (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers) regarding the five motivational constructs (reputation, common identity, common bond, social interaction, and community commitment). We included gender and age as covariates. We only present covariates if they reached significance in the post hoc analysis. Table 3 presents the results.

Reputation

There was a significant difference between groups of users for reputation ($F(4,4891) = 198.01$, $p = .000$, partial $\eta^2 = .14$). We performed Bonferroni adjusted post hoc analyses to examine mean differences across all levels of users. All post hoc mean comparisons were statistically significant ($p = .000$). The effect was linear, which shows that super frequent posters had the highest mean values for reputation followed by frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers. Age was a significant covariate in the model ($F(1, 4891) = 21.90$, $p = .001$, partial $\eta^2 < .01$).

Common Identity

There was a significant difference between groups of users for common identity ($F(4,4891) = 274.12$, $p = .000$, partial $\eta^2 = .18$). We performed Bonferroni adjusted post hoc analyses to determine differences in mean values for all user levels. All post hoc mean comparisons were statistically significant ($p = .000$). Super frequent posters had the highest mean values for common identity followed by frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers.

Common Bond

There was a significant difference between groups of users for common bond ($F(4,4891) = 255.88$, $p = .000$, partial $\eta^2 = .17$). Post hoc analyses disclosed a linear effect for all groups regarding differences in mean values ($p = .001$). Super frequent posters had the highest mean values for common bond followed by frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers. Age was a significant covariate in the model ($F(1, 4891) = 12.23$, $p = .001$, partial $\eta^2 < .01$).

Social Interaction

There was a significant difference between groups of users for social interaction ($F(4,4891) = 666.20, p = .001, \text{partial } \eta^2 = .35$). We carried out Bonferroni adjusted post hoc analyses to specify differences in mean values for all levels. All post hoc mean comparisons were statistically significant ($p = .001$). Super frequent posters had the highest mean values for social interaction, followed by frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers.

Community Commitment

There was a significant difference between groups of users for community commitment ($F(4,4891) = 251.25, p = .001, \text{partial } \eta^2 = .17$). Post hoc analyses revealed a linear effect for all groups regarding differences in mean values ($p = .001$). Super frequent posters had the highest mean values for community commitment followed by frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers. Age was a significant covariate in the model ($F(1, 4891) = 28.60, p = .001, \text{partial } \eta^2 < .01$). Overall, in some of the models, age proved to be a significant covariate. The very small effect sizes imply little to no effect on the results.

Discussion

To more deeply understand the different types of users in corporate social networks, we investigated the underlying motivational factors and differences for posting and lurking behaviors in the theoretical framework of SET. We identified existing subgroups of both user types and further differentiated between three groups of posters (super frequent, frequent, and infrequent posters) and two groups of lurkers (frequent and infrequent lurkers).

Our findings highlight that posters and lurkers differ significantly in why they participate in ESNs. Overall, posters showed higher motivations than lurkers. Further, we found significant difference between the five user groups regarding the five selected motivational factors for ESN usage. Super frequent posters showed significantly higher motivation on all five constructs than any other user group. This finding demonstrates that super frequent posters, as the most active user group, had the highest investments in the community but also expected, perceived, and received the highest social benefits for their engagement. Notably, among all groups of posters, social interaction had

the highest mean value of all motivational factors. We could identify no such pattern for the highest mean values for lurkers.

Among lurkers, common bond was higher for frequent lurkers than for infrequent lurkers, which supports Ridings et al.'s (2006) assumption that lurkers provide an audience and follow and feel close to certain community members but that they hesitate to comment or respond in an ESN. This finding also implies that lurkers believe other community members to influence their work-related thoughts and attitudes, which concurs with Takahashi et al.'s (2003) findings.

Also, frequent lurkers showed higher mean values for common identity compared to infrequent lurkers. Thus, frequent lurkers found it important to belong to the ESN community and felt a strong attachment to it. This finding is interesting since it partly contradicts recent research that lurkers generally do not feel part of such a community or not as much as posters do (Nonnecke et al. 2004; Preece et al. 2004). Likewise, it confirms the findings of prior work that lurkers also feel a sense of belonging to a community (Beaudouin and Velkovska 1999; Nonnecke and Preece 2000; Nonnecke and Preece 2003). In the group of infrequent lurkers, community commitment had the highest values compared to the other four motivational factors. Since infrequent lurkers neither tend to create content nor routinely follow other members' activity, they read and log in to an ESN due to their commitment and obligation to their colleagues and community.

Reputation had the lowest mean values for all groups of users, which supports Ye et al.'s (2006) argument that intrinsic motivators such as commitment or attachment motivate people more strongly than extrinsic benefits such as reputation and reciprocity. At the same time, our results stand in contrast to one of the few quantitative motivational studies of ESNs (Rode 2016), which found that extrinsic motivations (such as reputation and reciprocal benefits) have a stronger effect on knowledge-sharing processes than intrinsic motivations in the context of corporate social networks. It also contradicts van Osch et al.'s (2016) assumptions that the most active user group will engage in an ESN primarily to boost their reputation among their peers and supervisors and to contribute self-promoting content without consuming or sharing content that others contribute. Thus, our results imply that even the super frequent users do not exceedingly engage in self-presentation activities to enhance their standing. Overall, our results show that all groups of users perceive ESNs not as a way of building a stronger reputation but as forums for social exchange and interaction.

Moreover, our findings underscore that posters spent more time in the ESN than lurkers, which is intuitive since posters invest time not only in their postings and their active usage behaviors but also in reading content that others produce (Ridings et al. 2006). Super frequent posters spent more than two hours per week in the ESN. While in the context of online communities, two hours may not particularly high, it is a substantial amount of time when one considers that employees use the ESN in their (limited) working hours. Since the general working week was 35 hours in our case company, super frequent posters spent more than seven percent of their time in the ESN. Interestingly, infrequent posters and frequent lurkers spent about the same amount of average time using the ESN per week. Thus, we can see that one should consider both user groups as active users even though they differ regarding their usage behavior types in an ESN.

Theoretical Implications

By using the theoretical lens of SET and analyzing social exchange relationships in ESNs, we advance the understanding of the exchanged resources, perceived benefits, and costs for different user groups in an ESN context. We also provide evidence that posters and lurkers differ significantly in their underlying motivations for social exchange and expected rewards. These findings affirm that both posters and lurkers engage in social exchanges in the ESN context but experience social exchanges in the ESN community differently as previous research suggests (Ridings et al. 2006).

Our research adds to the growing debate about re-evaluating the lurkers' role (Edelmann 2013; Cranefield et al. 2015; Takahashi et al. 2003). Our findings reveal that both posters and lurkers feel close to other members of the community and that they feel a strong attachment to and are proud to be part of the ESN community. The results also underpin that lurkers are not passive members but spend considerable time in the ESN and even engage in social interaction. Further, the relative high scores for community commitment and social interaction suggest that lurkers interact and engage with other community members outside the community. Consequently, we advocate that researchers need to re-evaluate lurkers' role and give them more attention and consideration in future research.

This study represents an initial effort to consider nuanced differentiations of both participant roles and identifies five significantly distinct user groups (super frequent posters, frequent posters,

infrequent posters, frequent lurkers, and infrequent lurkers). Thus, we go beyond prior research (Ridings et al. 2006) and address numerous calls for a more detailed analysis of user groups and types (Alarifi et al. 2015; Alarifi and Sedera 2014; Ridings et al. 2006; van Osch et al. 2016). By identifying, analyzing, and shedding light on these subgroups' usage behaviors in organizational settings, we illuminate distinct forms of participation in corporate social networks and advance the literature on posters and lurkers.

Furthermore, our work adds to the understanding of posters' and lurkers' motivations to participate in ESNs and closes several research gaps. To date, most studies on motivations for participation in the online community have considered only posters or have analyzed posting and lurking behaviors separately. Particularly in the ESN context, researchers have devoted almost no attention to studying posting and lurking behaviors, which prior work has also stressed (Alarifi et al. 2015; Lai and Chen 2014; Ridings et al. 2006). Further, we do not know about any research that has considered the five selected motivational factors with regard to posting and lurking behaviors not only in the ESN context but also in the general context of online communities and public social networks. Our study provides evidence that the motivational factors reputation, common identity, common bond, social interaction, and community commitment differentiate posters and lurkers based on why they participate in ESNs. As a consequence, our findings also yield useful insights for research in other community contexts, such as online communities and networks in the private realm, which makes them particularly valuable for IS and knowledge management researchers.

Practical and Managerial Implications

Our research offers various important implications for organizations and managers who deal with introducing and diffusing ESNs across their organization. First, our study helps practitioners to understand the nature of the different usage types and the underlying motivational factors for both posting and lurking behaviors in ESNs. Practitioners often consider it desirable to turn all employees into frequent posters, which we show is a misconception by highlighting the significance, strengths, and weaknesses of each user type and emphasizing that lurking also constitutes a beneficial form of participation. Owing to the in-depth insights of the differences between posters and lurkers that this study provides, practitioners can now recognize the importance of each user type. Understanding and acknowledging the uniqueness of all user roles is key and forms the basis for all managerial actions and interventions.

Second, our study raises awareness that lurking behavior is indeed an active form of participation that benefits ESN communities. Managers and practitioners can learn from our study that the process of merely reading and following discussions in the ESN influences employees and changes lurkers' thoughts and work-related attitudes. Employees who lurk are also likely to carry their gained insights outside the community to exchange them with others and apply them in the context of their job duties. Based on these findings, IT architects and managers should rethink current managerial interventions, which focus only on increasing the number of contributing users.

Instead, community and IT architects should acknowledge lurkers as a valuable user group and, when designing an interface for an ESN, think about posters but also consider lurkers' specific needs and motivations, such as following discussions and finding the desired information easily so they can transfer knowledge. When companies evaluate the success of their ESN, they should consider not only the number of active users, groups, and messages created per month but also the likely benefit of knowledge transfer to outside environments and offline networks. Thus, we encourage community managers to not only consider the number of comments and likes but also the number of hits or views for individual contributions. Moreover, we recommend practitioners to gain useful insights by analyzing the quality of the postings from super frequent, frequent, and infrequent posters to look for consistent patterns. Further, we advise organizations to survey their employees to find out whether they find the acquired knowledge and information helpful to apply it in their daily work and whether they exchange and share their gained insights with other members.

Third, our research helps practitioners to diffuse ESNs by explaining the motivational differences between poster and lurker user groups—a key prerequisite for addressing employees who insufficiently use ESNs (Giermindl et al. 2017). Since an ESN's success largely depends on its members contributing information and knowledge, practitioners seek to convert lurkers into posters. Lurkers have the potential to enrich ESN communities if organizations can motivate them to actively engage in discussions. Since we found that the selected motivational factors were relevant for all user groups and that the poster groups showed overall significantly higher motivations than the lurker groups, we recommend organizations to strengthen the motivations of all user groups. Primarily, to unleash the potential of lurkers and harness their expertise and competencies, they need to increase lurkers' motivations to contribute and create content.

Fourth, our study and the underlying principles of SET assist leaders and community and communication managers to adequately address the specific needs of each user group. Managers should recognize that employees base their decision on whether and how to participate in ESNs by evaluating the perceived cost they will incur and expected socio-emotional rewards they will gain from doing so. In order to positively influence employee's evaluations, we advise formal and informal leaders to clearly communicate the intrinsic benefits of active ESN usage and to reduce the costs for participating in ESNs. For instance, community architects could facilitate social interaction and bond-based attachments by introducing smart user-recommendation systems to provide opportunities for people with similar interests and jobs to become acquainted and familiar with each other. Furthermore, managers could strengthen identity-based attachments by attracting a critical mass, creating networks effects and a large community with many possibilities for social interaction and connection, and emphasizing the ESN's purpose, goals, norms, or character. To promote community commitment and create a sense of obligation, leaders should increase their support and caring for individual employees both in the ESN community and through organizational support. Moreover, to address the extrinsic motivation and benefits of perceived reputation, managers could increase the visibility and active participation of top and senior managers in an ESN.

Altogether, our paper provides rich insights for managers about the distinct existing user types in ESNs and their social exchanges and underlying motivations for participation. Based on these insights, we encourage practitioners to rethink current managerial interventions and make more informed decisions in order to evaluate and promote participation in ESNs.

Limitations and Future Work

Our study has several limitations, which point to promising avenues for future research: First, we used cross-sectional data in our study, which does not allow for causal inferences. Although the existing literature supports our assumptions, longitudinal data would further strengthen our findings. We also investigated differences between groups of posters and lurkers at a single moment. Future research could inspect the longitudinal shift from one group to another, even in a cross-cultural setting.

Second, since we used single-source self-reported measures, common method variance (CMV) could potentially influence our results (Podsakoff et al. 2003; Richardson, Simmering, and Sturman 2009). Researchers have advised that one should consider CMV prior to conducting research (Podsakoff et al. 2003). Nonetheless, in some cases, a study's research design does not allow for such an ex ante approach (Chang et al. 2010) as in our study. In such cases, the literature proposes investigating CMV by composing ex post statistical approaches (Podsakoff et al. 2003; Malhorta et al. 2006). Whereas some researchers consider CMV to be a serious threat to results' validity, others indicate that it has a moderate (Crampton and Wagner 1994) or almost no influence (Spector 2006). While one cannot know the true amount of CMV in a study, Fuller, Simmering, Atinc et al. (2016) recently used simulated data to test CMV's effect on study results. They found that CMV had little to no impact on the results if less than 70 percent of the variance is attributed to CMV (Fuller et al. 2016). The expected amount of CMV in single-source self-reported studies ranges from 10 percent (Malhorta et al. 2006) to 18 percent (Lance et al. 2010), 35 percent (Podsakoff et al. 2003), and 41 percent (Cote and Buckley 1987). Thus, even with a conservative estimation of CMV present in a single-source self-reported measure, CMV is unlikely to influence the results. Further, current approaches to detect CMV are very controversial and lack the necessary statistical validity (Fuller et al. 2016; Richardson et al. 2009; Spector 2006), which leads to potentially false assumptions. Additionally, in our study, the questions we presented to the participants came from well-established constructs and, thus, were less likely to be influenced by common method bias (Malhorta et al. 2006; Podsakoff et al. 2003). Overall, we do not believe CMV to be a problem in the study. Even if CMV were present to some extent, recent research indicates that it does not substantially influence the results (Fuller et al. 2016; Richardson et al. 2009; Spector 2006). Nonetheless, we strengthened the results' validity by reporting effect sizes that are unsusceptible to CMV's influence (Fuller et al. 2016).

Third, we could not measure constructs with complete scales owing to restrictions from our industry partner, the large sample size, and the number of participating employees. Nonetheless, we used shortened versions of validated scales from well-measured constructs and tested them with preliminary samples.

Fourth, since one cannot exhaustively consider all possible motivations responsible for users' participation in a single paper, we derived the most influential motivational factors from SET to

analyze motivational differences between posters and lurkers. Nonetheless, other intrinsic and extrinsic motivational factors might be influential, and future research should consider more organizational and technological factors that impact posting and lurking behaviors. Furthermore, a qualitative approach might further shed light on motivational differences between the identified distinct user groups. Thus, we call for further research to reveal different motivational factors each different group of users.

Conclusion

To date, the motivational differences between posters and lurkers have received scarce attention. Further, no study has yet differentiated between different subgroups of posters and lurkers and examined the motivational differences for different user types in the ESN context in depth. Thus, our study makes several important theoretical and practical contributions to the currently limited body of research. First, we generate novel insights by integrating the literature on posters and lurkers with the framework of SET and applying it to the ESN context. Second, drawing on SET theory, we analyze key motivational factors for employees to use an ESN and corroborate motivational differences between posters and lurkers. Third, by investigating a rich dataset with almost 5,000 participants, we introduce an in-depth and nuanced classification of participant groups (super frequent posters, frequent posters, infrequent posters, frequent lurkers, and infrequent lurkers). We also found empirical support that the identified subgroups differ regarding the motivational factors in the context of the ESN. Fourth, we offer rich insights for other research contexts and the IS and knowledge-management community by shedding light on their usage behaviors in work settings, identifying subgroups, and advancing the understanding of employees' posting and lurking behaviors in ESNs. Fifth, we provide managers and IT architects with useful guidance to acknowledge the importance of all user roles and to enhance participation in ESNs by specifically addressing the needs and motives of lurkers. Overall, we trust this research will serve as a first step toward a more nuanced view of posting and lurking behaviors and will encourage further investigation regarding motivation factors for participation in the ESN context.

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Appendix A: Literature Review on Posting and Lurking Behaviors

Study	Context of study	Theories and models	Method	Definitions of posters and lurkers	Key findings
Alarifi et al. (2015)	Enterprise social network	Elaboration likelihood model; intrinsic and extrinsic motivation; Kankanhalli et al.'s (2005) model of knowledge contribution	Quantitative survey (N = 366 in an Australian case organization)	Lurkers = members who did not create content in the past month Posters = members who posted or commented at least once in the past month	Extrinsic and intrinsic benefits (image and intrinsic interest, respectively) significantly predict posting, while intrinsic and extrinsic costs (fulfillment and loss of knowledge power, respectively) significantly predict lurking. Persuasion-based interventions (argument quality, source credibility) affect posters and lurkers' beliefs about participation.
Lai and Chen (2014)	Online communities	Knowledge-sharing, intrinsic motivation, and extrinsic motivation	Quantitative survey (N = 324 from the largest online community platform in Taiwan)	Lurkers = members who have never posted a message Posters = members who have posted at least one message in the past three months	Among the extrinsic motivational factors, reputation did not significantly influence the knowledge-sharing intention of posters or lurkers, while reciprocity significantly influenced the knowledge-sharing intentions of lurkers but not of posters. Among the intrinsic motivational factors, we found that enjoyment in helping others and knowledge self-efficacy are significant predictors of knowledge-sharing intentions of posters but not of lurkers.

Table 1. Literature Review: Posting and Lurking Behaviors

Appendix A: Literature Review on Posting and Lurking Behaviors

Marett and Joshi (2009)	Online communities	Knowledge-sharing, information-sharing, and rumor-sharing; intrinsic and extrinsic motivations	Quantitative survey (N = 471 of an online discussion forum for sport fans)	Lurkers = members who have never posted to the forum Posters = members who have posted at least one message to the forum since becoming members	Posters' likelihood of sharing information and rumors are shaped collectively by all three factors (i.e., intrinsic, extrinsic, and normative). Lurkers are primarily driven by extrinsic and normative influences.
Nonnecke and Preece (2001)	Online communities	Gratification model; lurking	Qualitative study with 10 members of online groups	Lurker = anyone who posts infrequently or not at all	Lurking is a strategic and idiosyncratic activity. Lurking can meet members' personal and information needs Reasons for lurking vary and range from personal to work-related reasons Authors identified 79 reasons for lurking and seven lurkers' needs; the most important ones were: <ul style="list-style-type: none"> • Anonymity, privacy, and safety • Time-related and work-related constraints • Message volume and quality, and • Shyness about public posting.

Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: Literature Review on Posting and Lurking Behaviors

Nonnecke and Preece (2003)	Online communities	Lurking	Qualitative study with 10 members of online groups / discussion lists	Lurker = anyone who rarely or never participates publicly in online groups or communities	<p>Authors discovered a total of 117 possible reasons for lurking, which they classified into eight categories:</p> <ul style="list-style-type: none"> • Satisfy personal needs • Satisfy informational needs • Learn about the group • Leave a group quietly • Maintain privacy and safety • Reduce noise and exposure • Act with constraints, and • Act in response to group dynamics. <p>Lurkers followed five strategies to deal with messages:</p> <ul style="list-style-type: none"> • Maximize return on effort • Keep information manageable • Identify DL email among other email • Follow threads, and • Decide to read or to not read. <p>Lurkers feel a sense of community (even without posting).</p>
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Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: Literature Review on Posting and Lurking Behaviors

<p>Nonnecke, et al. (2004)</p>	<p>Online communities</p>	<p>Posters and lurkers</p>	<p>Quantitative survey (N = 1,188 responses from 375 MSN bulletin board / online discussion board communities) with open-ended text questions</p>	<p>Lurkers = members who have never posted in the community at any time Posters = members who post</p>	<p>Lurkers and posters both join for personal reasons and come to get a general understanding. While lurkers did not publicly ask questions, they wanted answers to questions. Lurkers lurk for varied reasons: “just reading/browsing is enough” the most important reason. An offline presence of the community has no significant effect on lurking. Posters feel their needs are better met and perceive more benefit. Lurkers have less respect for posters. Lurkers feel like members, but posters feel a greater sense of membership. Posters consider lurkers as members more than lurkers do.</p>
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Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: Literature Review on Posting and Lurking Behaviors

Preece et al. (2004)	Online communities	Posting and lurking	Quantitative survey (N = 1,188 responses from 375 MSN bulletin board communities) with open-ended text questions	Lurker = someone who has never posted in the community to which they belong Poster = someone who has posted in the community	Lurkers are not selfish free-riders. People lurk in OCs for various reasons: Lurkers: <ul style="list-style-type: none"> • Feel they do not need to post • Want to find out more about a group before participating • Feel they are being helpful by not posting • Cannot make the software work correctly in order to post • Do not like the group dynamics, and • The community is a poor fit for lurkers.
Rafaeli et al. (2004)	Online communities	Social capital, social communication network approach (SCN)	Quantitative analysis of the SCN measures (82 online forums for asynchronous, e-learning undergraduate courses in one university; analysis of logs for eight months)	Lurkers = a persistent but silent audience De-lurking = going from passive participation (only visiting the forum to read) to active participation (actively posting opinions and thoughts on the forum)	Familiarity with the community and persistent involvement contributes to de-lurking. Information overload affects active and passive participation. The effects of group information overload cause users to read less and thus acquire less social capital. In turn, the reduction in social capital erodes community involvement.

Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: Literature Review on Posting and Lurking Behaviors

Rau et al. (2008)	Social network services (SNSs)		Quantitative survey (N = 102 from one social network service)	Lurkers = members who posted less than three posts over a three-month period and who visited the site at least once a month on average Posters = members who posted more than three posts	Significant differences exist in both verbal and affective intimacy levels between lurkers and posters. The level of verbal intimacy level and the affective intimacy level are positively correlated with posting frequency. People lurk in SNSs because they believe their socioemotional needs may not be satisfied even if they post.
Ridings et al. (2006)	Online communities / virtual communities	Social exchange theory	Quantitative survey (N = 663 participants from 36 bulletin board virtual communities)	Lurkers= users who never post Infrequent posters = users who have posted three or less times per month Frequent posters = users who have posted four or more times per month	Lurkers differed significantly from posters, especially in their willingness to give information and exchange social support. There is a gradual progression from lurker to poster regarding the desires to get knowledge and obtain shopping information.

Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: Literature Review on Posting and Lurking Behaviors

Schlosser (2005)	Multiple audience context / film reviews	Posters and lurkers	Experimental design: Experiment 1 with N = 154 students and 2 x 3 factorial; experiment 2 with N = 137 students and a 2 x 2 x 2 factorial		<p>Posters' ratings were significantly less favorable when they received a negative rather than a positive review.</p> <p>Posters' ratings did not differ when they received a positive review from when they received no review.</p> <p>The negative review influenced posters' ratings more than lurkers' ratings.</p> <p>These results suggest that a negativity bias is triggered by a negative review and is a self-presentational strategy used by posters.</p>
Van Uden-Kraan et al. (2008)	Online support groups	Posters and lurkers	Quantitative survey (N = 528 of 19 online support groups)	<p>Lurkers = members who have never posted to the online group</p> <p>Posters = members who have posted to the online group</p>	<p>Participation in an online support group had the same profound effect on lurkers' self-reported feelings of being empowered in several areas as it had on posters (with the exception of the outcome enhanced social wellbeing).</p> <p>Thus, the mere reading of postings from others in online support groups can benefit patients.</p> <p>Lurking in online support groups can be seen as a form of bibliotherapy.</p>

Table 1. Literature Review: Posting and Lurking Behaviors (continued)

Appendix A: An Overview of the Literature on Motivational Factors

Motivational factor	Research context		Research subject	
	Online communities and public social networks	Enterprise social networks	No differentiated analysis between posters and lurkers	Differentiated analysis between posters and lurkers
Reputation	<p>Chan and Chuang (2011) Faraj et al. (2009) Jeppesen and Frederiksen (2006) Lai and Chen (2014) Marett and Joshi (2009) Moore and Serva (2007) Nov et al. (2009) Tang et al. (2012) Wasko and Faraj (2005) Ye et al. (2006)</p>	<p>Alarifi et al. (2015) Alarifi and Sedera (2014) Kuegler et al. (2012, 2015) Rode (2016)</p>	<p>Chan and Chuang (2011) Faraj et al. (2009) Jeppesen and Frederiksen (2006) Kuegler et al. (2012) Kuegler et al. (2015) Rode (2016) Moore and Serva (2007) Nov et al. (2009) Tang et al. (2012) Wasko and Faraj (2005) Ye et al. (2006)</p>	<p>Alarifi et al. (2015) Alarifi and Sedera (2014) Lai and Chen (2014) Marett and Joshi (2009)</p>
Common Identity	<p>Chan and Chuang (2011) Chiu et al. (2006) Dholakia et al. (2004) Fiedler and Sarstedt (2014) Postmes et al. (2001) Postmes et al. (2005) Prentice et al. (1994) Ren et al. (2007, 2011, 2012) Sassenberg (2002) Utz and Sassenberg (2002)</p>	<p>Kuegler et al. (2012)</p>	<p>Chan and Chuang (2011) Dholakia et al. (2004) Fiedler and Sarstedt (2014) Postmes et al. (2001, 2005) Ren et al. (2007, 2012) Sassenberg (2002)</p>	
Common bond	<p>Fiedler and Sarstedt (2014) Prentice et al. (1994) Ren et al. (2007, 2011, 2012) Sassenberg (2002) Utz and Sassenberg (2002)</p>		<p>Fiedler and Sarstedt (2014) Ren et al. (2007, 2012) Sassenberg (2002)</p>	

Table 2. Overview of Prior Literature on the Selected Motivational Factors

Appendix B: An Overview of the Literature on Motivational Factors

Social interaction	Chan and Chuang (2011) Chiu et al. (2006) Faraj and Johnson (2011) Fiedler and Sarstedt (2014) McKenna and Bargh (1999) Ren et al. (2007) Slater et al. (2006) Tsai and Ghoshal (1998) Yli-Renko et al. (2001)		Chan and Chuang (2011) Chiu et al. (2006) Faraj and Johnson (2011) Fiedler and Sarstedt (2014) McKenna and Bargh (1999) Ren et al. (2007) Slater et al. (2006)	
Community commitment	Bateman (2007) Bateman et al. (2006) Bock and Ng (2004) Ellemers et al. (1999) Fan et al. (2009) Faraj et al. (2009) Gupta and Kim (2004) Hur et al. (2011) Jang et al. (2008) Kim et al. (2008) Nov et al. (2009) Ren et al. (2011) Sun et al. (2014) Wasko and Faraj (2005) Wellmann et al. (2001) Ye et al. (2006)		Bateman (2007) Bateman et al. (2006) Bock and Ng (2004) Ellemers et al. (1999) Gupta and Kim (2004) Hur et al. (2011) Jang et al. (2008) Kim et al. (2008) Nov et al. (2009) Wasko and Faraj (2005) Wellmann et al. (2001) Ye et al. (2006)	Fan et al. (2009) Sun et al. (2014)

Table 2. Overview of Prior Literature on the Selected Motivational Factors (continued)

2 **Why do you NOT use the Enterprise Social Network? Analyzing Non-Users' reasons through the lens of Affordances**

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Why do you NOT use the Enterprise Social Network? Analyzing Non-Users' reasons through the lens of Affordances

Abstract

Enterprise Social Networks (ESNs) are increasingly implemented, as they promise to offer enormous potentials to enhance organizational collaboration, innovation, and performance. Nevertheless, many companies fail to encourage their employees to actively engage in ESNs. In order to understand the reasons for the lack of participation, we qualitatively surveyed 553 non-users of a multinational knowledge-intensive company. Using the concept of affordances as theoretical framework, we found our categories to be rooted in six affordances: visibility, persistence, editability, association, accessibility, and practicability. Furthermore, we provide empirical support for three propositions on non-usage: (1) Non-users do not actualize an affordance, because they are not aware of the affordance existence, (2) Non-users do not actualize the affordance owing to their subjective action goals, and (3) Non-users do not actualize the affordance due to negative effects created by the affordance. Our findings also yield important practical implications on how to encourage non-users to participate in ESNs.

Keywords: Enterprise Social Networks, ESN, Social Media, Affordances, Non-user, Non-usage, Non-adoption

Introduction

Recognizing the advantages of social media, organizations are increasingly investing in the rapidly expanding field of social technologies to foster global collaboration (Chin et al. 2015; Kane 2015; Leonardi et al. 2013). Enterprise Social Networks (ESNs) provide new and innovative ways to enhance the exchange of expertise and ideas, leading to higher levels of employee engagement, innovation, and performance (Koch et al. 2012; Kuegler et al. 2015). Unlike public social networks, the use of ESNs is restricted to employees, allowing them to use features such as writing, revising, and uploading content, broadcasting messages to a broader audience as well viewing, commenting or linking content created by others (Leonardi et al. 2013; Turban et al. 2011). Thus, ESNs provide a closed stage for the interaction with and between employees, serve as a platform for asynchronous information and knowledge distribution (Kankanhalli et al. 2003; Rode 2016), and keep employees updated and socially connected (McFarland and Ployhart 2015).

Despite their incredible proliferation, the majority of ESNs implementations is not successful and many companies are struggling to reach a wider adoption of their ESNs by their workforce (Alarifi et al. 2015; Kuegler et al. 2015; Treem et al. 2015). Recent studies predict that a massive 80 % of ESN initiatives will fail to leverage and capitalize the intended benefits (Mann et al. 2012). Both researchers and practitioners have attributed this discrepancy to employees' underutilization of ESNs and lack of adoption (Chin et al. 2015; Li 2015). Yet, as stressed by prior research, developing a systematic and objective understanding why employees do not adopt information technologies constitutes a major challenge for scholars (Selwyn 2003). Considering the enormous potential economic losses, there is a pressing need for both scholars and practitioners to understand why companies still battle to engage their workforce and why a substantial number of employees do not participate in ESN usage.

Although individual adoption of new technologies has been studied extensively in information research (Venkatesh and Davis 2000; Venkatesh et al. 2003), scholars have largely focused on users as research sample. Far less attention has been paid to non-users of technologies (Brown and Venkatesh 2003; Selwyn 2003). Yet, prior studies suggests that users and non-users of new technologies differ in many ways, and are driven by different factors (Dewan and Riggins 2005; Venkatesh and Brown 2001). In regards to private social media, researchers have recognized that non-users differ from users in socio-demographic characteristics such as age, gender, or ethnicity

(Hargittai 2007; Sheldon 2012), perceived usefulness (Neves et al. 2015), personal characteristics (Ryan and Xenos 2011) and sensation seeking (Sheldon 2012). Moreover, scholars have identified critical barriers for usage, such as privacy concerns (Tufekci 2008), rejection of consumer culture (Portwood-Stacer 2013), and behavioral control (Verkasalo et al. 2010).

In the context of ESNs, researchers have not yet devoted attention to explicitly study non-users as a research sample and analyze their reasons. The vast majority of studies in the ESN context have examined active users, investigating their motivations to adopt ESNs (Chin et al. 2015; DiMicco et al. 2008; Rode 2016) or different user types (Alarifi et al. 2015; Beck et al. 2014; van Osch et al. 2016). While this literature strand has yielded important findings, the group of non-users has largely been ignored. Partially, this might be due to methodological limitations, as it is hard to assess non-users through an ESN platform (Park 2014).

We examine a group of 553 non-users of the ESN within a multinational knowledge-intensive company. By giving voice to a large number of actual non-users, we provide a unique access to information and a novel approach for understanding the motives of non-users to deliberately not participate in the ESN. To enhance our understanding of the reasons for non-engagement behavior, we use the concept of affordances as theoretical framework. The affordance perspective focuses on the relationship between people's goals and a technology's material features and thus explains why the same technology may provide different affordances to different user groups (Ellison et al. 2014; Flyverbom et al. 2016). Consequently, it provides great utility for analyzing reasons for non-usage in the context of ESNs. Using an affordance lens, we highlight how non-users can be engaged in active participation of the ESN. Thus, our research question is:

Why do non-users not actualize the affordances of Enterprise Social Networks?

Our research makes several theoretical and practical contributions: We are the first to explore actual non-users in the ESN context, providing in-depth information on why employees deliberately do not participate in the ESN. Furthermore, by qualitatively analyzing, and categorizing non-users' reasons we also contribute to the broader IS literature on technology adoption and enhance the understanding of the non-adoption phenomenon. Moreover, this research presents one of the first efforts to apply the affordance perspective to non-users. By viewing non-usage through an affordance lens, we propose a theoretical framework and generate novel insights

about the interplays between affordances and non-usage behavior. In addition, we find empirical evidence for six distinct affordances of ESNs advancing our knowledge of the affordances of Enterprise Social Media. Finally, we provide several strategic and operational implications for organizations and managers dealing with the implementation, improvement, or organization-wide adoption of ESNs.

The remainder of the paper is organized as follows. First, we describe the theoretical foundation of affordances in the context of non-usage and ESNs. Based on our review on past research, we derive and explain our three propositions regarding the interplay between affordances and non-usage. Second, we introduce our case company, outline our mode of data collection and depict our coding process. Third, we present our empirical findings and outline how the 17 categories emerged and are rooted in the affordances of ESNs. Fourth, we discuss our results and propositions by assigning our identified categories and affordances to our three propositions. After presenting important theoretical and practical contributions of our research, we conclude by referring to the limitations and highlight directions for future work.

Theoretical Background

The concept of affordances originates from the ecological psychology literature and was coined by Gibson in 1979 to explain how animals perceive their environments (Gibson 1979). Gibson suggested that an actor perceives objects not by their inherent physical properties or qualities, but directly by their possibilities for interaction (Gibson 1979; Treem and Leonardi 2012). This perception of an object's utility is called an affordance and the action potential offered by an object is always relative to the observer (Seidel et al. 2014).

Hutchby (2001) was among the first to acknowledge the potential of the affordance approach to analyze the complex relationship between technologies and actors by stressing that an affordance is always a relation between an object and a social entity. The notion of affordances has been broadly applied in IS and organizational research to analyze the design of everyday objects (Gaver 1991; Norman 1999) and information systems (Seidel et al. 2017), to investigate technologically induced social change (Orlikowski and Barley 2001; Zammuto et al. 2007), and to study the impacts of new technologies (Ellison et al. 2014; Treem and Leonardi 2012). In the IS context, an

affordance can be defined as “possibilities for goal-oriented action afforded to specified user groups by technical objects” (Markus and Silver 2008, p. 622).

Affordances constitute a symbiotic relationship between human actions and an artifact’s materiality (Leonardi 2011; Majchrzak et al. 2013). While a technology’s material features are independent of people, affordances are not (Treem and Leonardi 2012). Users subjectively perceive the material features to make conscious choices in order to determine if and how to use the provided material features to pursue their goals (Flyverbom et al. 2016; Seidel et al. 2017). Accordingly, users interpret how they can use new information technologies in light of their action goals (Seidel et al. 2017). This interpretive flexibility inherent in technology use (Orlikowski 1992) contributes to our understanding why the same technology may provide different users with different affordances (Ellison et al. 2014). Thus, we believe the concept of affordances is highly valuable for exploring the reasons for non-users of technologies.

Affordances to explain non-user behavior

The vast majority of scholars have applied the concept of affordance to explore the opportunities of new technologies and their impacts on users and organizations. Accordingly, most scholars have considered an affordance only as an enabler and positive potential to perform a particular action (Pozzi et al. 2014; Volkoff and Strong 2013). However, affordances can also constrain actors to carry out a certain action or a set of specific uses (Gibson 1977; Majchrzak et al. 2013; Zammuto et al. 2007). Nevertheless, only few scholars have acknowledged this inherent, double nature of affordances as simultaneously enabling and constraining the possibility to act (Pozzi et al. 2014; Volkoff and Strong 2013).

Moreover, researchers have mostly focused on actual users recognizing and actualizing affordances in the intended or expected way, leading to primarily positive impacts of affordances on organizational outcomes. Relatively little work has considered the adverse consequences or incomplete actualization of affordances (Volkoff and Strong 2013), ignoring both, non-usage behavior evoked by an affordance and contradictory effects of affordances. Only recently have scholars begun to examine tensions between sharing and restricting knowledge in organizations, created by interplays among affordances (Gibbs et al. 2013; Majchrzak et al. 2013). However, we still know surprisingly little about why actors do not perceive and actualize affordances. To our

best of knowledge, this paper presents the first effort to apply the affordance perspective to understand why non-users deliberately decide not to engage with a new technology.

Yet, we believe the affordance theory offers a powerful lens through which to examine non-user behavior. In line with prior research (Bernhard et al. 2013; Pozzi et al. 2014; Volkoff and Strong 2013), we argue that there is a critical distinction between an affordance existence, an affordance perception, and an affordance actualization and effect which form a process from affordance emergence to affordance effect. We believe that there are three major reasons for non-usage, which are nested in the step from the existence to the perception of affordance as well as from affordance perception to affordance actualization and effect:

Affordances arise from the actor/technology relation and exist independently of whether the actor perceives them or not, whether the actor cares about them or whether there is perceptual information about them (Pozzi et al. 2014). Since an affordance existence only serves as a necessary precondition, users must be aware of the affordance to actualize it (Seidel et al. 2014). Accordingly, we believe that the lack of perception about the technologies' affordances, is one reason for non-usage:

(1) Non-users do not actualize an affordance, because they are not aware of the affordance existence.

Moreover, we believe the perception of the affordance is key to performing a certain action (Hutchby 2001). Only if the users perceive an affordance in light of their subjective actions goals will they realize the offered action possibilities (Treem and Leonardi 2012). Recent research also suggests that affordance's actualization is determined by the extent of difficulty and the effort a user has to invest for using a technology (Bernhard et al. 2013). Thus, we believe non-users will not actualize a perceived affordance and therefore will not use an ESN, if they perceive the effort as too challenging or feel that the technology constrains their ability to carry out their action goals (Treem and Leonardi 2012):

(2) Non-users do not actualize the affordance owing to their subjective action goals.

Researchers have defined actualization as the specific actions by individual actors as they take advantage of one or more affordances by using the technology to achieve immediate outcomes (Strong et al. 2014). The actualization process does not take place in a social vacuum but in a social

context and in interaction with other employees and users (Roberts 2017). Accordingly, the actor will perceive the effects of the affordance actualizations of other users, which will also directly impact and influence his behavior. We know from prior research that actualization decisions of users do not always correspond to the originally intended use of a technology (Orlikowski 1992). Therefore, affordances may create tensions and activate mechanisms that have negative consequences or contradictory effects (Gibbs et al. 2013; Majchrzak et al. 2013), deterring employees from engaging with a technology. Thus, although the affordance is recognized and also in line with the actors' subjective action goals, the actor does not engage with the technology due to negative effects or mechanism created by the affordance.

(3) Non-users do not actualize the affordance due to negative effects created by the affordance.

As each of these propositions lead to different theoretical and managerial implications, we will explore the relation between affordances and non-usage by empirically investigating our propositions. While we believe the relation between affordances and non-usage to be applicable and generalizable to other technologies, we will study them in the ESN context and address the idiosyncrasies of ESNs in the next section.

Organizational Affordances of Enterprise Social Network Use

Owing to the relative novelty of ESNs, research on ESNs' affordances is still at a nascent stage and largely conceptual. Majchrzak and colleagues (2013) identified four social media affordances (metavoicing, triggered attending, network-informed associating, and generative role-taking). Ellison and colleagues (2014) found similar categories (social capital dynamics, support for relationships and interactions, context collapse, and network interactions), whereas Gibbs and colleagues (2013) investigated the tensions (visibility vs. invisibility, engagement vs. disengagement, and sharing vs. control) among affordances.

In an extensive literature review, Treem and Leonardi (2012) identified four unique affordances of social media use in organizations, namely visibility, persistence, editability, and association, which differentiate social media from other collaborative technologies. Only ESNs rate uniformly high on all four affordances, while traditional technologies such as email and teleconferencing may only score high on one or two of these affordances (Treem and Leonardi 2012)

Visibility

ESNs afford employees the possibility to reveal their behavior, knowledge, experiences, and preferences to a broad audience by posting content and status updates (Treem and Leonardi 2012). Thus, information that were previously invisible in traditional collaboration tools are suddenly viewable and traceable by all users with access to the system. The almost unlimited visibility in ESNs also affords reputation-building, attracting the attention of specific organizational audiences, and strategic self-presenting behavior (Treem and Leonardi 2012). Underlining the importance of visibility, recent research postulated the affordance visibility as “a root affordance in the digital age that helps to enable other branch affordances, including persistence, editability, association, and likely many others. In other words, these other affordances are possible because of the visibility affordance” (Flyverbom et al. 2016, p. 101).

Persistence

ESNs also afford possibilities for persistent conversations and information that remain in some form accessible for future use (Flyverbom et al. 2016). By allowing content and knowledge to be re-contextualized, searched, and re-used, persistence creates new and promising avenues for knowledge-sharing practices in the workplace. However, the fact that online expressions in the ESN are automatically archived and “by default persistent, presents a radical deviation from the common, and deeply entrenched experience that what we say and do is ephemeral” (Peter and Valkenburg 2011, p. 227).

Editability

The affordance of editability allows people to carefully and purposefully draft, rehearse, and craft their potential online contributions as well as to modify, revise, and delete content they have already communicated, thus offering contributors a high level of editorial control over the posted content (Flyverbom et al. 2016). Owing to the asynchronicity of the information and the absence of time constraints, users do not have worry about regulating involuntary reactions but can focus on thoroughly crafting the message they hope to convey (Treem and Leonardi 2012).

Association

Finally, associations afforded by ESN enable expertise-sharing, community-building, connection as well as forging and fostering social ties across boundaries (Gibbs et al. 2015; Majchrzak et al. 2013). Owing to the high visibility in ESNs, these associations become apparent for everyone, since users can make their network more explicit, by signaling connections with others. Associations can increase social capital, common identity, and the creation of larger organizational networks (Treem and Leonardi 2012).

Research Design

Our case organization is a large multinational knowledge-intensive company that operates in more than 150 countries. The company faces the challenge of facilitating communication, knowledge-sharing, and information exchange among a geographically dispersed and culturally diverse workforce. To address these challenges and to foster global collaboration, innovation, and productivity, the organization introduced an ESN in 2013 for all employees worldwide. While early user adoption (about 15 % of the workforce) was strong, reaching a wider adoption remains challenging. Nonetheless, more than 150 000 users (about 60 % of the workforce) have registered and created more than 10 000 groups to work on projects outside their teams, exchanging knowledge, skills, and best practices. The platform is run by an external provider of social software and was migrated to a cloud solution in 2015. Owing to the size of the organization, its wide specialization, and global presence, we believe this company to provide a representative sample of the population, and hence serve as an excellent single case for our study.

Access to the platform is provided through the Intranet, requiring a company email address, public-key encryption, and a password from the user. There is also an app for access through mobile devices. The platform's interface is similar to popular public social networking sites. To facilitate the sharing of business-related information, knowledge, expertise, ideas, and experience, it contains Web 2.0 features such as social networking, searching, tagging, commenting, and the authoring of information. Yet, features such as a company wiki, a blogging platform, and a large technological forum are not integrated but coexist parallel to one another. Employees can set up and maintain an individual user-profile, with information about the organizational unit and contact details uploaded and updated automatically. Users can add a profile photo, their current projects,

technical skills, or any other information they want to reveal about themselves. Like private networks, the ESN allows users to send personal messages as well as to follow organizational members and be followed by them. Users can also create and collaborate in open (public spaces) and closed groups (private spaces), exchange in virtual meetings, chat with others, and create task-oriented challenges in the community to stimulate brainstorming and the generation of new ideas. Except for content published in closed groups, all posts and conversations are visible to all ESN users. By default, registered users receive notifications about new contributions or messages in real-time, both in the system and additionally receive notifications of the groups they subscribed to by email. Participation is voluntary and not incentivized.

Methodology

To answer our research questions, we conducted a survey collecting qualitative data via questionnaire free-text comments. The questionnaire was randomly distributed among 80 000 employees in more than 30 countries in order to maximize the variation of respondents. No preselection regarding any socio-demographic characteristic were made. The final sample consisted of 11 284 participants. In order to investigate usage frequency, we asked the participants how often they use the ESN on a five-point-Likert scale with the following response options: daily (1), several times a week (2), several times a month (3), less than once a month (4), and never (5). Furthermore, respondents could check for two additional options if they were unfamiliar with the system (I don't know the system, and the system is not available to me). Participants qualified as non-users if they never use the ESN (5) or if they use the system less than once a month (4). 53.3 % of participants qualified as non-users and were asked to provide detailed reason for their non-usage in an optional, unlimited free-text field. Overall, we recorded 553 comments from ESN non-users. Participants are located in 26 countries. Respondent age ranged from 18 to 72 years, with an average of 44 years ($M = 44.10$; $SD = 10.84$). Average organizational tenure was 15 years with a range of 0 to 58 years ($M = 15.12$; $SD = 10.70$), with less than one-third of the participants being female (24.8 %). A total of 77.7 % of the non-users providing additional information in the free-text field were white color workers, 5.9 % were employed in manufacturing, 3.9 % in research laboratories, 7.7 % were in sales and 4.8 % were working simultaneously in two or more fields.

Regarding the socio-demographic distribution of our sample, we cover the full range and analogous distribution of employees within the cooperation. Thus, we expect the retrieved qualitative information to be fully representative regarding our single case study.

The 553 comments retrieved from the respondents were coded independently by three trained raters. Raters were instructed to aggregate comments into self-defined categories, since we did not use a pre-defined coding scheme in order to allow for maximum in depth information. Thus, individual categories emerged throughout the coding process. If comments yielded multiple aspects for non-usage, the comments were divided into multiple smaller parts, ensuring maximum in-depth information. Each rater coded all comments over three rounds. At the end of each coding round, categories were revised in terms of information density and diversity. No information exchange between raters was allowed during the coding process in order to prevent artificial improvement of the inter-rater reliability. Once all comments were coded, the identified categories were collated in terms of wording. Categories with the same meaning but different wording were reconciled and summarized in open discussion by all three raters simultaneously. No changes in the coding itself were allowed at this point. Overall, 17 categories emerged from this process. Agreement between all raters was assessed using Fleiss kappa ($\kappa = 0.74$, $p < .001$, 95% CI [0.73, 0.76]) and can be interpreted as substantial (Landis and Koch 1977). The final coding, the detailed agreement for each category, and the averaged frequency of each category for all three raters is presented in Table 1.

We checked for differences in socio-demographics according to the distribution within the company. Slight differences were found for the categories forum for *self-promotion*, *lack of critical mass* and *lack of critical opinion and objectivity*, and gender, with female participants naming these reasons less often than male participants (17 %, 6 %, and 4 % respectively). The category *language barriers* showed exceptional higher mean values for age compared to all other categories ($M = 51.3$; $SD = 6.8$), followed by *lack of critical opinion and objectivity* ($M = 47.2$; $SD = 8.7$) and *fear of negative consequences* ($M = 47.0$; $SD = 10.9$). Despite these minor differences, categories were distributed equally among the participants in respect to their socio-demographic characteristics representative within the company.

	Averaged frequency ^a	κ^b	95 % CI
Persistence			
Concerns about terms of use and data protection	3.62 %	0.78**	[0.73, 0.83]
Fear of negative consequences	3.40 %	0.65**	[0.60, 0.70]
Information overload	8.89 %	0.72**	[0.67, 0.77]
Editability			
Lack of critical opinion and objectivity	4.68 %	0.74**	[0.69, 0.79]
Forum for self-promotion	1.75 %	0.66**	[0.61, 0.71]
Association			
Lack of critical mass	2.71 %	0.77**	[0.73, 0.82]
Language barriers	5.27 %	1.00**	[0.95, 1.05]
Rejection of social networks	9.58 %	0.94**	[0.89, 0.99]
Accessibility			
Lack of knowledge about the ESN	4.63 %	0.77**	[0.72, 0.82]
Access too laborious	3.14 %	0.81**	[0.76, 0.86]
Technical problems	2.77 %	0.62**	[0.58, 0.67]
Lack of clear structure	9.15 %	0.80**	[0.75, 0.85]
Practicability			
Irrelevant information	11.92 %	0.64**	[0.59, 0.69]
Lack of time & focus on work	7.72 %	0.76**	[0.71, 0.80]
Waste of time	4.17 %	0.67**	[0.62, 0.72]
No need for usage	9.52 %	0.68**	[0.63, 0.72]
Preference of other channels	7.08 %	0.77**	[0.73, 0.82]
<i>Notes.</i> ^a Frequency of category occurrence averaged over all three raters to indicate the category's importance; ^b Fleiss Kappa; ** $p < .001$.			

Table 1. Averaged Frequency of Occurrence and Inter-rater Reliability for all Categories.

To provide better understanding of the coding, we will exemplify the process with the following statement, provided by one non-user: “*Top Management is merely active within the ESN*”. In the first round, it was coded as “*Management is inactive*”, followed by the second round category “*no sufficient usage by the top management*”, and the final category *lack of critical mass*. To better illustrate the merging process between the three raters regarding the wording of the categories, the final category *fear of negative consequences* will serve as an example. One of the respondents stated “*I get in trouble with management for looking at it while at the office*”. This information was coded by rater 1 as “*colleagues/management have no understanding for usage*”, by rater 2 as

“*negative experiences*” and by rater 3 as “*fear of consequences*”. Agreement on the final category was reached by discussion between the three raters to ensure agreement regarding the wording of the categories and prevent artificial agreement in terms of coding.

Once all the comments were coded, we investigated the 17 categories for their relatedness regarding the four affordances identified by Treem and Leonardi (2012), following the approach proposed by Vaast and Kaganer (2013). While assigning each of the categories to one affordance, some categories yielded additional information that did not allow for explicit classification. Throughout the assessment, two additional affordances emerged: accessibility and practicability. Whereas some aspects of the concept of accessibility has been partially investigated in the context of private social networks (boyd 2010; Fox and Moreland 2015), to date, the affordance of practicability has not been identified in the literature. Accessibility affords users to be able to easily access information, while practicability affords users to accomplish their designated work tasks and goals with the technology.

Analysis and Findings

In analyzing our data, we identified 17 categories to be anchored in six distinct affordances, which we have summarized in Table 2 (Appendix A). Owing to the omnipresence of visibility as root affordance, we focus on persistence, editability, association, accessibility, and practicability, to investigate differences and similarities between the observed categories for explaining non-usage behavior within the ESN context. Thereafter, we will exemplify the interplay between the visibility and the aforementioned affordances.

Persistence

The persistence of information in ESNs relates to the automatic saving and archiving of online content, resulting in incrementally growing content. We identified three non-user behavior categories rooted in the affordance of persistence: 1) *concerns about the terms of use and data protection*, 2) *fear of negative consequences*, and 3) *an increase of information overload*.

Concerns about terms of use and data protection

The unrestricted persistence of online content amplifies concerns about privacy settings and data protection. Thus, participants noted that they did not use the ESN owing to worries about data privacy, feeling that the protection of personal data is at risk: *“I don’t see a transparency to what happens with the data”*. The respondents were also concerned about the terms and conditions: *“complex usage specifications (e.g. what you may share, what not)”* and felt that it was *“too much legal info to stomach when signing up”*. Further, they clearly disapproved of their data being outsourced to an external provider and stored in a cloud. The fact that, once they registered, the platform does not allow them to unsubscribe and delete their account reinforced the persistence of content on the ESN, deterring non-users participation.

Fear of negative consequences

Second, we uncovered that the high visibility and persistence afforded by the ESN and the lack of anonymity as perceived by the individuals led to fears about negative consequences, which discouraged employees from using the ESN. Thus, non-users expressed different worries about how their behavior in the ESN might negatively impact their offline work context: First, non-users were afraid of negative consequences as a result of (accidentally) sharing confidential information: *“I cannot see that sharing info on my work isn’t sometimes also sharing secrets that I should not be sharing”*. Second, participants expressed a fear of disgracing themselves: *“I do not want to appear unknowledgeable”* or *“don’t want myself to look stupid”*. Furthermore, posts in the ESN might be perceived as to have a direct influence on the work evaluation and posting critical content can threaten the career or even the job. Third, attendees revealed that they feared their managers could control and spy on their online behavior and contents: *“It is ‘regulated’ by our line managers as to what you can and can’t post. So, easier not to post”* or *“I get in trouble with management for looking at it while at the office”*. Fourth, employees affirmed that they did not trust the community, not knowing who reads their posts, and stressed that negative past experiences further prevented them from using it. Fifth, respondents disclosed that they were afraid their specialized knowledge could be stolen when they share it on the ESN: *“expert know-how could be reused in unauthorized ways”*.

Information overload

Moreover, we identified information overload as a negative consequence of the affordance of persistence, particularly rapidly growing content. Thus, non-users reported that they decided to not use the ESN, because they felt overwhelmed and overstimulated by the exponential growth of content on it. Other participants even indicated that they feared the information overload induced by the ESN would increase their risk of burnout. Respondents also wrote that they were afraid of missing out on relevant information due to the overwhelming amount of information and stressed the difficulty of separating important content from less relevant content in the ESN: “*Overstimulation and information overflow – it is too hard to distinguish important from unimportant information*”. Further, they felt information overload was intensified by receiving too much information from too many competing channels, as one participant summed up: “*it doesn’t matter how many information channels will be invented; it will still only be me as a recipient*”.

Editability

Editability in ESNs affords users the ability to carefully compose messages as well as amend, add, revise, delete, and collaboratively change published content, thus giving the contributor full control over the posted content. As content is created asynchronously and isolated from others with almost no time constraints, users can purposefully craft and recraft messages according to their intentions without worrying about real time interruption, intermitting feedback or time pressure as is common for services such as instant messaging, telephone or video conferences. We identified two non-user categories, which are anchored in the affordance of editability: 1) *lack of critical opinion and objectivity* and 2) *forum for self-promotion*.

Lack of critical opinion and objectivity

Our findings suggest that editability affords a lack of objectivity and critical expression of opinion, which keeps some employees from using the ESN. Non-users reported ESN users to be extremely aware of the work context, the existing organizational hierarchies reflected in the ESN as well as potential positive and negative reactions by their colleagues and superiors due to the universal visibility and effects such as recognition and direct influence on work evaluation. Thus, many users seem to be reluctant to post critical content regarding potential problems or grievances and take advantage of the unlimited amount of time to purposefully craft their messages afforded by

editability. Additionally, spontaneous discussions or emotional reactions are unlikely due the possibility of unlimited editing of information. Instead of critical discussions or controversial topics, some ESN users seem to specifically targeting and tailoring their message to particular audiences according to expected responses and thus, “*many just echo a view without even knowing the real reasons*”. Some participants also stressed that the ESN mainly consisted of subjective opinions instead of expertise, and reliable information: “*I do not have to read everyone’s opinions*”, “*people responding are not real experts*” and “*the share of robust information is close to zero*”.

Forum for self-promotion

Further, our results emphasize that editability led to the ESN being used as a forum for self-promotion, which deterred employees from participating in the ESN. Unlike in real time communication and due to no time constraints, content can be crafted and revised with high diligence so contributors are perceived as outstanding eloquent. Thus, some non-users noted that they perceived ESN users to be very concerned about how others will perceive them. Further, they experienced that these users edit and re-edit their postings and behavior in order to present themselves in a favorable light and strategically position themselves to increase recognition by other users. These users also overemphasized their competencies in the community and strategically manipulated their conveyed messages. Hence, some respondents reported self-presentation and impression management in the ESN, indicating that “*there are just too many self-promoters, of whom there are too many everywhere*” and critiquing that “*it is used by managers to celebrate ‘minor’ successes (as a career move)*”.

Association

Associations afford employees the ability to create and sustain relationships. By bringing users together and users with content, association allow employees to build on members’ social ties as well as view and connect to information produced by others. We identified three categories we could attribute to the affordance of association: 1) *lack of critical mass*, 2) *language barriers*, and 3) *rejection of social networks*.

Lack of critical mass

First, our results disclose the importance for ESNs to reach a critical mass in order to gain momentum, to get more users on board and take advantage of the action possibilities afforded by association. Thus, some surveyed non-users stated that the ESN was not sufficiently used in their immediate work environment: *“My work team doesn’t use it to communicate”*, or *“Just another platform that no one seems to use”*. Thus, they suggested more explicitly: *“in my opinion, it needs more participants and needs to be a larger, more connected network”*. Some participants also noted that use of the ESN was not be encouraged in their department and is *“not promoted by management or peers”*

Language barriers

Our analysis also displayed language barriers as a key determinant of non-users’ resistance. Not having a shared language is an obstacle for realizing the action possibilities of the association affordance, particularly in the process of forging new ties and sharing relevant information. Due to the lack of mutual understanding, respondents expressed difficulties associating with both content and people. This barrier is accentuated by non-user statements such as: *“I’m not knowledgeable in the platform language, English”*, and *“the comments are in German and, I cannot follow what is being said. So, I cannot add or subtract what is being said”*. Notably, language barriers were perceived as hindrances both by native English and non-English-speaking respondents: *“most information is not available in my local language”*.

Rejection of social networks

Third, we found general rejection of social networks to be a decisive factor hindering association in the ESN, stressing that a positive attitude towards social technology and networking in the workplace is crucial in order to engage in ESNs. Some respondents reported that they generally do not use any social network: *“I am not a friend of ‘social’ networks”*. Some were not interested in using the ESN based on experiences of public networks: *“it reminds me of Facebook/LinkedIn and I have not wrapped myself around it being useful”*. Moreover, many participants even revealed a strong reluctance toward all social networks: *“In principle, no social media!!!!”*, *“so-called social networks are a horror to me”* and *“I consider social networks to be superfluous, also in the private realm”*.

Accessibility

In analyzing our data, we identified the affordance of accessibility to be of central importance for user participation in ESNs. Although association, visibility and persistence cover some aspects of accessibility, our findings revealed that it is a standalone affordance in the context of ESNs. Especially in times of high mobility, it is indispensable that users can access required information easily from any device, anytime, and anywhere. Only if employees are able to access the information and content on the platform they will be able to make use of the action possibilities afforded by visibility, editability, persistence, and association. We understand accessibility as the ability of easily reaching, finding, and searching content and people and the capability of interpreting the data. Consequently, information can be available but still be inaccessible if the difficulty in obtaining the data is too high. Likewise, data becomes more accessible if effort expenditure is reduced. We identified four categories that refer to the association of accessibility: 1) *lack of the knowledge about the ESN*, 2) *access too laborious*, 3) *technical problems*, and 4) *lack of clear structure*.

Lack of knowledge about the ESN

Awareness and information about the existence of technology's affordance is an unconditional prerequisite for its accessibility, actualization, and user participation. Some participants reported they lacked this knowledge about the ESN, stating "*no one really told me about it when I started*" or "*I was not aware it existed*". Moreover, they expressed feeling uncomfortable using the ESN, having never been trained how to efficiently use it: "*lack of knowledge how where what....*" and "*I've never been taught how to use it*".

Access too laborious

Furthermore, we discovered that the lack of easy accessibility to content afforded by the ESN platform had a deterrent effect on non-users. Thus, non-users criticized the ESN for not affording them an automatic access or default log-in; for instance: "*computer and phone will not keep logged in, so I can't be bothered to keep logging in*". Owing to the high password protection and the required log-in via certificate-based PKI Smart Card, some respondents noted that the expenditures and efforts for the log-in process and the barriers to entry were too high: "*I find it very laborious*".

to log-in somewhere to retrieve information”, “Also, it takes a PKI card log in just to view a topic”, and “I must use my work PC with PKI and password. Too cumbersome”.

Technical problems

Moreover, we found that the ESN does not afford participants easy accessibility to content, information, and people owing to technical problems, which keep employees from using the system. Thus, some respondents wrote that they faced problems accessing the content: “*most of the time [the] page doesn't open*”. They also criticized the ESN for not working on all devices: “*because it does not really work on my desktop computer*” or “*My smartphone has not enough space to storage the app*”.

Lack of clear structure

Finally, our findings display that ESNs do not afford accessibility and do not encourage usage if information is not adequately structured and hence cannot be found or searched. Many employees wrote that they did not use the ESN, because they perceived it as confusing: “*information is posted in an unstructured and chaotic way*”. Thus, participants commented, that the afforded accessibility was too laborious and time-consuming due to a poor search function and that they are not able to find the information they are looking for: “*feels like chaos looking for anything*” or “*I do not want to spend all my time searching for stuff*”.

Practicability

Practicability is the second affordance that emerged throughout the coding process when investigating non-usage in the ESN context. Practicability affords people to use a technology to accomplish their designated tasks and goals. Only if employees perceive the ESN as a useful addition to their skills and capabilities while completing their daily job tasks, they will actively participate. If employees engage in usage behavior, they have deemed a technology to be practicable. In the context of actual non-users, this affordance emerged as one of the most unambiguous affordances for promoting usage behavior among non-users. We identified five categories anchored within the affordance practicability: 1) *irrelevant information*, 2) *lack of time & focus on work*, 3) *waste of time* 4) *no need for usage*, and 5) *preference of other channels*.

Irrelevant information

Results indicate non-users to perceive the ESN to not afford them practicability, due to a high extent of irrelevant content and a lack of added value. Some respondents experienced the content in the ESN to be useless regarding their daily activities: *“too much irrelevant or nice to know information rather than relevant or important info for me to do my job”*. Moreover, non-users stated that the ESN did not generate any added value for them: *“I don’t see any meaningful conversations in the email. The emails only appear from one person, commenting or talking to themselves”* or *“the ESN is at the same low level as Facebook: too much hot air on all levels”*. Consequently, some were not interested in using the ESN: *“It’s too random, subjects don’t seem compelling to me”* and *“because it is only about networking”*.

Lack of time & focus on work

Moreover, our findings also suggest that the ESN did not afford practicability for the surveyed non-users, because they felt they had no time to engage with the system and believed it was not helpful for getting their work done. First, non-users reported that they do not use the ESN due to their workload and a lack of time: *“With a workload of over 150 %, there is definitely no time for anything else”* and *“Reading ESN emails and links is a luxury that I do not have the time for”*. Second, respondents voiced their focus and priorities to do their daily jobs: *“I have actual work to do”*, *“no time, I have to work!!!!”*, and *“I am principally employed to do my job. If I cannot allocate my time on work project, it negatively affects my productivity and thus my target achievements”*.

Waste of time

In addition to our previous categories, our results emphasize non-users to not only perceive the ESN to not afford them practicability, but even experience ESN use as a waste of time: *“similar to Facebook, you just fritter away a lot of time”*, *“it is an expenditure of time that often cannot be justified”*, and *“a waste of time. People should get on with their jobs”*. Some participants even expressed a strong opposition towards other employees using the ESN: *“I guess that is why I am so busy, people are on ESN and NOT providing service to customers, internal and external”*.

No need for usage

Furthermore, a group of non-users wrote that they experience no necessity to actively use the system to accomplish their work, due to their work situation: *“it has not yet arrived in manufacturing, also because not all employees regularly work with PCs”* or *“I work outside the office, on plants”*. Further, non-users stressed they do not need the ESN to do their job owing to their job characteristics and position: *“The legal topic I am responsible for cannot be discussed in a social network”* and *“I irregularly read the info from the ESN groups but never contribute myself as it does not make sense in my position”*.

Preference of other channels

Finally, our findings indicate the ESN to not afford practicability to non-users, especially compared to alternative means of communication. Respondents wrote that they do not need to communicate via ESN, because they can reach their colleagues more efficiently via other collaboration tools: *„I can easily exchange with groups and persons who are important to me over phone, email, communicator and sharepoint”*. Additionally, participants also wrote that they do not feel the need to engage in exchange via social technologies, because they preferred direct personal contact in their offline network: *“in my view, personal and targeted communication is much more effective than the interlinked and nested information or comments in social media”*. Further, non-users perceived the ESN as an unsuitable medium for conducting business activities: *“I don’t consider the format ‘internal Facebook’ to be appropriate for the workplace”*.

Visibility

In the ESN contributions are visible to all employees with access to the systems. As recently conceptualized by Flyverbom et al. (2016), we found empirical evidence for visibility as root affordance which enables the other identified affordances in the investigated ESN. The omnipresent nature of visibility becomes clearer when taking a closer look at the aforementioned affordances and their constituting categories. Visibility is related to the affordance persistence, as *concerns about data, fear of negative consequences, and information overload* are also only possible due to the high visibility within the ESN. The interrelatedness of the two affordances can be illustrated by the category *information overload*. *Information overload* emerges due to the unrestricted permanence of information, afforded by persistence, but the affordance of visibility is

the cause for the profusion of information, as information can only be persistent when they are visible.

Analogous, the categories constituting the affordance of editability (*forum for self-promotion, lack of critical opinion*) are likewise related to the root affordance of visibility. If posted content was not visible and available for other users, there would be no need to excessively promote one's own characteristics. Additionally, if posted information could be selectively shared within the ESN, no negative reactions from colleagues or superiors would be expected, since the content would be only visibly to specific participants.

The affordance of association is also anchored in the affordance of visibility. ESNs afford users to make their network visible and to forge new associations by following others users' visible connections and content. Accordingly, users can only associate and connect to content and people that is visible for them. As illustrated by the categories *lack of critical mass* and *rejection of social networks*, associations are hindered if the content is not visible to enough people or if the existing ties are not displayed in the ESN.

Furthermore, visibility shows a strong connection to our newly identified affordances: 1) accessibility and 2) practicability. The accessibility of information anchors in the affordance of visibility, as only information that is visible in the ESN is accessible by its users. As demonstrated by *lack of clear structure*, the mere visibility of content in the absence of an appropriable structure will have a negative impact on usage. Finally, a strong tie between the affordances visibility and practicability is apparent, especially for the category *irrelevant information*. Owing to the high visibility and availability of information, users also receive undesired information that is not necessary for them to accomplish their tasks, leading to a decrease in usage behavior.

Discussion

Our study conceptualized and investigated non-users' reasons to not engage in active ESN usage, applying the concept of affordances as a theoretical framework. In a first step, we set out to qualitatively examine and categorize non-users' motives by evaluating and categorizing free-text comments, leading to 17 categories.

Theoretical Contribution

We found empirical evidence for the affordances of association, persistence, and editability outlined by Treem and Leonardi (2012), as well as the existence of visibility as a root metaphor as theoretically presumed by Flyverbom et al. (2016), thus contributing to a better understanding of the concept of root affordances and the interplay between affordances.

Moreover, we expand the understanding of the affordances of ESNs by identifying two additional affordances: Accessibility and practicability. The key characteristic of accessibility is the amount of effort required and the difficulty associated with obtaining information (Stohl et al. 2016). Especially in the age of digitalization and mobility, it is indispensable for users to have constant and convenient accessibility (Fox and Moreland 2015). This form of structuring is especially relevant in established ESNs, where the sheer growth of content afforded by persistence creates difficulties for employees to access desired content and determines the way to use the system (Mansour et al. 2013). Users' metaknowledge or their transactive memory systems might aid to obtain the relevant data (Contractor and Monge 2002), but with the increasing amount of data, those systems reach their limits. Thus, whereas high accessibility seems to be desired, too much accessible and unstructured information can hinder users' ability to focus on the content they are looking for (Leonardi and Vaast 2017). The affordance of practicability is characterized by the perceived added value for pursuing work-related goals. Practicability is especially important in the work context, where the effective completion of assigned tasks is desired and provides competitive advantage (Kuegler et al. 2015). Thus, the affordance of practicability addresses aspects of usefulness but not usability (McGrenere and Ho 2000; Antonenko et al. 2016).

As displayed in Figure 1, our findings also provide empirical support for our three postulated propositions:

(1) Non-users do not actualize an affordance, because they are not aware of the affordance existence.

Due to a lack of awareness about the ESN, its features and offered possibilities, non-users do not perceive the action possibilities afforded by the ESN, and thus cannot actualize them. This is demonstrated by the categories *lack of knowledge* (accessibility) and *Waste of time* and *No need for active usage* (practicability). Thus, non-users indicated that they did not have sufficient information about the ESN and its affordances.

(2) *Non-users do not actualize the affordance owing to their subjective action goals.*

Our results show that many of the investigated non-users are aware of the ESN and its affordances, but do not engage in ESN usage behavior, because they have diverging action goals. This proposition can be exemplified by the categories *irrelevant information* and *lack of time & focus on work*. Both categories illustrate that the surveyed non-users pursue the goal of getting their work done and receiving only relevant job-related information, but feel that the ESN does not enable but rather constrain their ability to reach this action goal. Likewise, our analysis revealed that non-users do not actualize the perceived affordance as they believe that alternative action patterns allow them to reach their goals (e.g. reaching a broader audience as well as work-related communication and networking) more efficiently as demonstrated by the categories *preference of other channels*, *lack of critical mass* (association). Moreover, our findings provide empirical evidence that non-users will not actualize an affordance if they perceive the necessary actualization effort as too high. This linkage can be clearly seen in the categories *access to laborious, technical problems* and *lack of clear structure* (accessibility) as well as by category *language barriers* (association).

(3) *Non-users do not actualize the affordance due to negative effects created by the affordance.*

We also found support that non-users do not actualize the affordance due to negative effects or mechanisms evoked by the affordance. The categories *concerns about data protection* (persistence) and *rejection of social networks* (association) demonstrated that non-users do not participate in the ESN as they reject parts of the inherent nature of the same affordance. In both cases, non-users decided to not use the ESN due to the longevity and permanence of information and automatic saving and recording of data which is enabled by the affordances of persistency and visibility. Furthermore, we found evidence that the affordances of the ESN created negative mechanism, which deterred non-users from using the technology. Thus, members of the ESN took advantages of the affordances editability and visibility to adapt their posting behavior and strategically position themselves, as exemplified by the categories *forum for self-promotion* and *lack of critical opinion and objectivity* (editability), which discouraged non-users from engaging with the ESN.

(1) Non-user do not recognize the affordance	Non-users do not actualize the affordance due to ...	
	(2) ...their action goals	(3) ... effects created by the affordance
		<p>Persistence</p> <ul style="list-style-type: none"> - Concerns about data protection - Fear of negative consequences - Information overload
		<p>Editability</p> <ul style="list-style-type: none"> - Lack of critical opinion and objectivity - Forum for self-promotion
		<p>Association</p> <ul style="list-style-type: none"> - Rejection of social networks;
	<p>Association</p> <ul style="list-style-type: none"> - Lack of critical mass - Language barriers 	
		<p>Accessibility</p> <ul style="list-style-type: none"> - Access to laborious - Technical problems - Lack of clear structure
<p>Accessibility</p> <ul style="list-style-type: none"> - Lack of knowledge about the ESN 		
		<p>Practicability</p> <ul style="list-style-type: none"> - Lack of time & focus on work - Irrelevant information - Preference of other channels
<p>Practicability</p> <ul style="list-style-type: none"> - Waste of time - No need for usage 		

Figure 1. Assignment of affordances and categories to our propositions

Practical Contribution

Our findings enhance our knowledge of the non-usage phenomenon both in the specific context of ESNs as well as for other technologies. The understanding of non-users' underlying reasons is pivotal for organizations, particularly if the ultimate goal is to increase technology adoption (Venkatesh and Brown 2001). By considering each of our aforementioned propositions about non-usage, numerous strategic and operational practical implications can be derived in order to engage non-users in ESNs:

(1) To address the lack of perception of the existing ESN affordances, organizations should explicitly raise the awareness about the ESN and its inherent affordances. Hence, corporations should give users an in-depth introduction on how they can efficiently use the ESN and its action possibilities for collaboration, for their daily work and for their goals. To reach a wider audience, this information about the action possibilities of the ESN should be shared through a diversity of

information sources, such as external communication channels, like intranet, newsletters and emails from the top management and informal promoters. As our results indicate that some employees felt that they perceive they cannot use the system due to their particular work situation, we also recommend companies to consider how all employees can be included and participate in the ESN (e.g. via smart applications, which are allowed to be used also on private devices for mobile workers and blue-collar workers without PCs).

(2) Regarding the non-usage of ESNs due to diverging action goals, we advise organizations to engage in dialogue with their employees to gain a better understanding of their action goals and actualization efforts. Thus, organizations should listen to your employees why they can currently not achieve their action with the ESN and what they would need to carry out their action goals with the ESN. As our case study revealed non-users were not able to reach the action goal of getting their daily work done in the ESN, we recommend companies to integrate tools and implement features, which are explicitly designed to improve work-related efficiency. By reducing the number of channels, integrating existing and established tools (e.g. email), companies can also attract a critical mass avoid that alternative action patterns allow their employees to reach their goals faster. Moreover, organizations should strive to lower actualization efforts by improving technical functionality, providing a clear usability, and ensuring easy and accessibility of information.

(3) Finally, to avoid non-usage due to negative mechanisms evoked by the affordance we recommend organizations to be mindful and aware of potential negative effects and the social forces in an ESN. Thus, managers can foster trust in the ESN by providing employees with transparent information regarding data protection, privacy, and data security and responding to respective concerns regarding the persistence of information. Our findings also confirms that users will actualize affordances according to their needs which do not always correspond with the originally intended use of the ESN (Orlikowski 1992), which deters non-users from engaging with the technology. Leaders can deescalate these tensions and moderate these negative effects, by not supporting unintended mechanisms created by affordances, such as self-promotion, but instead encourage and positively react to critical posts. By creating such an open communication culture, organizations can avoid negative experiences and encourage their non-users to actively participate.

Limitations

We identify several limitations in this study. First, we conducted this research using data from a single ESN system in a single organization. Due to multinational context of our case as well as the representativeness of our sample in terms of socio-demographic distribution, we believe the identified categories and affordances, to be transferable to other contexts due to the similar underlying material properties of the investigated ESN systems (Leonardi 2011; Seidel et al. 2014). Nonetheless, additional research is advised to generalize our findings (Eisenhardt 1989; Eisenhardt and Graebner 2007).

Second, as is common for qualitative research designs, we could not statistically control for socio-demographic influences such as cultural background, gender, age, or tenure. Nevertheless, we checked for descriptive socio-demographic differences between the identified categories and found (only) slight differences. In line with prior research, we believe the theory of affordances is conceptualized to be less sensitive to such influences (Antonenko et al. 2016; Bower 2008). Nonetheless, we encourage researchers to investigate potential differences related to these sociocultural and environmental differences regarding non-usage behavior in the ESN context.

Conclusion

To date, very few studies have investigated non-adoption of social media, and no study has focused on exploring non-usage in the context of ESNs. Our work generates novel insights on the underlying reasons for non-users of social media in organizations, making several important contributions: First, by conducting a qualitative study and giving voice to 553 actual non-users of an ESN we identified and categorized motives for users to not engage in ESNs and provided in-depth information about obstacles for active participation. By shedding light on this sparsely investigated group of users, we offer valuable insights for the IS community to understand the non-adoption phenomena of technologies. Second, we analyzed affordances in the context of ESNs and were able to find empirical evidence for the affordances of persistence, editability and association, and visibility as root affordance, as conceptualized by prior research (Flyverbom et al. 2016; Treem and Leonardi 2012). Third, we identified two new affordances of ESNs and demonstrated their relevance: Accessibility, which affords users to easily reach, find, and search content as well as practicability, which affords employees to use a technology to accomplish their designated tasks

and goals. Fourth, we theorized on the relationship between affordances and non-user behavior and derived three propositions why non-users do not actualize the affordances of ESNs. We assigned the emerged categories and affordances to the three propositions, providing empirical evidence for these assumptions and a framework for the interplay between affordances and non-usage. Based on this relation, we provided detailed guidelines for practitioners on how to encourage participation in ESNs. Thus we believe our findings will assist both managers and IT architects to specifically address the needs and motives of non-users for a successful implementation, organization-wide adoption and improvement of Enterprise Social Media.

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Appendix A: Overview of identified Affordances and Categories (with definition and examples)

Affordance	Category	Definition	Example
Persistence	Concerns about terms of use and data protection	Employees' lack of trust in data safety, privacy concerns, and rejection of the terms of use	<p><i>"Because agreement of the terms of usage includes the monitoring of media and contents"</i></p> <p><i>"NSA surveillance"</i></p> <p><i>"NOT – because of the new GTCs and the outsourcing of the platform → it is no longer internal – no confidence"</i></p>
	Fear of negative consequences	Employees' impression that ESN usage, especially critical communicative acts, might have negative impacts for them personally	<p><i>"Fear of being spied on and use of information against me by the HR department and/or managers"</i></p> <p><i>"Colleagues make me feel like I am goofing around on the Internet when they see me using it"</i></p> <p><i>"I am unsure if there is freedom of expression in this company without negative consequences"</i></p>
	Information overload	Employees feel flooded by a constantly rising number of contributions, conversations, and email notifications, as well as an increasing number of groups and channels	<p><i>"I joined once before and my inbox started to become flooded with invites to groups which weren't always relevant"</i></p> <p><i>"My colleagues who have signed up to ESN all tell me not to, because all they get as a result is an inbox full of spam"</i></p> <p><i>"Important information gets lost in the ESN in the flood of information"</i></p>
Editability	Lack of critical opinion and objectivity	Employees' impression that there are not enough critical and objective conversations as well as reliable information in the ESN	<p><i>"It is interesting that criticism or critical discussions of posts is seemingly not permitted. True to the motto: all is good"</i></p> <p><i>"It is opinion and of a social nature. Not necessarily fact"</i></p> <p><i>"There is a lot of false information on the ESN"</i></p>
	Forum for self-promotion	Employees' perceptions that other organizational members use the ESN only to put themselves in a favorable light in order to gain personal advantages	<p><i>"It seems generally populated by professional communicators who feed official messages into the system: Marketing Manager A reports a success; Marketing Manager B congratulates and forwards to 4 other groups"</i></p> <p><i>"I often get the impression that there are only people with image neurosis' in the ESN"</i></p>
Association	Lack of critical mass	Employees' perceptions that a sufficient number of people are needed in the network to be able to use it as a channel for collaboration	<p><i>"Lacks critical mass and not used by an adequate number of influential people"</i></p> <p><i>"In such a network, there will rarely be any competent people, since such people don't have time for this"</i></p>
	Language barrier	Difficulties to understand and associate with other content and people due to a lack of language skills	<p><i>"Discussing and communicating in English is too laborious and time-consuming for me, and it is difficult to hit the right 'note' if you aren't sitting facing each other"</i></p>

Table 2. Overview of the Affordances

Association	Rejection of social networks	A reluctance to use social technologies and private social networks in general	<i>"In principle, I don't want to disclose any personal data on social platforms or on Facebook"</i> <i>"Furthermore, I believe that social media and platforms are dangerous"</i>
Accessibility	Lack of knowledge about the ESN	Employees are not aware of the existence of the ESN or have not been trained how to use it	<i>"Never heard of it. Not promoted by management or peers."</i> <i>"I don't know in what way it should be part of my work time"</i>
	Access too laborious	Employees experience the log-in process as too cumbersome and time-consuming	<i>"It requires SSL encryption log-in. It doesn't accept Windows' default log-in"</i> <i>"Need to use your PKI for each and every photograph... too long a process"</i>
	Technical problems	Difficulties reaching and accessing content on the ESN	<i>"I keep on getting disconnected for technical reasons"</i> <i>"IT connectivity poor to support stable operation"</i>
	Lack of clear structure	Employees consider the information to be disorganized and not structured for easy findability and searchability	<i>"Information is not organized for easy access"</i> <i>"Like everywhere in this company, the search function is practically unusable, so you don't find what you look for"</i>
Practicability	Irrelevant information	Employees consider the content they read in the ESN as unimportant for their job and it does not create added value for them	<i>"Sorry but there is no value for me in using it. Seriously I just cannot think about what would I do there, I just have an account there because we were told to do so and add ourselves to some relevant groups there"</i>
	Lack of time & focus on work	Employees feeling, they do not have enough time left to use the ESN as well as their priorities are set on getting their work done	<i>"I have work to do, can't browse social media on company time"</i> <i>"It negatively Affects MY UTILIZATION which affects my compensation"</i> <i>"It's intrusive all day long. Distracting"</i>
	Waste of time	Employees consider time spent on the ESN as a useless or pointless activity	<i>"Focus on what we do best rather than on trendy technology. It is an excuse to waste time"</i> <i>"A waste of time and money"</i>
	No need for usage	Employees perceive no need to use the ESN due to their work situation or position	<i>"I am never in a position where collaboration with others is needed"</i> <i>"Since my workplace is mostly at customer sites, there is only a little time left in the office for active interaction with media such as the ESN"</i>
	Preference of other channels	Employees favor alternative communication channels or direct communication over ESN use	<i>"In the event that an issue arises I would need outside assistance on, I call and email various people until I get in direct contact with whomever can help"</i> <i>"I believe it is artificial to have some sort of internal Facebook that is supposed to look the same, but does other things"</i>

Table 2. Overview of the Affordances (continued).

3 Improving Digital Collaboration: Understanding the challenges of Enterprise Social Networks and employees' suggestions for improvement

Lisa Giermindl, Franz Strich and Marina Fiedler

Improving Digital Collaboration: Understanding the challenges of Enterprise Social Networks and employees' suggestions for improvement

Abstract

Improving digital collaboration and fostering effective communication among a widespread workforce continues to be a perpetual challenge for most companies. Thus, companies are progressively turning to Enterprise Social Networks (ESNs), since they promise new avenues for collaborative working. Nevertheless, most ESN initiatives fail to reach a wider adoption, resulting in high economic costs and losses. So far, organizations along with scholars only have a preliminary understanding of the non-adoption phenomenon and the challenges associated with ESNs. We aim to address these gaps using a qualitative case study approach. This paper pursues four interrelated goals: First, we review existing scholarship on social technologies in the workplace to provide a systematic overview of the opportunities of ESNs with regards to digital collaboration and the changing nature of work. Second, we give voice to a large number of frequent and infrequent ESN users to understand the challenges employees face in their daily interactions with ESNs. Third, we derive implementable solutions on how to overcome these challenges based on actual employee suggestions for improvement and offer a practical framework how to improve and successfully adopt ESNs. Fourth, we discuss how our findings extend prior research on the adoption of information technologies and ESNs in particular. By incorporating the full spectrum from problem identification to solution, we provide important theoretical implications for the IS community as well as practical advice for digital leaders and managers.

Keywords: Enterprise Social Network, ESN, Enterprise Social Media, Social Software, Changing Nature of Work, Digital Collaboration, Challenges, Opportunities, Suggestions for Improvement

Introduction

In the age of digitalization, globalization, Moore's Law, and disruptive innovation, ad hoc decisions become increasingly critical for organization's survival (Koenig et al. 2013). However, especially large organizations battle to keep pace with startups and smaller enterprises as well as with discontinuous change (Christensen 2013; Kane et al. 2016; Koenig et al. 2013). One of the reasons why large corporations are not adapting quickly enough is that they struggle to connect their increasingly globally dispersed, virtual knowledge workers and are faced with slow processes as well as a lack of collaboration (Garmestani and Benson 2013). Thus, organizations heavily rely on social technologies to promote information exchange and knowledge sharing among their widespread workforce (Leonardi et al. 2013). They turn to Enterprise Social Networks (ESNs), as intra-organizational social software and collaboration platforms, since they promise to accelerate collaborative processes as well as problem solving and decision making (Giermindl et al. 2018; Turban et al. 2011). Since these platforms are digital, they allow anyone in the organization to access content and share knowledge at any time, from any place (Kane 2015).

ESNs provide new and innovative ways to facilitate the location and access of expertise and people and promote social interaction among employees, which can result in improved knowledge management and enhanced employee engagement and innovation (Andriole 2010; Leidner et al. 2010; Hemsley and Mason 2012; Huang et al. 2013; Kuegler et al. 2015). They enable employees to connect to business conversations, enlarge their networks, work in self-organized teams, co-generate and stimulate ideas, as well as facilitate communication through time and space (Cross et al. 2001; Kane 2015). Thus, they offer companies unprecedented opportunities for workforce training, for internal recruiting and evaluating potential talents as well as for managing their diverse and evolving digital workforce (Leidner et al. 2010; Majchrzak et al. 2009). Therefore, like their public counterparts, ESNs have the potential to revolutionize how people interact in the workplace (Cao et al. 2013).

In light these desired business outcomes, organizations worldwide continue to invest heavily in social software for the workplace (Giermindl et al. 2017; Kane 2015; Leonardi et al. 2013). In the last years, the worldwide Enterprise Social Network (ESN) market revenue has grown from US\$1 billion in 2012 to generate a US\$2.4 billion in 2017 and is forecasted to reach a US\$6.1 billion by

2022, representing a compound annual growth rate (CAGR) of 20 percent between 2017 and 2022 (Thompson 2015; Transparency Market Research 2017; Wehner et al. 2017; Schneider and Meske 2017). Accordingly, recent studies estimate 70 % of all companies worldwide have already implemented ESNs, with rising tendency (Richard 2016; van Osch et al. 2015).

However, the investments in ESNs have outpaced the materialization of their promised benefits (Chin et al. 2015b). Thus, the majority of ESNs implementations is not successful and it is even forecasted that 80 percent of the organizations will fail to achieve their stated goals, owing to lack of assimilation by the workforce (Li 2015; Mann et al. 2012; Wehner et al. 2017a). Employees' underutilization has become a perennial challenge for most companies for successful adoption of ESN (Chin et al. 2015b; Li 2015). Nevertheless, there has been little comprehensive coverage on why employees struggle to adopt these technologies (Giermindl et al. 2017; Pirkkalainen and Pawlowski 2014; van Osch and Cousaris 2013). In light of the high failure rates, it is imperative, for both scholars and practitioners, to gain a deeper understanding what challenges employees face in their interactions with ESN and how these challenges can be overcome, in order to unlock value from their investments. Therefore this article addresses the following research questions:

- 1) What are the opportunities of ESNs with respect to the changing nature of work?*
- 2) What challenges are employees facing in their daily interactions with ESNs?*
- 3) How can these challenges be overcome and ESNs be successfully improved?*

To answer these questions, we pursue a qualitative research design. We analyze a group of 992 employees within a multinational, knowledge-intensive company. Our sample comprises both frequent and infrequent users as well as discontinued users of the respective ESN, encompassing employees and managers from over 30 countries. Overall we retrieved and manually coded 1,679 statements and descriptions about employees' challenges and suggestions for improvement. Drawing on this rich qualitative dataset, we explore the challenges employees face in their daily interactions with the ESN, share first-hand employees' suggestions to improve ESNs and provide valuable lessons learned and insights gleaned from our practice partner. By employing this approach, this study seeks to provide practical advice for digital leaders and managers for a successful adoption and improvement of Enterprise Social Media.

Our findings suggest that the investigated organization faces four major challenges in reaching a broader adoption of the ESN by its global workforce: (1) *Significant Change of collaborative work routines required*, (2) *User experience of employees* (3) *Excessive demand for employees to find and access relevant content*, and (4) *Cultural change needed for open communication*. We suggest the following solutions for these challenges: 1) *Creating an understanding for the purpose of the ESN*, 2) *Creating a better user experience*, 3) *Ensuring the relevant information is easily accessible and findable*, and 4) *Creating and fostering an open communication culture*. Based on our findings, we provide ten key considerations and guidelines how ESNs can be improved and what managers should consider when implementing and adopting ESNs.

Our research makes several theoretical and practical contributions: First of all, we provide an extensive literature review on the unique opportunities of ESNs with respect to the changing nature of work, extending prior work and highlighting promising new perspectives and research avenues for ESN and IS researchers. Second, we enhance the understanding of the challenges employees face in their day-to-day interactions with the ESN, adding to the literature on non-adoption and barriers for knowledge sharing. By giving voice to a large number of ESN users, we analyze and categorize both challenges, solutions and suggestions for improvement, providing numerous theoretical implications for IS and knowledge-management researchers. Since we cover the full range from problem identification to solution, we also offer rich strategic and operational implications to guide organizations and managers dealing with the implementation, improvement, or organization-wide adoption of ESNs.

The remainder of this study is organized as follows: First, we start by illuminating the characteristics and the opportunities of ESNs, especially with regards to the changing nature of work. Next, we outline challenges and barriers of ESNs, as identified by prior research. Third, we introduce our case company, outline our mode of data collection and depict our coding process. Fourth, we present our empirical findings by explaining the four identified challenges and solutions as well as the ten suggestions for improvement for improving ESNs. We conclude with a discussion of findings in light of existing literature, present practical and theoretical implications, and provide directions for future research.

Theoretical Background

Definitions and Characteristics of Enterprise Social Networks

ESNs are internal social networking platforms that facilitate intra-organizational communication activities, social interactions and connections between a widespread workforce (Alarifi et al. 2015; Vuori and Okkonen 2012). Drawing on the work of Leonardi et al. (2013), we define ESNs as:

Web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization, (2) articulate a list of coworkers with whom they share a connection, (3) post, edit, and sort text and files linked to themselves or others, and (4) view the messages, connections, text, and files communicated, articulated, posted, edited and sorted by anyone else in the organization at any time of their choosing (p. 2).

While other communication technologies also allow employees to conduct one of the first three activities, the possibility to conduct all activities with the same platform, and particularly the fourth aspect makes ESNs unique (Leonardi et al. 2013; Oostervink et al. 2014; Rode 2016). The definition also underlines the importance of visibility, transparency, openness and persistence as central characteristics of the ESN (Giermindl et al. 2017; Oostervink et al. 2014; Treem and Leonardi 2012). Unlike public social networks, which are construed for interpersonal goals, ESNs provide a closed forum for employees to exchange their ideas about work-related matters and projects in order to accomplish work-related goals (Ellison et al. 2015; Leonardi and Vaast 2017).

Due to their inherent flexibility in enabling numerous work practices without the need for technical customization (Richter and Riemer 2013a), ESNs are often referred to as malleable (Richter and Riemer 2013a) or emergent (McAfee 2009) social software. Malleable technologies do not prescribe certain usage behaviors, but allow users to explore the technology and, by doing so, find out how to best use the platform for their purposes (Richter and Riemer 2013a). However, this implies a profound shift: Most end-user software is purpose-specific, such as ERP and CPM systems, and is introduced with detailed processes and little flexibility or interpretation (McAfee 2009; Richter and Riemer 2013a). ESN adoptions, by contrast, are not implemented for the solution of a problem, but for creating potentials, thus relying on open-ended cycles of experimentation and sense-making by its users over time (Richter and Riemer 2013b). Conversely, this means that it is hard to envision how ESNs will be used in a particular organizational context,

as their potential only unfolds when they are incorporated into employees' day-to-day work practices (Richter and Riemer 2013a, 2013b). We will now explicate their potential and how ESNs can be used to foster digital collaboration in light of the changing nature of work.

Opportunities for ESNs with respect to the changing nature of work

New avenues for collaborative work

ESNs offer organizations completely new avenues for collaborative working (Giermindl et al. 2018; Kane 2017). Corporations are increasingly resorting to networked forms of organizing, such as distributed, virtual and agile work, making it more difficult for employees to identify distant experts (Faraj and Sproull 2000) and to develop trusting relationships (Gibson and Gibs 2006). ESNs solve these challenges by supporting large-scale knowledge sharing and fast information exchange, enabling employees to harness collective intelligence and the wisdom of the crowds to obtain quick answers for complicated questions or to solve novel problems (Mäntymäki and Riemer 2016; McAfee 2009; Turban et al. 2011).

Consequently, ESN open up new possibilities for organizational and social learning (Leonardi et al. 2013). Recent research found that the visibility and transparency of communication, afforded by ESNs, results in an increased awareness of *who knows what* and *who knows whom* (Leonardi 2015). This organizational metaknowledge can not only avoid duplication of previous work, but can also significantly increase innovativeness through the recombination of existing knowledge (Leonardi 2014; Leonardi and Neeley 2017). Moreover, ESNs foster instrumental knowledge, since they allow employees to learn from the experiences of others, by affording them to observe what has been previously successful, instead of having to learn everything through personal experience (Leonardi et al. 2013). Through the quick development of metaknowledge and instrumental knowledge, ESN can particularly facilitate the integration and onboarding of new employees (Leonardi et al. 2013; Moqbel et al. 2017). Further, ESNs can help employees to get their daily work done faster and save time and increase their performance and innovativeness (Ali-Hassan et al. 2015; Kuegler et al. 2015).

Moreover, ESN can support companies to bring a multigenerational workforce together. Due to the changing demographics, many workplaces now employ four different generations of workers

(Cekada 2012). ESNs can help to bridge generational gaps (Majchrzak et al. 2009) by connecting employees regardless of age, enabling tacit knowledge transfer as well as opportunities for reciprocal mentoring (Slagter 2007). For this purpose, some companies even offer their retirees continued membership and the option to remain engaged in the ESN in order to keep their valuable knowledge within the company (Kane 2017; Turban et al. 2011).

Diversity of communication possibilities and individual flexibility

As it becomes much less common for teams to be co-located, digitally mediated communication has largely replaced personal contact and face-to-face communication (Colbert et al. 2016). Consequently, email communication, voice over IP, social media, and virtual collaboration tools have become integral tools for doing work (Colbert et al. 2016) and employees can choose from a wide variety of communication possibilities to reach out to distant colleagues, partners and clients and stay connected. By integrating and offering various functionalities, ESNs could replace existing tools, thus lowering the number of competing tools and technologies (Giermindl et al. 2017; Riege 2005; van Osch et al. 2015). Additionally, new technologies, such as artificial intelligence bots, big data analytics, virtual reality, and augmented reality could be accommodated in the ESN, boosting and enriching digital collaboration (Kane 2017).

Further, the ubiquitous accessibility of ESNs can create completely new capabilities for knowledge management and support new work arrangements (Kane 2017). The number of untethered knowledge workers is rising exponentially and recent studies envision that in a few years' time, more than 1.3 billion people will work virtually (Johns and Gratton 2013). Due to the storage of data in the cloud, ESNs offer constant availability and easy access to the platform from any device, enabling employees perform their work tasks from the sites of their choosing (Johns and Gratton 2013). Consequently, ESNs could even support the commenced redefinition of employment relationships by fostering different types of employment and as well as changing how and even why people work for companies (Kane 2017). For instance, ESNs can pave the way for organizations to engage individuals who have previously been excluded from the traditional workplace, such as people on the autism spectrum, by permitting them to work from home with less social cues (Kane 2017).

Enhanced accessibility and findability of world-wide knowledge and people

The persistency of conversations and information in the ESN creates promising new ways for knowledge-sharing practices in the workplace (Leonardi 2017). ESNs grant employees to easier access, search and re-combine the information, which they require for doing their daily works (Kane 2015; Treem and Leonardi 2012). Furthermore, ESNs allow employees to converse on a large variety of topics, increasing the transparency of projects of organizational units and countries (Flyverbom 2016). Thus, employees can suddenly and easily follow what happens outside of their organizational silo, helping them to understand the bigger picture, inform themselves about ongoing projects and get relevant information for their job (Leonardi and Meyer 2015; Leonardi and Neeley 2017; van Osch and Yi-Chuan 2017).

Concurrently, this persistency also opens up new vistas for companies to conduct big data analytics and to generate business intelligence (Chau and Xu 2012; Chen, Chiang and Storey 2012). Thus, organizations can gain rich insights by analyzing the abundant data in ESNs to optimize collaboration (Chen et al. 2012, Kane 2017). This unprecedented intelligence on employee behavior and opinion can inform their decision making and business strategy as well as help them to recognize and leverage new business opportunities (Chen et al. 2012, Kane 2017).

Communication across organizational, cultural and geographical boundaries

To increase their responsiveness and agility, companies strive to become and position themselves as transparent organizations, based on the principles of openness, information sharing, and employee participation (Flyverbom et al. 2016). As ESNs are generally regarded as open, social and participative communication tools, they are destined to create a more open communication culture as well as to transform existing collaboration patterns within organizations (Denyer et al. 2011; Kaplan and Haenlein 2010; Leonardi and Vaast 2017; Razmerita et al. 2014). ESNs grant employees the opportunity to easily communicate across organizational hierarchies as well as cultural and geographical boundaries (Gibbs et al. 2015; Klier et al. 2017). By enabling cross-boundary communications, ESNs can contribute to both a flattening of hierarchies as well as a democratization of knowledge (Gibbs et al. 2015; Kane 2017; Klier et al. 2017; Oostervink et al. 2016). Consequently, ESNs open up new doors for collective, informal and distributed leadership as well as self-organization and agility (Leonardi and Vaast 2017; Müller-Seitz 2012).

By enabling real-time communication and transparency, ESNs can also help to bridge the gap between employees, management and corporate departments (Bala et al. 2015; Huang et al. 2013). Thus, they enable managers to listen to the needs of their employees, increasing employee engagement (Koch et al. 2012; Leidner et al. 2010). Moreover, ESNs can support internal communication departments in disseminating timely information simultaneously either to the whole workforce or to a targeted audience and fostering real-time communication. Since ESNs offer both synchronous and asynchronous communication, they also facilitate work across time zones and follow-the-sun workflows (Noll et al. 2010), resulting in immediacy of world-wide answers, faster project completions as well as in an increasing connectivity (Wellman et al. 1996). Likewise, ESNs can shift organizational boundaries, for instance by including customers and business partners as well as their ideas, for organizational knowledge management, open innovation and co-ideation projects (Kane 2017).

Despite the overwhelming amount of potential benefits enabled by the use of ESNs, successfully adopting ESNs is a difficult endeavor. In the following, we will summarize the challenges and barriers for adoption which have been identified in the prior IS literature.

Overview of Challenges for a wider adoption of ESNs

To date, the ESN literature has been one-sidedly focused on its potential for knowledge sharing (Ellison et al. 2015; Leonardi 2015; von Krogh 2012) and positive business outcomes, associated with the adoption of ESNs, as stressed by prior work (Denyer et al. 2011; Gibbs et al. 2013; van Osch and Yi-Chuan 2017; Wehner et al. 2017a). Conversely, scholars have devoted limited attention to the potential challenges associated with this new collaboration platforms (van Osch and Yi-Chuan 2017). Concerning the drawbacks of ESNs, the organizational risks for companies to introduce ESNs have received far more attention by scholars than the individual challenges employees face in their day-to-day interaction. Thus, researchers have documented legal risks and compliance violation, security and privacy threats, intellectual property and copyright risks as well as concerns regarding the leakiness of knowledge, and particularly confidential data and knowledge (Leonardi 2017; Leonardi et al. 2013; Kane 2017; Pirkkalainen and Pawlowski 2014). Further, scholars have addressed the possible dangers of employee resistance to these new

technologies, misuse and abuse of ESNs (Andriole 2010; McAfee 2009; Turban et al. 2011) as well as balkanizing effects (Leonardi et al. 2013).

By contrast, scholars have only recently begun to empirically explore what challenges individuals meet in their daily dealings with ESN (Chin et al. 2015a; Giermindl et al. 2017; van Osch and Yi-Chuan 2017). Regarding the individual challenges of workers with ESNs, our knowledge largely stems from practical articles or reports (e.g. Li 2015; Mann et al. 2012), focusing on the reasons for ESNs failures, as well as conceptual papers about the barriers regarding knowledge-sharing in social software (such as Pirkkalainen and Pawlowski 2014; Vuori and Okkonen 2012; von Krogh 2012). Thus, scholars have called for more call for research on the challenges that individuals, groups, and organizations face when adopting ESNs (Pirkkalainen and Pawlowski 2014; van Osch and Cousaris 2013; von Krogh 2012).

One of the challenges highlighted by prior work is that the implementation of ESNs requires a major paradigm shift (Kane 2017; Majchrzak et al. 2013). As a consequence, researchers emphasize that in order to achieve the aforementioned benefits, workers must learn to work in new ways and adapt their work behaviors (Leonardi et al. 2013; Leonardi 2014). Thus, employees must be willing to communicate, contribute and share their knowledge openly, to collaboratively work on projects and to adapt from experimental learning to vicarious and social learning (Leonardi 2017; Leonardi 2014). Initial research into ESNs has shown that this is not an easy undertaking, as employees naturally adhere to accustomed work routines and are often not prepared to change them (Richter et al. 2016; van Osch et al. 2015). Reasons for this resistance to change can be found in competing channels, a lack of open and communicative culture (Denyer et al. 2011; Giermindl et al. 2017; Pirkkalainen and Pawlowski 2014)

Scholars also found that a lack of understanding for the purpose of the ESN and its capabilities can preclude both ESN adoption and willingness to change (Chin et al. 2015b; Giermindl et al. 2017; Pirkkalainen and Pawlowski 2014). While a divergent understanding of a technology is widely acknowledged as a barrier for knowledge-sharing and usage of communication technologies (Chin et al. 2015a; Giermindl et al. 2017; Pirkkalainen and Pawlowski 2014; Waycott et al. 2010), it is particularly problematic in the context of ESNs. In contrast to most other communication technologies, such as email, videoconferencing, and groupware which were first

deployed in an enterprise context before entering people's personal lives, social technologies have first proliferated outside the workplace outside the work context (Treem et al. 2016). The theory of technological frames (Orlikowski and Gash 1994) describes that employees' understanding of how a technology can be used is based on their first experiences with the same technology or on previous interactions with similar technologies (Orlikowski 1992; Treem et al. 2016). Accordingly, researchers found that employees frame their assumptions and expectations about the value and usefulness of ESNs based on their perception and experience with public social media (Treem et al. 2016). The fact that ESNs often imitate social networks such as Facebook in look, feel and functionalities (Leonardi et al. 2013) and are often even introduced as *Facebook* or *Twitter for the company* (Leonardi and Neeley 2017) reinforces this framing. Accordingly, it can be a major challenge for companies to convince skeptical workers to participate in ESNs and to reframe and shift frames to an organizational context (Treem et al. 2016).

Moreover, recent research suggests that the high persistency and visibility of ESNs pose several challenges to the workforce, with more content and information visible than ever before (Leonardi 2017; Kane 2017). First, merely the fact that all conversations in the ESN are automatically archived presents a radical change from prior work (Peter and Valkenburg 2011), discouraging employees from using the ESN (Giermindl et al. 2017). Second, scholars discovered that the rising amount of data in the ESN challenges both the system and its users, resulting in information overload (Giermindl et al. 2017; Leonardi et al. 2013). Consequently, researchers demonstrate that while a high accessibility is generally desirable, too much accessible and unstructured information might hinder users' ability to focus on the content they are looking for (Giermindl et al. 2017; Leonardi and Vaast 2017; Stohl et al. 2016). Thus, researchers stress "visibility may produce a flood of information, drowning us in a sea of unstructured and boundless data that overwhelms our cognitive and interpretive capabilities, and hence renders information meaningless or confusing and opaque" (Stohl et al. 2016, p.132).

From research on IS based knowledge-sharing and information communication technologies (ICTs), we also know that geographical distance, time-zone differences, language barriers and cultural challenges can cause negative effects on coordination, communication and distributed collaboration (Carmel 1999; Noll et al. 2010; Pirkkalainen and Pawlowski 2014). Further, research on the adoption of traditional IS technologies identified a lack of user-friendliness, functionalities

and ease of use, administrative support, system reliability, system and information quality, competing channels as well as lack of institutional support as barriers for adoption of new technologies (Beggs 2000; Butler and Selbom 2002; Venkatesh et al. 2003). Likewise, the importance and difficulty of gaining and attracting a substantial number of users to participate in online communities is well documented in IS research and critical mass theory (Marwell and Oliver 1993) and the theory of network externalities (Katz and Shapiro 1985). Critical mass theory implies that when a sufficient number of individuals visit a common event, this attention will attract more individuals to the same event in a *bandwagon effect* (Majchrzak et al. 2013; Marwell and Oliver 1993).

Although this review of related work shows that researchers have begun to pay attention to the challenges and barriers of ESN implementations, a systematic overview and research focusing on the challenges that individuals, groups, and organizations face when dealing with ESN adoption is still missing. Our study seeks to close this research gap by exploring challenges employees face in their daily interactions with the ESN and sharing first-hand employees' suggestions to overcome these challenges and to improve ESNs.

Methodology

Research Setting

We present an in-depth case study of a global, high-tech company which offers a broad spectrum of knowledge-intensive solutions, products and services, in the areas of electrification, automation and digitalization. While the company's headquarter is located in Germany, the firm operates in more than 150 countries. Thus, their knowledge-workers are globally dispersed and is greatly reliant on technologies to exchange and locate expertise, interact, connect and collaborate across geographical and organizational boundaries. Considering these prevailing problems, the organization globally rolled out an ESN in 2013. At the time of data collection, in July 2016, the company's ESN had been in place for three years, which eliminated potentials problems with early-stage adoption (Cooper and Zmud 1990).

The ESN is run by one of the largest external providers of social software and provides the employees with a broad range of social networking features, such as setting up profile pages, liking

commenting, and authoring information, tagging, following other users, activity streams, sending personal messages, document sharing, task-oriented challenges to stimulate co-ideation. Except for closed groups, conversations are visible to all users and can be searched via keywords, topics and hashtags. On their start page, employees can see all news activities and by default users receive real-time notifications within the system and by email. Employees can access the platform through the Intranet or via a mobile app, requiring a company email address, public-key encryption, and a password for login. Using the platform is voluntary and neither seeking nor sharing knowledge is rewarded monetarily. There is no external access for partners or customers like in other ESNs.

Owing to the size of the organization and its global presence in multiple sectors as well as the successful completion of the ESN's large-scale implementation, we hold that this company provides a representative sample of the population, and consequently serves as an excellent case for our study.

Data Collection

To answer our research questions and reach a broader basis than with a classical qualitative approach, we conducted a survey and collected qualitative data via questionnaire free-text comments. We asked all participants if they use the company's ESN platform, the respective ESN App and additionally if they regularly read or follow one or both of the two largest ESN groups. The first group, called *Corporate News*, is the global group for all management communication and official news regarding the company. The other group, *HR Global Community*, includes a variety of HR relevant topics, such as strategic events, information on onboarding, content on leadership and change management projects.

From an overall of 11 362 survey participants, 34.8 % stated to use the Enterprise Social Network, 2.4 % use the ESN App, 5.5 % use the Group corporate news, and 0.8 % use the Group *HR Global Community* to retrieve information. We made no preselection regarding any socio-demographic characteristic. We asked the participants who indicated to use the respective system were asked how satisfied they were the technology (*"All in all, how satisfied are you with the following company-internal media as a source of information?"*). Answers ranged from *satisfied* (1), *quite satisfied* (2), *undecided* (3), *less satisfied* (4) to *not satisfied* (5) on a five-point Likert Scale.

On average, participants were satisfied with the ESN in general ($M = 2.17$, $SD = 9.13$), as well as with the ESN App ($M = 2.08$, $SD = 0.94$), the group ($M = 2.02$, $SD = 0.82$), and the *HR Global Community* group ($M = 2.27$, $SD = 1.00$). Furthermore, we explicitly asked all participants who indicated that they are *undecided* (3), *less satisfied* (4), or *not satisfied* (5) to provide detailed reasons as to how to improve the respective medium (“*You’ve indicated that you are either undecided or less satisfied or not satisfied with the [ESN]. What would you improve?*”). 6.6 % of all participants using the ESN in general (Q1) indicated to be either *undecided* (3), *less satisfied* (4), or *not satisfied* (5), while this was true for 0.6 % using the ESN App (Q3), 1.1 % using the *Corporate News* group, and 0.3 % using the *HR Global Community* group. In the remaining paper, the latter two options (*HR Global Community* and *Corporate News*) are integrated into one condition, named ESN Groups (Q3).

At the end of the survey, we provided all employees taking part in the survey an additional option to describe their challenges and provide suggestion and ideas how the ESN can be improved by asking: *Do you have any other praise, criticism, ideas or suggestions for improving the ESN?*. This question helped us reach all employees – regardless if and how often they use the ESN and if they are satisfied with the ESN.

Coding of qualitative comments

Overall, we received 1,679 statements from 992 users, with 866 comments for the first question, 87 for the second, 153 comments for the third and 573 comments for the final question. If comments included complex and extensive information, these comments were divided into smaller parts. Each question was coded independently by two trained raters over four rounds. We did not use a predefined coding scheme to allow for the emersion of the categories throughout the coding process. Subsequently, categories were compared in terms of meaning. If categories yielded the same meaning, but had different wording, those categories were reconciled and summarized. We did not make any changes in the coding itself at this point.

In total, 11 categories emerged throughout this process. Agreement between the two raters was *substantial* for the first question with $\kappa = .79$, $p < .001$ and for the third question with $\kappa = .70$, $p < .001$ (Landis and Koch 1977). For the second question $\kappa = .81$, $p < .001$ and final question $\kappa = .87$, $p < .001$ agreement was *almost perfect*, according to Landis and Koch (1977). Whereas we

identified the same categories for each question, the distribution of the categories varies across the three questions (ESN in general, ESN App, ESN Groups, final improvement suggestions), as can be seen in Figure 1. The final coding and the averaged frequency for each category and question are presented in Table 1.

Category	Q1 ^{a b}	Q2 ^{a c}	Q3 ^{a d}	Q4 ^{a e}	Total
1. Communicate clearly the ESN's purpose	2,83%	0,57%	2,61%	17,19%	128
2. Train your employees and allocate time for them to use the ESN	5,43%	2,30%	4,58%	11,87%	124
3. Integrate and Reduce Channels and Tools	4,33%	2,87%	6,54%	13,35%	126
4. Improve User-Friendliness	5,77%	1,15%	1,31%	11,87%	121
5. Clear Design and Structure with Search Function	10,51%	54,60%	3,59%	7,59%	187
6. Increase Information Quality	17,96%	13,22%	13,07%	3,93%	210
7. Reduce Information Overload	24,25%	7,47%	31,37%	15,27%	352
8. Encourage employee and management engagement to gain critical mass	11,09%	6,90%	12,75%	7,33%	164
9. More Critical Opinion, Objectivity instead of Self-Promotion	6,87%	2,87%	8,17%	4,10%	98
10. Improve Communication Quality	3,93%	0,57%	4,25%	5,67%	73
11. Other Reasons ^f	7,04%	7,47%	11,76%	1,83%	96

Table 1. Final Categories with average frequency for each question and total number of retrieved comments

Note. ^a Frequency of category occurrence averaged over the two raters to indicate the category's Importance; ^b ESN General; ^c ESN App; ^d ESN Groups; ^e Overall Improvement Suggestions ^f The category *Other Reasons* included information, which were not directly linked to the questions, included no suggestion (e.g. *no comment*) or could not be matched. Consequently, this category will not be discussed in the subsequent sections.

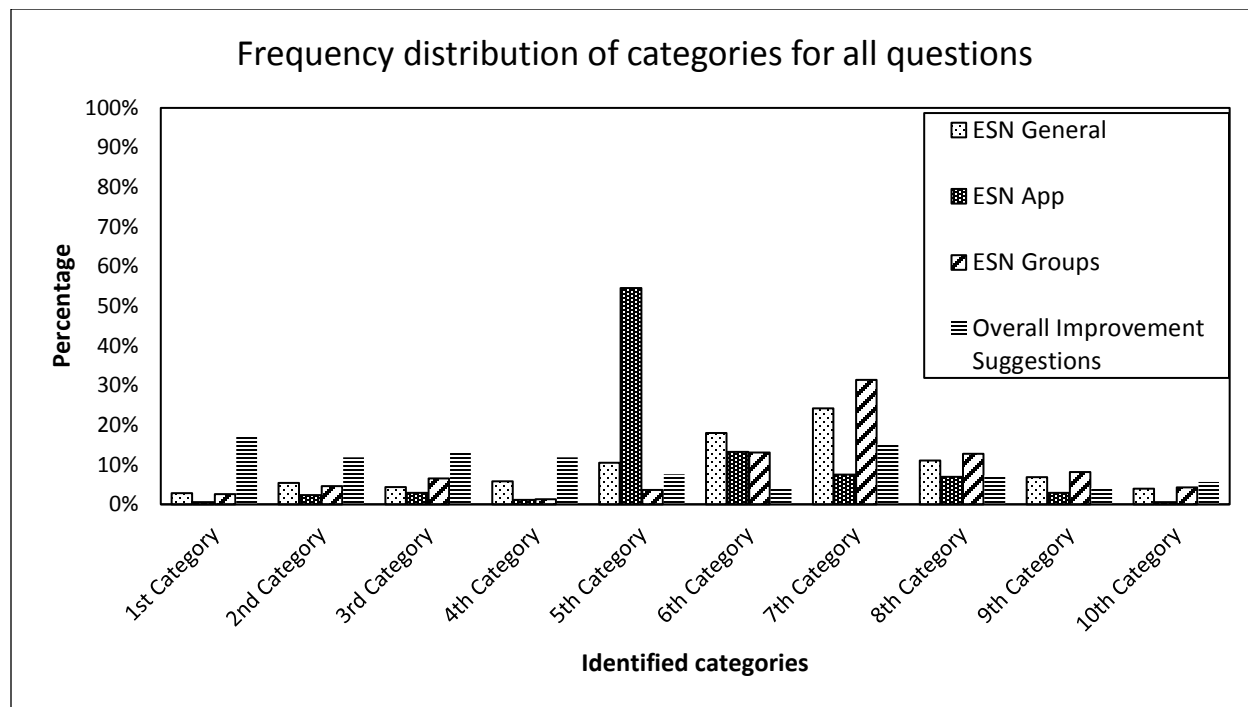


Figure 1. Averaged frequency distribution of categories

Averaged across all three questions, respondents age ranged from 18 to 67 years ($M = 43.11$, $SD = 10.27$). The average organizational tenure was 14 years ($M = 14.23$, $SD = 10.27$), ranging from less than one year to 46 years. Less than one-third of the participants are female (29.4 %). On average, 2.3 % of the participants were working in research laboratories, 5.5 % were working at customer locations (e.g., service, sales) and 5.0 % were employed in manufacturing at factory or production location, while the majority were white collar workers working in offices (82.8 %). Regarding the distribution of sociodemographic characteristics within our single case study, we adequately represent the company's structure and provide a characterizing sample.

To further enhance the validity of our findings, we checked for differences in age and gender between categories for each question. Regarding the distribution of gender, we did not find any differences for any of the questions. Concerning the distribution of age, we found significant differences between the eleven categories for the first question, with respondents in category 3 ($M = 36.62$, $SD = 9.57$) and category 4 ($M = 37.72$, $SD = 9.80$) showing lower mean values for age compared to the other categories ($p < .001$; partial $\eta^2 < .06$). We identified no such differences for all other questions.

Analysis and Findings

In analyzing our data, we found that employees had both described their current challenges in their dealings with the ESN as well as provided concrete suggestions for improvement. Accordingly, both raters classified and coded the comment either as challenge or as recommendation. In the following, we will first present the identified challenges, followed by the respective suggestions for improvement. Retrieved comments for the ESN in general, the ESN App as well as the ESN Groups yielded similar information. Since all three questions regard the usage within the ESN and little to no differences were found between these different groups, we will report the findings jointly. Table 2 (Appendix A), summarizes our findings by presenting both the opportunities, as identified in our literature review, as well as the challenges, solutions and suggestions to improve ESNs, all of which we extracted from the data.

The next section presents the findings of the qualitative research on the challenges the employees face in their daily interactions with the ESN. After presenting each challenge, we present potential solutions and suggestions for improvement also derived from the coded comments. Finally, we will discuss the relevant literature and its implications for theory and practice.

Challenges for the Workforce

In analyzing and coding our data, we identified and classified major challenges which employees face in their interaction with the ESN: (1) *Significant Change of collaborative work routines required*, (2) *User experience of employees*, (3) *Excessive demand for employees to find and access relevant content*, and (4) *Cultural change needed for open communication*.

Challenge 1: Significant change of collaborative work routines required

First of all, our analyses revealed that employees lacked an understanding how the ESN can facilitate and change collaboration. Even though the ESN had been implemented three years ago, employees still felt insecure how they can effectively use the ESN for collaboration. For instance, several employees raised the question: *“How to collaborate, what is the purpose of the ESN?”* Further, participants expressed their confusion owing to different forms of usage they observed by other users: *“The ESN is used very differently by different authors and users, there is no clear line”* and *“I am unsure if we really use the ESN correctly in our company”*. Specifically, we found that

employees struggle to understand if the ESN should be used like a collaboration platform or an internal social network. Whereas some users conceived it as a work-related collaboration platform (“*Still coming to terms with 'social' as part of the name/intent*”), others interpreted it as an internal Facebook (“*As I do not use Facebook either, the curiosity for actively working in the ESN is simply missing*”, or “*just a pointless Facebook imitation*”) and were reluctant to use it for work purposes (“*it is just not the right place for company-internal information*”).

Moreover, we found that the ESN was underutilized due to a lack of time of training and IT support. Some employees expressed that they were simply overtaxed by the new way of digital working: “*It is simply too overwhelming, as many employees do not understand the ESN (what is a hashtag, how do I search for information, when does it make sense to create a new group?)*”, and criticized that “*important topics are left for employees to self-teach themselves*”. Our data also disclosed that the needs and expectations of employees, regarding the offering of trainings, varied strongly according to their age, skills, and prior experiences with social networks. Participant underlined this diversity of generations and knowledge by stating “*many employees cannot handle it, it is differentiating the community*” and “*for social media dyslexics like me the usage is not self-explanatory!*”. Moreover, employees expressed that their constantly high workload impeded a more intensive familiarization with the ESN, by declaring “*I don't have the time to parse the strings and harvest useful information*” and even voiced “*sometimes I feel guilty using working time on ESN because I can't prove that it helps me*”. Altogether these challenges precluded the change of collaborative working practices necessary for effective ESN usage

Challenge 2: User experience of employees

Second, our findings substantiate that the perceived user experience is critical for employees’ decision to engage in ESN usage. Employees voiced that they struggle with the explosion of channels, feeling overwhelmed by the number of technologies, and the decision when to use which tool in their daily work: “*There are too many sources and the distribution of information does not seem logical*”. Accordingly, they perceived the ESN to be battling for their attention both with traditional technologies, such as email and telephone, as well as other digital platforms, like communicators, virtual meeting tools, or intranet. Thus, employees emphasized “*the ESN is not a sure-fire success, but an additional medium on top of it, besides E-Mail, SharePoint and Shared*

Drive” and *“the ESN comes across as artificially created new platform to communicate. However, as long as this company remains as email centric as it is, this tool is no real advantage”*.

Additionally, our data analysis unveiled that employees struggled with insufficient availability, accessibility, and usability of the ESN system, leading to a negative user experience. Thus, participants reported that they face difficulties accessing the system both via laptop and app when they need it, due to technical reasons and instabilities: *“The ESN app doesn't always work which makes me not want to use it. Only use it if I don't have access to my laptop”*. In particular, they criticized that the over-protection and log-in process via public-key encryption and password, which the company had introduced due to privacy concerns and security, was too cumbersome, for instance by stating: *“Why do we need to access using PKI and then again to look at attachments? We have already logged into our computers using two passwords”*. This cumbersome login process impeded constant and easy accessibility of the ESN and discouraged employees from using the ESN. Furthermore, findings showed that employees struggle to associate with content and people in the ESN and were hesitant to contribute due to language barriers: *“Some articles are not in English, which makes their information value very poor.”*

Challenge 3: Excessive demand for employees to find and access relevant content

As a third challenge, the comments, revealed that employees feel overloaded to access content, which is relevant for their daily work, partly owing to a confusing structure and design. Hence, they declared that it feels like *“chaos to find the relevant information”* and *“finding a way to get business results from it is always hard”*. Further, they stressed that they struggle to navigate within the ESN: *“the ESN becomes extremely flooded and according to the motto ‘If this company knew what this company knows’ you search forever for information and waste a lot of working time”*. The high persistency and transparency of an increasing amount of content also poses the challenge for employees to find and filter the information which is relevant for their daily jobs. Participants hence lamented the rising amount of irrelevant content, stating there is *“too much irrelevant info flying by”* and *“in my humble opinion the content is very diluted. I am looking for more value added information”*. Consequently, employees expressed *“filtering information is slowly becoming difficult”*. Further, they emphasized that pronounced media competence and digital skills are necessary to be able to handle the abundant information: *“Unfortunately, the ESN is often*

a data grave with many discussions leading to nothing. Structured information is difficult to find, you lose the overview, the usual 'Facebook dilemma'”.

Further, employees also reported feeling overloaded by the sheer information flood, as well as duplicated messages and notifications from redundant channels and groups: *“There is almost too much information to digest and process”* and *“with the ESN you are inundated with notifications and there seems to be no way to give these mails a sensible filter on my needs”*. Referring to this, employees expressing their constant worries to miss relevant information *“it is impossible to follow thousands of groups, but much important information is only shared in those groups”* as well as *“one often has the impression that either a lot of unimportant things are posted and that the actual important things get lost quickly, leading to the constant concern on missing out on relevant information.”* Overall, we retrieved many comments of employees stating that they started to use the ESN less frequently or even to discontinue their usage owing to their burden of information overload.

Challenge 4: Cultural change needed for open communication

The fourth challenge we identified is that the organizational culture did not facilitate communication in the ESN. Thus, employees reported that they cannot reach a sufficient audience and their voice is not heard, since not enough colleagues, top and middle managers are using the ESN actively, by stating: *“The overall participation of company colleagues is still not there to make a difference”* and *“Too few people use it, so it becomes an additional tool, not the tool of choice”*. Moreover, respondents documented that they cannot speak up and express their thoughts freely, owing to a lack of openness, critical opinion and objectivity. Hence they noted *“it feels like people are afraid to post their opinions in ESN”* and *“in the ESN, soulless cheers and political correctness are prevailing and I cannot identify with that”*. Likewise, members lamented that many colleagues and managers using the ESN for strategic self-presentation: *“too many people are using ESN to promote themselves rather than a key business topic”* and *“the ESN seems to be used by too many (managers) for self-portrayal, so the information is sometimes quite blown-up/exaggerated”*. In reference to this, employees voiced their insecurity if they can trust the content in the ESN: *“You never know it is a rumor, an opinion, an advice, a guideline or ...”*. Lastly, participants described their challenge to find up-to-date information in the ESN, by stating *„there*

is not a lot of official information and most of the posts are old” and “external newsletter and press are usually faster”.

Overall, we identified four major challenges, which employees face in their day-to-day interactions with the ESN: (1) *Significant Change of collaborative work routines required*, (2) *User experience of employees* (3) *Excessive demand for employees to find and access relevant content*, and (4) *Cultural change needed for open communication*. As previously mentioned, respondents also provided concrete suggestions for improvement and direct solutions to overcome these challenges. We will present these solutions and suggestions for improvement in the following section.

Solutions and suggestions for improvement for improving ESNs and a successful ESN implementation

Overall ten categories of suggestions for improvement emerged from our coding process

Solution 1: Creating an understanding for the purpose of the ESN

As the first challenge, we identified that employees lacked a common understanding for the ESN’s purposes and capabilities. Moreover, we found that they missed both the time for familiarization and need-based training. By analyzing the improvement suggestions of the participants, we identified that these challenges could be solved by *creating an understanding for the purpose of the ESN* (Solution 1). Moreover, our data revealed two primary suggestions for improvement for successful ESN implementations, which we will explain in the following.

1) Communicate clearly the purpose and objectives of your ESN

Our findings reveal that companies should clearly communicate the ESN’s purpose and objectives. Hence, employees asked for *“a better explanation for what and how the ESN can be used at work”* as well as *“answers to basic questions and possibilities offered by the ESN, also for employees in plants and factories”*. More specifically, they emphasized that organizations can enhance participation in the ESN, if they clearly differentiate what the ESN is. Thus, employees suggested: *“Make clear how this tool should be used (misuse of many people as a ‘personal social media platform’)”* Moreover, they advocated to establish clear rules for collaboration by suggesting to *“raise the level of awareness regarding possibilities and what is allowed or rather not allowed”*

and *“I believe guidelines should be written on use - clearly the opportunities are excellent for this media but I do not believe enough time has been given to the risks”*. Finally, employees also recommended their management to encourage or even to oblige usage, suggesting *“more mandatory awareness - if this is the way of the future, people need to be made aware that this is the way forward and if they don't participate then they have to be aware that they may not receive regular communications”*.

2) Train your employees and allocate time for them to use the ESN

The analysis of our data also disclosed that organizations need to provide more training for their employees. Thus, participants voiced: *“Employees don't know what they can do to use ESN. Please give employees enough training”* and, *“a 60 or 90-minutes ESN crash course would be a good idea”*. Especially with regards to the changing nature of work and digital working, they requested more guidance: *“Please provide more support for the inexperienced with social media”* and *“employees need media competence in order to not get lost in the flood of messages, a seminar on the subject of media competence should be offered to all (!) users as a training”*. However, it is not sufficient to provide training opportunities to reach a strong adoption by the employees. Firms must also allow their employees to spend time learning the system and allocate enough time experiment and use the system: *“There are lots of information that you can barely read during the daily business. The calmness is simply missing and more time for usage should be provided.”*

Solution 2: Creating a better user experience

The second emerged challenge was a negative user experience due to competing channels as well as insufficient system availability. This can be overcome by a stronger user-centricity and by *creating a better user experience* for the workforce. To accomplish these goals, we derived two suggestions for improvement, from our data:

3) Integrate and replace competing tools, and communicate a clear strategy for what each of the remaining channels should be used

Analyzing our data, we found that another mission critical for the adoption of ESNs is the integration of tools and functions as well as the reduction of channels. Hence, employees felt overwhelmed and confused by the large number of communication channels and called for *“one*

platform for everything. But divided in chapters” and “focus and limitation to just one channel, for instance the intranet news should be only diffused via ESN”. Several younger employees also expressed that they already used several social networks in the private realm, thus suggesting to limit the number of additional tools in the workplace. More specifically, employees suggested to use the *“usability of the [the provider’s] Application-Programming-Interface (API) for the integration of the company’s own applications (for example posting content in ESN groups out of other applications)”*.

4) Improve user experience by increasing technical functionality and stability as well as system availability of the ESN.

The coding of the retrieved comments also disclosed that companies should make efforts to simplify access to the system. Thus, employees suggested not to overprotect the system with a cumbersome login process, but to *“to position the social network better so that it is similar to Outlook always opened”*. We also found that several employees, especially younger ones, based their expectations of ESNs on their private social media experience and recommended to use private social networks as an example (*“access is too complicated and make it as easy as Facebook!”*). Further, respondents advocated to secure technical stability, flawless operation and availability of the system: *“My account in the ESN was deactivated several times due to technical problems. Please adapt the IT Infrastructure to avoid this happening again.”* The improvement suggestions also included several aspects of user-friendliness: *“Usability is sometimes a bit bumpy and should be improved (e.g. the display of home streams and tracing of new messages). Furthermore, a better integration of internal RSS feeds would be important”*. Additionally, our data analysis unveiled that companies should increase the functional scope of ESNs and include relevant functions to facilitate access to relevant knowledge and groups. For instance, to overcome language barriers as one of the major barriers for global collaboration, employees came up with the idea to *“include a translation link on the platform... thus you could at least understand the meanings of others’ postings”*, so that *“employees who are not proficient in the respective language can participate as well”*.

Solution 3: Ensuring the relevant information is easily accessible and findable

The third challenge which we gleaned in the coding process was the difficulty for employees to find, access and search relevant content in the ESN, resulting in a feeling of excessive demand and information overload. To meet this challenge, we propose companies to ensure their employees can *easily access and find the required information in the ESN*. According to our coded data, this solution can be achieved with the following three suggestions for improvement:

5) Make sure the ESN has a clear design and structure with a solid search function

Our findings unveiled that it is urgently important for organizations to provide a clear structure and design, especially with regards to the rising amount of information. Accordingly, companies can improve the usability of ESNs providing a “*clearer structuring to be able to read in a more focused manner*” as well as “*a better overview: What is out there? Where can I find what? Theme collections should be divided into categories*“. To accomplish this, employees suggested a “*clear labeling of the topics and headlines so that you don’t always have to read the text*” and to “*limit length of posts and make categorization by hashtags mandatory*”. Moreover, employees recommended to improve graphical interface and visual options, such as breadcrumbs, headings, font sizes, and to “*display the configuration of the various messages from all subscribed groups on a page as a matrix to configure them quickly*”. Another decisive way to enhance navigation is to improve the search function to ensure a fast retrieval and easy findability of content and groups. Thus, we retrieved many comments proposing an “*easier search functionality*” especially for finding relevant groups: “*The ESN should have more search functions (e.g. basic search/ advanced search,), currently we can only search by ‘name of the group’, nothing else, it would be great if there are more ways to search (more characteristics) e.g. country/ division/group category (technical / accounting)/ group name. So we can search the group more precisely.*”

6) Increase the information quality and reduce the amount of irrelevant information by introducing smart filter options and AI intelligence

Moreover, we uncovered that it is critical for wider acceptance of ESNs to raise the information quality and provide an added value. This can be attained in the following two ways: First, organizations and especially communication departments should strive to decrease the amount of

irrelevant content, by reflecting more on potential postings. Thus, employees call for more communication discipline and selection of postings, asking both official communicators and their co-workers to “*reduce the ‘noise’, i.e. no postings like ‘we had a great meeting in xy’ without any content why it was great, what others need to know about it*” and “*only to disseminate messages with concrete content and not ‘I/We plan to do something’ or ‘This event is currently running’*”. Further they suggested to limit the reach of posts and target it more specifically to the relevant audience: “*More postings with relevant content. Not every sales success in Malaysia must be reported to employees of that organizational unit worldwide.*”, and “*too many of the posts are irrelevant and should be shared with smaller audience*”.

Second and instead, companies should introduce smart filter options to specifically display users the content which matches their expertise, responsibilities and interests and might be relevant for their daily work. Accordingly, respondents voiced “*I only want to be notified about information which is really relevant for me*” and “*please provide more filtering options, as there are just too many information and contributions*”. Particularly, organizations should explore and integrate new possibilities regarding algorithms, data analysis and AI to bring workers together with relevant content: “*A function ‘this group might interest you’ is still missing. Suggestions on topics that I already follow as well as “random hits” would be very interesting*“, and “*use artificial intelligence for routing topics to the experts and rating answers*”. The fact that we received many improvement suggestions especially with regards to the two global groups, shows that organizations must especially consider both the relevance and target of content as well as filtering options, when communicating in large groups with a diverse audience.

7) Avoid information overload by reducing the flood of information, the number of groups and duplicated messages

Furthermore, our findings indicate that organization must find ways to handle the abundant and ever rising amount of information in the ESN to prevent information overload. Accordingly, employees requested to “*control the unmanageable flood of information*” and stressed “*less is (sometimes) more. Currently there are too many news on this channel (so I follow it less often). It would be much better if it contained fewer messages, only the main corporate news*”. More precisely, they suggested that organizations should rethink the number and size of existing groups.

Thus, employees voiced that groups are too large to adequately replace emails and proposed to “*reduce the number of groups as there are one too many groups on similar topics*”, instead having less groups with a stronger focus on specific topics: “*Perhaps there should be one official group for each topic and other country-related topics should be hosted within the country's ESN group*”.

Solution 4: Creating and fostering an open communication culture

The fourth identified challenge is that the organizational culture did not support and facilitate communication in the ESN. To meet this challenge, we propose companies to *create and foster a more open communication culture*. According to our coded data, this solution can be achieved with the following three suggestions for improvement:

8) Encourage your employees, your middle and top management to actively participate in the ESN to gain critical mass.

Our findings affirm that companies should endeavor to actively encourage their employees to use the ESN to gain a critical mass. Respectively, participants emphasized that “*the ESN must be used by everybody to give it value, otherwise too uncertain whether information reaches required persons and time consuming if you have to use more channels*”. Consequently, they reinforced to “*put time and effort into making more people members of ESN - it will only be successful if more people actually use it*” and to “*increase the awareness and show the benefits more in order to achieve more content via ESN. More (meaningful) content = more users = more (meaningful) content...*”. To achieve this challenging goal, it of uttermost importance for managers to serve as a role model by actively engaging in the ESN, use this channel as *tool of choice* for information distribution. Thus, many participants voiced their expectation that “*managers need to lead by example in respect to ESN usage*” and “*greater use on the part of the company management for short and targeted communication to employees would be desirable*”. However, our findings also indicate that managers must be very cautious in their attempts to encourage usage to not risk forcing and pressuring the employees to use it. Employees noted “*some managers stress the ESN too much. This ensures that their employees are posting some kind of nonsense just to show the boss how active they are*” and suggested to “*reduce a little bit the ‘hype’ again that made in the headquarters at the moment regarding the ESN. Otherwise the willingness to use this medium will decrease*”.

9) Encourage more critical discussions and foster objective opinions to avoid self-promotion.

Moreover, we unveiled that organizations should encourage critical discussions and foster an open and balanced communication atmosphere in the ESN. Participants clearly disclosed their disapproval with the prevailing lack of objectivity and critical opinion in the ESN, asking for “*more critical reporting*”, “*real information and not only high gloss*” as well as “*open and honest communication (without rose-colored glasses)*”. Further employees requested “*more focus on problems rather than all the great stuff we have done*” and “*to have more honest and relevant posts, stop using the ESN as an internal ‘marketing’ or ‘career promotion’ place*”. Additionally, they expressed their desire for “*less censorship*”, “*less regulations*” and “*less corporate control*”. Associated with this general lack of openness, our findings also uncovered that organizations need to watch out to avoid their ESN to become a forum for self-promotion. Thus, employee called for “*less self-portrayal*”, “*less self-praise postings*”, “*less busy-bodies*” and “*fewer posts out of vanity*”. Further, respondents highlighted their concern regarding the veracity of information in the ESN owing to the character of digital social networks, asking for “*clear indications whether information is correct or not*” and users “*to stick to the facts and cut out the warm fluffy stuff that doesn't impart meaningful information*”. Moreover, employees stressed: “*The ESN is not a forum of experts. This should be made very explicit and questions about current topics (e.g. IT) should be answered qualified by an expert group, not by employees with half-knowledge*” and made the improvement suggestion of a “*clearer distinction between specialist topics and groups for gossip and chatting*”.

10) Improve Communication Quality by ensuring timely and targeted communication as well as an active community management.

Finally, it is crucial to improve the communication quality, by providing more up-to-date and targeted information. Thus, employees articulated that “*information should be more timely*” and that “*ESN should inform more actively about organizational changes*” to preclude employees learning important news first in the external press. In addition, participants also proposed “*more targeted communication*” enabled by a “*more strategic use by communications departments*” and “*more editorial posts*”. Consequently, employees suggested a more active community

management, emphasizing “*the self-help group effect is applied to much, a central authority could solve and communicate the problems, for instance in the IT environment, in more sustainable way*”. Accordingly, they suggested “*managed groups for specialist topics which require invitation for active participation while allowing reading for everyone*”. Further, they recommended a stronger “*moderation of groups, actively deleting inappropriate postings*” and suggested that moderators should “*stimulate interesting topics with starting articles*” to foster more meaningful conversations. Additionally, employees stated that “*moderators need to ensure there is a clear defined and published scope of each group so it is easy to know which are relevant to you*”.

Participants also provided suggestions regarding how their coworkers could enhance communication quality. Thus, they expressed “*I would expect more collaboration happening via ESN and less formal copying pasting emails in there*”. Accordingly, “*the editors could go into dialogue more often when employees comment and all users should endeavor to foster interaction in the ESN by increasing their “responsiveness and sharing attitude: this is not in the hand of the company but in my and the colleagues' hand”*”. What is more, employees also recommended that the ESN should be open-up to engage with external business partners and customers. Hence, they voiced their support for a “*real community management (join multiple groups into one network, allow external partners to join -> exchange should also be possible with other companies)*”, providing new opportunities for open innovation and facilitated exchange.

Discussion and Theoretical Integration of Key Findings

The study’s primary goal was to create a deeper understanding of the challenges employees face in their day-to-day interaction in the ESN. Furthermore, we set out to develop solutions and suggestions for improvement on how these challenges can be overcome. After providing an extensive literature review on the opportunities and potentials of ESNs, especially with regard to the changing nature of work, we qualitatively explored employees’ challenges in their daily dealings with ESNs. We identified four major challenges: (1) *Significant Change of collaborative work routines required*, (2) *User experience of employees*, (3) *Excessive demand for employees to find and access relevant content*, and (4) *Cultural change needed for open communication*. Moreover, we uncovered four solutions to overcome these challenges with ten concrete suggestions for improvement.

As can be seen in Table 2 (Appendix A), we were able to juxtapose the opportunities with the related challenges and connect these with the identified solutions and suggestions for improvement. In the following section, we discuss our findings by relating and integrating them into the existing literature on ESNs as well as IS adoption. Examining our findings, we observe that some of our factors are well-known phenomena from IS adoption research, while others are idiosyncratic to ESNs and less researched.

First, we started our paper by describing how the malleable nature of ESNs affords users to individually interpret how to best use the platform for their purposes (Richter and Riemer 2013a), providing new avenues for collaborative work. While this inherent flexibility of ESNs certainly offers numerous opportunities, it is closely related to our first identified challenge: The workforce lacking a shared conceptual understanding of the ESN's purpose and capabilities. We found that employees were confused about their co-workers' ambiguous interpretation of the platform, resulting in different kinds of usage. Hence they demanded their management to clearly articulate the vision of the ESN and differentiate what the ESN should be used for. Further, the coding of the comments revealed that parts of the workforce had negative feelings towards the ESN owing to their negative experiences with private social media, such as Facebook, and were therefore reluctant to use the ESN for work purposes. Thus, our findings add to prior research about technological frames, which suggests that employees' prior activities and perception of private social media, influence their frames of their expectations and assumptions of the ESNs purpose and their views about the usefulness of ESNs (Treem et al. 2016). Our data also demonstrates how difficult it is to shift established technological frames to a new, and in this case organizational context (Treem et al. 2016).

Further, our findings revealed that employees lacked the time for familiarization owing to a high workload and insufficient need-based trainings, which is in coherent with prior studies on IS adoption and ESNs in particular (Chin et al. 2015b; Giermindl et al. 2017; Pirkkalainen and Pawlowski 2014; Vuori and Okkonen 2016). Yet, our data also disclosed what makes target-orientated training more demanding in the context of ESNs compared to other technologies: A larger diversity of pre-existing knowledge and experience levels due to the prevalence of social media outside the workplace and immense differences in employees' prior exposure to them.

Second, we highlighted the potential of ESNs to facilitate digitally-enabled communication and virtual team work, by integrating various functionalities and affording constant system availability as well as connectivity (Colbert et al. 2016; Johns and Gratton 2013). Nonetheless, our findings disclose that employees are struggling with the explosion of competing information channels, feeling overwhelmed by the number of technologies, and the decision when to use which tool in their daily work. Although ESNs offer unprecedented opportunities for an integrated all-in-one-solution, merging all existing functionalities within a single tool (Alimam et al. 2015) with constant accessibility (Fox and Moreland 2015; Giermindl et al. 2017), this potential was not exploited and the ESN was introduced as an additional channel in our case company. Thus, our findings support prior work, which argued that integration with existing IT systems and processes is critical for adoption (Pirkkalainen and Pawlowski 2014; Richter et al. 2013; Riege 2005).

Third, our literature review outlined the auspicious possibilities of ESNs to enhance the searchability and findability of world-wide knowledge and experts and to raise the awareness of worldwide projects and organizational activities (Kane 2015; Treem and Leonardi 2012). In contrast to these desired outcomes identified by prior research (Kane 2015; Treem and Leonardi 2012), our qualitative data revealed that this persistence and transparency of information had negative effects and resulted in a feeling of excessive demand for employees. More specifically, employees described their difficulties to find relevant content in the ESN and to filter the large amount of irrelevant information. Our results add to the emerging conversation on the impact of communication visibility and transparency (Flyverbom et al. 2016; Leonardi 2017; Stohl et al. 2016). This research stream underlines although constant and convenient accessibility, afforded by social networks, is a key characteristic in an age of digitalization and mobility, this accessibility is often impeded by the amount of effort required and the difficulty associated with obtaining information (Fox and Moreland 2015; Giermindl et al. 2017; Stohl et al. 2016).

Our findings also corroborate recent research, identifying information overload as one of the main challenges for knowledge-sharing (Giermindl et al. 2017; Leonardi et al. 2013; Treem and Leonardi 2012). Further our data affirms prior studies, suggesting that people will stop actively looking for content and engaging in knowledge-sharing if they are overloaded, as they do not possess the energy and patience or stamina to process more information (Dabbish and Kraut 2006). To counteract this development, the surveyed employees suggested to provide a clear structure,

and to increase the information quality by reducing the amount of irrelevant information in the ESN and introducing smart filter options and AI intelligence to route content. Moreover, respondents recommended to avoid this overload through by reducing the flood of information, the number of groups and duplicated messages. Recent conceptual research also substantiates the effectiveness of algorithms, social tags and folksonomies to help people find relevant information more quickly and to deliver relevant content to people, thus preventing information overload (Bucher et al. 2013; Treem and Leonardi 2012; Leonardi 2017)

Fourth, we have described how ESN could facilitate immediate communication across organizational hierarchies, cultural and geographical boundaries, resulting in a more open and participative communication climate and enhanced exchange between employees and management (Denyer et al. 2011; Kaplan and Haenlein 2010; Leonardi and Vaast 2017; Razmerita et al. 2014) . However, our findings unveil that the organizational culture did not allow for open discussions and communication in the ESN. Particularly, we found that a lack of participation by employees and management impeded company-wide communication and reaching out to colleagues in the ESN. Thus our findings echo the difficulty of gaining and attracting a substantial number of users to participate in online communities, as suggested critical mass theory (Marwell and Oliver 1993) and the theory of network externalities (Katz and Shapiro 1985). Further our findings are in line with prior research on the importance and the role of top management support (Chatterjee et al. 2002; Liang et al. 2007) in the adoption of IS technologies.

Nonetheless, the findings are intriguing in the context of ESNs: Due to the proliferation of social networks in the private realm, many companies expected their employees, especially the younger ones, to automatically flock and readily embrace social technologies also in the workplace and have thus pursued a passive implementation strategy (McAfee 2009). Managers assumed that especially young people of the Generation Y and Millenials, as passionate users of diverse social media channels in the private realm, will be pioneering users of ESNs and set an example for others to follow (Leonardi and Neeley 2017). Thus, practitioners and scholars initially expected organizational adoption of ESNs will occur in a “bottom-up” manner, driven and supported by employees, instead of a “top-down” approach, thus requiring less management involvement (McAfee 2009; Riemer et al 2012). Our findings corroborate the latest research, which documented that these assumptions are flawed and that employees, especially the young ones have difficulties

with the notion of using social tools for work purposes and the blurring of boundaries between public and private spaces (Giermindl et al. 2017; Leonardi and Neeley 2017; Treem et al. 2016). Therefore, our results emphasize the need to encourage both employees and managers to encourage their peers to participate in ESNs. According to our participants, this can be best achieved if managers serve as role model and form alliances with motivated users of the ESN to jointly convince the remaining team.

Moreover, our qualitative data uncovered respondents documented that they cannot speak up and express their thoughts freely, owing to a lack of openness, critical opinion and objectivity and that employees partly engaged in self-promotional activities. Thus, our findings extend the limited research analyzing influence of organizational culture and the prevailing culture within ESNs. Very recently, scholars have found similar patterns of self-presentation, by identifying sub-groups of users who mainly engage in self-promotion and reputation-management in ESNs (Gibbs et al. 2015; Giermindl et al. 2017; Treem and Leonardi 2012; van Osch et al. 2016). Our results corroborate these previous findings (Giermindl et al. 2017; Oostervink et al. 2014) by showing that users refraining from critical contributions and instead boost their reputations by present themselves in a favorable light by flaunting successful projects, which discouraged other users from participating in the ESN.

Practical Implications

Owing to the practice-based focus of this study and the extensive suggestions for improvement offered in this paper, we provide strong managerial contributions as well as a practical and systematic framework for improving ESNs. In addition to our above presented solutions and suggestions for improvement, we will summarize here the most important lessons practitioners can learn from our research: First, practitioners can learn from our study that the communication of the ESNs purpose is key, as employees need to know what to gain through these new technologies. Thus, we recommend organization to clearly communicate the purposes, the capabilities and the value of the ESN while keeping employees' framing regarding private social media in mind. We believe organizations should enact this by explaining their employees the malleability of ESN, by exemplifying potential use cases for effective interaction and by demonstrating the capabilities of ESNs. Yet, we hold that firms should do this without imposing or excluding certain usage types,

which in turn could lead to losing the positive benefits of ESNs inherent flexibility. To take the different experience levels and different needs of generations regarding effective learning into account (Cekada et al. 2012), companies should also offer training in different formats and for different experience levels.

Second, based on our data and related studies, we encourage organizations to put stronger emphasis on the user experience for the workforce by integrating and reducing tools as well as securing data availability. Managers should ensure constant easy accessibility of the system to foster knowledge sharing and the ESN's integration into employees working routines. Further, practitioners should consider increasing the functional scope of ESNs. For instance, managers can overcome language barriers by including a translation function or link, so that employees can follow and associate with posting of other users.

Third, managers can learn from our study not to downplay the negative effects of information overload. Based on our data, we advocate that practitioners should make every reasonable effort to reduce the amount of irrelevant information, duplicated information and groups and instead implement a clear design, a solid search function and smart filtering option. We also encourage organizations to explore the potentials of data analytics, algorithms and AI, to support them in their endeavor to deliver the relevant content to employee, thus increasing information quality and reducing information overload.

Fourth, we recommend community managers to encourage more critical discussions and foster objective opinions in the ESN, since both our data and current research (Oostervink et al. 2014; Gibbs et al. 2015) suggests that these critical contributions are highly relevant to foster knowledge collaboration and a wider adoption. One way for managers to achieve this is, by not supporting self-promotion (Giermindl et al. 2017), but instead fostering and positively reacting to critical postings. Drawing both on our data and these prior findings (Chin et al. 2015b; Kane and Ransbotham 2012), we also recommend organizations to provide an ensuring timely and targeted communication as well as an active community management to stimulate discussions and increase the information and communication quality in ESNs.

Overall, we are convinced that our study provides rich insights for practitioners and that organizations should keep our findings in mind when implementing and improving ESNs.

Theoretical Implications

Beside these rich contributions to practice, our study sought to make three primary contributions to the field of IS and ESN adoptions. First, we thoroughly reviewed existing research and provided a systematic and comprehensive overview of the opportunities of ESNs with respect to digital collaboration, new work arrangements and the changing nature of work. We showed that ESNs hold great promises to drastically change how people interact in the workplace and for redesigning work practices. Owing to its focus on their opportunities regarding the changing nature of work, this extensive literature review goes beyond prior work and contributes to both IS and organizational behavior research, highlighting promising new research avenues for future work.

Second, this study extends our limited understanding of the challenges employees face in their day-to-day interactions with the ESN. Thus, we address a call made by van Osch and Cousaris (2013) which suggested future research on organizational social media (OSM) to “focus on the challenges that individuals, groups, and organizations face when dealing with OSM that could offer guidance for the design of social media that are conducive to effective engagement by employees and other relevant stakeholders” (p. 705). By conducting a qualitative study and giving voice to almost 1000 ESN users, we identified and categorized reasons why employees are struggling with ESNs in their daily work and provided in-depth information about their perceived challenges. We believe that the combination of rigorous academic research and practical industry experiences and quotes is highly valuable for both scholars and managers to rethink the current state and future capabilities of ESNs, as well as to improve digital organizational communication. Thus, our study adds to the growing debate about ESNs and their value, as well as to the literature of knowledge-sharing in ESNs.

Third, our research adds to the literature on IS adoption and knowledge management research. After explicating the challenges, we also share first-hand employees’ suggestions on how to overcome these challenges and improve ESNs and derive implementable solutions. By illuminating the non-adoption phenomenon and integrating our findings with prior research on the adoption of information technologies and barriers for knowledge-sharing as well as on barriers for ICTs, we provide important theoretical implications for the IS community. We are able to outline that besides several challenges, which are well-known challenges from prior IS research,

organizations also face some idiosyncratic challenges when adopting ESNs, owing to their malleability, established technological frames due to the proliferation of social media outside the workplace and as well as the blurring of boundaries between the private and corporate realm. Thus, we hope that our study can serve as a starting point for conversations on ESN adoptions and for more research into these peculiar challenges of ESNs.

Limitations and Future Research

Despite its contributions to theory and practice, our study has a number of limitations that point towards promising avenues for future research. First, we collected data from a single ESN system with employees coming only from one organization. Since the investigated organization is a successful multinational global player, the ESN has reached a wide adoption within the company, and our qualitative data is based on a geographically dispersed sample of users, we believe the retrieved categories to be representative. Nonetheless, future research is advised to investigate the perception of ESNs in a multi-case study to enhance generalizability of our findings (Eisenhardt 1989; Eisenhardt and Graebner 2007; Lee and Baskerville 2003). Further it would be insightful to conduct longitudinal studies to retrace whether the following-up on or more of the identified suggestions for improvements de facto reduces employees' challenges and contributes to a wider adoption by the workforce.

Second, due to the explorative qualitative design of our study, we were not able to statistically control for socio-demographic influences. However, we checked for differences regarding age and gender for the frequency distribution within in the eleven categories, since prior research has demonstrated that they are important covariates in the organizational and IS context (e.g. Morris and Venkatesh 2000; Furst and Cable 2008). We did not find significant differences for gender for any of the questions. Concerning the distribution of age, we found significant differences between the eleven categories only for the first question, with respondents in category 3 (Integrate and Reduce Channels and Tools) and category 4 (Improve User-Friendliness) showing lower mean values for age compared to the other categories. The qualitative comments for these categories indicate that these differences might be explainable by the fact that younger users are often more accustomed to private social media usage and based their expectations of ESNs on their private social media experience, thus comparing the user interfaces and usability, and asking for a better

and easier user friendliness, as offered by social media. Further, the closer inspection of the comments for category 3, showed that the lower mean age could be related to the fact that younger employees voiced that they already used different social networks in the private realm, thus being less open for additional channels and tools. While these are plausible explanations which we gleaned by taking a closer look at the respective statements together with the respondents' age, we cannot make reliable statements on these interplays with our data. Thus, we encourage future research to quantitatively test the influence of age on these categories and to include other relevant socio-demographic variables, such as tenure, culture or nationality. Moreover, we encourage scholars to examine potential differences related to other influencing factors, such as social and organizational influences, and to quantitatively examine the identified challenges of ESNs.

Conclusion

Given the widespread, and growing prominence of social networks in the workplace, it is theoretically and topically important, to understand why the large majority of ESN implementations fails (Li 2015; Mann et al. 2012; Wehner et al. 2017a). Our research aimed to enhance the understanding of the opportunities and challenges associated with ESNs and how these challenges can be overcome. To address these goals, we pursued a qualitative case study approach by manually coding 1,679 free-text comments of ESN users and employees of a multinational company. In analyzing our data, we identified four major challenges and their respective solutions. Moreover, we derive ten categories of suggestions for improvement. Based on these actual suggestions by employees, we are able offer implementable solutions on how to overcome these challenges with in-depth practical suggestions on to effectively adopt and improve ESNs. By discussing how our findings corroborate and extend prior research on the adoption of information technologies and ESNs in particular, we are able to show that some of the identified categories are applicable to various IS and situations, others are idiosyncratic to the context of ESNs. Thus, we offer numerous theoretical implications for IS and knowledge-management researchers. Further, our study yield rich strategic and operational implications to guide organizations and managers dealing with the implementation, improvement, or organization-wide adoption of ESNs. Overall, our results exemplify the importance of integrating practice and theory as integral approach, in order to improve information systems, increase their adoption by the workforce and make them usable for all employees.

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Appendix A: Mapping of Opportunities, Challenges, Solutions and Suggestion for improvement

Opportunities for Workforce	Challenges for Workforce	Solutions	Suggestions for improvement
<p><u>New avenues for collaborative working</u></p> <ul style="list-style-type: none"> – ESN afford speed, connectivity and information exchange among a widespread workforce – ESNs offer opportunities for personal development, onboarding, evaluation of potential talents – New possibilities for organizational learning – ESNs can bridge generational gaps – ESNs can help employees to get their work done faster – 	<p><u>Challenge 1: Significant Change of collaborative work routines required</u></p> <p>Lack of understanding for new collaborative practices</p> <ul style="list-style-type: none"> – Employees do not know how to use the ESN effectively for collaboration – Employees need to understand the purpose of the ESN to change their working routines <p>Lack of time for familiarization and training</p> <ul style="list-style-type: none"> – High workload as well as limited time precludes intensive familiarization with the ESN – Diversely skilled, multi-generational workforce (early adopters vs. IT laggards) 	<p><u>Solution 1:</u> Creating an understanding for the purpose of the ESN</p>	1. Communicate clearly the purpose and objectives of your ESN
			2. Train your employees and allocate time for them to use the ESN.
<p><u>Diversity of communication possibilities and individual flexibility</u></p> <ul style="list-style-type: none"> – Employees can choose from multiple communication possibilities – By integrating and offering various functions, ESN can replace tools – ESN offer availability and access to information anywhere, anytime and on any device (due to storage in the cloud) 	<p><u>Challenge 2: User experience of employees</u></p> <p>Explosion and competition of channels</p> <ul style="list-style-type: none"> – ESN usually introduced as an additional channel competing with other tools for – Employees feel overwhelmed by the number of channels and insecure when to use which <p>Lack of system availability, and usability</p> <ul style="list-style-type: none"> – Employees cannot easily log on when they need it due to technical instability – High data protection and laborious log-in process to the ESN due to privacy issues and security threats – Employees struggle to associate with both content and people due to language barriers 	<p><u>Solution 2:</u> Creating a better user experience</p>	3. Integrate and replace competing tools, and communicate a clear strategy for what each of the remaining channels should be used.
			4. Improve user experience by increasing technical functionality and stability as well as system availability of the ESN.

Table 2. Opportunities, Challenges, Solutions, and Suggestions for Improvement

Opportunities for Workforce	Challenges for Workforce	Solutions	Suggestions for improvement
<p>Enhanced accessibility and of world-wide knowledge and people</p> <ul style="list-style-type: none"> - easier findability and searchability of information and experts - ESNs allow employees to post on varied topics and interests - employees can converse in diverse projects groups - ESN increase transparency of other organizational units 	<p><u>Challenge 3: Excessive demand for employees to find and access relevant content</u></p> <p>Accessibility and Searchability of content</p> <ul style="list-style-type: none"> - Employees struggle to access, search and find the desired content and to navigate within the ESN <p>Findability and filtering of relevant content</p> <ul style="list-style-type: none"> - Employees feel overwhelmed by transparent content which is irrelevant for their daily job - Employees require high media competency and skills to sort out irrelevant information <p>Information Overload</p> <ul style="list-style-type: none"> - Workforce feels overloaded by information flood duplicated information, groups and notifications 	<p><u>Solution 3:</u> Ensuring the relevant information is easily accessible and findable</p>	<p>5. Make sure the ESN has a clear design and structure with a solid search function.</p> <p>6. Increase the information quality and reduce the amount of irrelevant information by introducing smart filter options and AI intelligence</p> <p>7. Avoid information overload by reducing the flood of information, the number of groups and duplicated messages</p>
<p>Immediate communication across organizational hierarchies, cultural and geographical boundaries</p> <ul style="list-style-type: none"> - ESNs can flatten hierarchies - New avenues for leadership - ESNs make it easier for managers to listen to their employees - ESNs enable both synchronous and asynchronous communication - ESNs can increase speed and immediacy of world-wide answers 	<p><u>Challenge 4: Cultural change needed for open communication</u></p> <p>Lack of employee and management engagement</p> <ul style="list-style-type: none"> - Employees feel their voice is not heard due to a lack of middle and top management participation <p>Lack of open communication and failure culture</p> <ul style="list-style-type: none"> - Employees do not speak up and voice their views - Employees use the ESN for self-promotion <p>Quality and (temporal) relevance of information</p> <ul style="list-style-type: none"> - Lack of topicality: employees are struggling to receive official information in a timely manner 	<p><u>Solution 4:</u> Creating and fostering an open communication culture</p>	<p>8. Encourage your employees, your middle and top management to actively participate in the ESN to gain critical mass</p> <p>9. Encourage more critical discussions and foster objective opinions to avoid self-promotion.</p> <p>10. Improve Communication Quality by ensuring timely and targeted communication and an active community management.</p>

Table 2. Opportunities, Challenges, Solutions, and Suggestions for Improvement (continued)

4 Do Enterprise Social Networks Really Enhance our Performance? Exploring the Relationship between Usage Practices and Individual Task Performance

Lisa Giermindl

Do Enterprise Social Networks Really Enhance our Performance? Exploring the Relationship between Usage Practices and Individual Task Performance

Abstract

The fast proliferation of Enterprise Social Networks (ESNs) has attracted the attention of organizational and IS researchers. Despite a growing body of literature on this emerging field, there is still a paucity of research examining how ESN usage affects employee task performance in the workplace. In particular, we still have a limited understanding of how different ESN usage practices can affect individual task performance, and how ESNs can be used most effectively, given their manifold usage forms. This paper explores how ESN usage frequency and different ESN usage types impact on individual task performance. By conducting a quantitative and qualitative analysis with a survey of 9,541 participants followed by 15 interviews in a multinational and knowledge-intensive company, I found strong evidence that participants who use the ESN more frequently perceive a higher individual task performance. The study's results also reveal that the relationship between ESN usage and task performance varies depending on the usage practice. By shedding light on the use-performance relationship in this novel context, my study has crucial theoretical implications for IS research. Further, this research offers numerous practical implications on how to effectively deploy ESNs in organizations, so as to enhance individual employee performance.

Keywords: Enterprise Social Networks, ESN, Social Media, Social Software, Individual Task Performance, Impact of IS use, usage practices, Use-Performance Relationship

Introduction

Enterprise Social Networks (ESNs) promise to deliver enormous business benefits, such as increased productivity, performance, and effectiveness (Kane 2015; Leonardi et al. 2013). Recent practitioner reports predict that effective ESNs could increase knowledge workers' performance and productivity by 20% to 25% and could have a \$1.3 trillion impact on businesses owing to productivity improvements among knowledge workers (Chui et al. 2012; Denyer et al. 2011; Kane et al. 2013; Kane 2017; Leonardi 2015; Mäntymäki and Riemer 2016). ESNs are organizationally bound social networks and operate as platforms for internal communication, digital collaboration, and social interaction (Alarifi et al. 2015; Giermindl et al. 2018; Leonardi et al. 2013). Particularly, in light of the rising importance of virtual, project, and team-based knowledge work, companies hope to connect their dispersed workforce, facilitate global collaboration, and enhance employee and organizational performance with the help of ESNs (Kane 2017; Leonardi and Neeley 2017; Mäntymäki and Riemer 2016; Teigland and Wasko 2003; Wehner et al. 2017a). Thus, unsurprisingly, organizations are expeditiously investing in social technologies and adopting ESNs for their workforce.

However, despite these rapid adoption rates, it is unclear whether and how ESN usage impact on employee' performances (Kuegler and Smolnik 2013; Kuegler et al. 2015b; Suh and Bock 2015). In particular, there is only limited empirical validation that an increased ESN usage frequency leads to a higher perceived individual task performance. First, this is due to a dearth of research exploring the impact of ESN usage on performance (Ali-Hassan et al. 2015; Bala et al. 2015; Suh and Bock 2015). Second, the existing academic literature reveals a mixed views of the relationship between ESN usage and performance. Although few studies advocate that ESN usage can positively impact on performance outcomes through raising social capital or facilitating knowledge access (Ali-Hassan et al. 2011; Kuegler et al. 2015b; Suh and Bock 2015), several studies reveal that many ESN implementations fail to live up to their promises (Denyer et al. 2011; Giermindl et al. 2017; Li 2015; Mann et al. 2012). Therefore, scholars have called for more research into the effect of ESN usage on employee performance in the context of ESNs (Bala et al. 2015; Richter and Riemer 2013b; Suh and Bock 2015).

Moreover, we still have a very limited understanding whether and how the relationship between ESN usage frequency and performance is influenced by how an ESN is used (Ali-Hassan et al. 2015; Mäntymäki and Riemer 2016). The long history of IS research has taught us that IT usage alone is not enough to impact on employee performance; employees must use these systems

effectively so as to accomplish the desired outcomes (Goodhue and Thompson 1995; Goodhue 2007; Kane 2015). Unlike other software applications or conventional IT, ESNs are malleable technologies with no predefined goal and are not implemented for the solution of one specific problem, but are used for various purposes, in various ways (Richter and Riemer 2013a). Owing to a lack of empirical research on how ESNs should be utilized to increase individual task performance, several scholars have called for dedicated research to consider usage practices and characteristics when explaining the impact of ESN usage on individual task performance (Ali-Hassan et al. 2015; Kuegler and Smolnik 2013; Kuegler et al. 2015b; Richter and Riemer 2013b; Suh and Bock 2015; Wehner et al. 2017b; Zhang and Venkatesh 2013).

To shed light on this relationship, I examine how ESN usage frequency and different ESN usage practices impact on perceived individual task performance. My study is guided by the following research questions:

Does an increased ESN usage frequency lead to an increased perceived individual task performance? And how do different usage practices of ESNs influence the relationship between usage frequency and individual task performance?

The research goals of this study are to (1) empirically analyze the relationship between ESN usage frequency and perceived individual task performance and (2) to explore whether different ESN usage practices lead to different individual task performance levels. I specifically examine how using the ESN for *work-related communication, work-related exchanges and collaboration, obtaining work-related information*, and for *personal and informal talk and networking* impacts on the relationship between usage frequency and perceived individual task performance.

I address these goals with a quantitative and qualitative analysis of a knowledge-intensive large multinational company. I trust this approach to be highly appropriate to provide a comprehensive understanding of how ESNs are effectively used to positively influence employee performance, since existing literature on the impacts of IS use on employees' performance is scarce, fragmented and ambiguous. Hence, I heed the call made by Venkatesh et al. (2013) who stressed "although there has been much research on the impacts of IS use on employees' performance, there is no conclusive evidence of either a positive or a negative impact. Mixed methods research can offer a holistic view of the circumstances under which IS use can have a positive (or negative) influence on employees' performance" (p. 36).

I started the analysis by conducting a large quantitative survey with 9,541 respondents from more than 30 countries. I found that using ESNs more frequently leads to a higher perceived individual task performance. Further, the results revealed that the relationship between ESN usage frequency and task performance is moderated by the respective usage practice. Interestingly, participants perceived that certain usage practices enhanced their performance, while other practices lowered their performance and efficiency. Puzzled by these findings and to gain a better understanding of this interplay, I conducted 15 in-depth interviews with employees from the same company and gained rich insights on these differences.

By employing this approach and answering the abovementioned research questions, this study makes important theoretical and practical contributions. First, this study contributes to IS research that seeks to understand the effect of IT usage on job performance, by shedding light on the use-performance relationship in this still under-researched context, and analyzing social technologies' impacts in the workplace. Second, I provide key insights into the various prevailing usage practices of ESNs with both quantitative evidence and qualitative explanations. Third, by investigating a dataset of more than 9 500 respondents, I validate actual ESN usage frequency's impacts on individual task performance. Fourth, I explore how different ESN usage practices influence the relationship between ESN usage frequency and individual task performance, extending prior research and answering several calls to consider how the ESN is used (Ali-Hassan et al. 2015; Kuegler et al. 2015b; Richter and Riemer 2013b; Suh and Bock 2015). My findings also enhance managers' understanding of how they can effectively deploy, design, and improve ESNs to increase employee performance.

The remainder of this study is organized as follows: In Section 2, I provide a review on the use-performance relationship, the definition of ESNs and research into ESNs. Thereafter, I describe my understanding of individual task performance, explain the different ESN usage practices, and outline my propositions. In Section 3, I empirically test the impact of ESN usage frequency and usage practices on individual task performance via a large quantitative survey. I report data collection, sampling procedures, and measurements as well as the quantitative findings. In Section 4, I describe the methodology regarding interview collection and analysis and present the insights from my interviews. In Section 5, I discuss how the quantitative and qualitative findings advance our understanding of how ESNs can be effectively used to enhance performance outcomes. Before concluding, I present the theoretical and practical implications this research, this study's limitations and avenues for future research.

Theoretical Background

The linkage between IS usage and individual performance is at the heart of the IS discipline, and an ongoing concern in IS research (e.g. Brynjolfsson 1993; Davis 1989; Delone and McLean 1992; Delone and McLean 2003; Devaraj and Kohli 2003; Doll and Torkzadeh 1998; Rai et al. 2002; Venkatesh 2000). Since the start of the controversy about the *Productivity Paradox* decades ago, a rich body of research has examined performance outcomes of IT usage, yielding mixed findings (Brynjolfsson 1993; Brynjolfsson and Yang 1996; Goodhue 2007; Pentland 1989). Accordingly, scholars corroborate that the implicit assumption that an increased use of a technology also increases performance levels is often false in practice (Goodhue 2007; Goodhue and Thompson 1995; Karr-Wisniewski and Lu 2010). For instance, several studies uncover that IT usage cannot positively impact on performance and productivity if the system is underutilized by the organization (Devaraj and Kohli 2003; Giermindl et al. 2017), if technology overload occurs (Eppler and Mengis 2004; Karr-Wisniewski and Lu 2010), or if the technology is a poor fit for the intended tasks (Goodhue and Thompson 1995, Goodhue 2007). Thus, even if a technology is widely adopted by an organization's employees, scholars suggest that its impact on performance outcomes may still be limited, if it is not effectively used (Goodhue 2007; Karr-Wisniewski and Lu 2010; Kuegler and Smolnik 2013).

Studying the relationship between IT use and performance is especially salient in the context of ESNs, since it is still a nascent field of research and ESNs' usage benefits are less evident for managers compared to traditional IS, such as ERP systems (Kuegler and Smolnik 2013; McAfee 2009). I will now outline the definition of ESNs and provide an overview of related work.

Definition of ESNs and literature overview

ESNs represent a set of internal business applications, incorporating diverse digital tools such as wikis, micro-blogs, document management, and social networks (Ali-Hassan et al. 2015; Richter and Riemer 2013b; Schneider and Meske 2017). Their multifaceted applicability is also reflected in one of the most commonly used definitions as

“web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization, (2) articulate a list of coworkers with whom they share a connection, (3) post, edit, and sort text and files linked to themselves or others, and (4) view the messages, connections, text, and files communicated, articulated, posted, edited and sorted by anyone else in the organization at any time of their choosing” (p. 2).

ESNs are unique in integrating all of these functions into one platform, thereby providing a means for internal communication, collaboration, information sharing and social interaction among the workforce (Rode 2016; Turban et al. 2011).

The rapid diffusion of ESNs has also led to increasing scholarly interest. Since my goal is to investigate the impacts of work-related ESN usage, and previous research has demonstrated that practices, goals, and benefits of social media differ significantly between the private and corporate realms (Bala et al. 2015; Giermindl et al. 2018; Kuegler et al. 2015b; Rode 2016), I do not take research on public social media platforms into account. The vast majority of studies on ESNs have examined factors that lead to ESN usage, such as motivations for use (Alarifi et al. 2015; Chin et al. 2015; Giermindl et al. 2018; Rode 2016), the affordances of ESNs (Gibbs et al. 2013; Giermindl et al. 2017; Majchrzak et al. 2013; Treem and Leonardi 2012; Vaast and Karganer 2013), and knowledge-sharing in ESNs (Kankanhalli et al. 2005; Mettler and Winkler 2016; Von Krogh 2012). Most studies took the organization as level of analysis and examined ESN usage as the dependent variable (Högberg 2018).

Over the past few years, researchers have shifted the focus away from explaining usage behaviors towards studying the implications and effects of ESN usage on individuals and organizations. This research stream has identified various business outcomes of ESNs. For instance, qualitative studies have revealed that ESN usage can result in enhanced employee engagement (Leidner et al. 2010), improved information-sharing, and better possibilities for employees to voice their concerns (da Cunha and Orlikowski 2008). Further, scholars found that ESN usage can increase employees' social capital (Steinfeld et al. 2009) and social connectedness (Kuegler et al. 2015a; Silic et al. 2015) as well as enhance social benefits, such as community building, reputation building and forging new contacts (Farzan et al. 2009; Jackson et al. 2007). Moreover, recent studies show that ESNs can positively impact on collaboration and communication (Andriole 2010) and knowledge management (Hemsley and Mason 2012; Leonardi 2014).

ESN usage frequency and perceived individual task performance

Among the factors considered, however, only a few studies have conceptualized and analyzed individual performance as an ESN outcome. These studies found initial empirical evidence that ESN usage can affect different dimensions of work performance through the following mediators: social capital (Ali-Hassan et al. 2015; Lu et al. 2015), social connectedness (Kuegler

et al. 2015a), knowledge access (Ali-Hassan et al. 2011), workplace integration (Moqbel et al. 2017), and by altering the contents and structures of individuals' social networks (Suh and Bock 2015; Wu 2013). Further, a recent study by Kuegler et al. (2015b) found that intra-team and inter-team use of ESNs positively impacts on innovation and individuals' task performance and that this relationship is partly moderated by the construct of task equivocality.

Despite this growing body of research, none of the studies have analyzed whether an increased ESN usage frequency also results in an improved work performance. By empirically exploring the impact of de facto usage frequency on perceived individual task performance, this study answers a call by Goodhue (2007), who claimed that the existing empirical studies "should encourage IS researchers to use extreme caution before they assume that more use of an information system will lead to higher performance" (p. 220), and should motivate scholars to scrutinize this relationship.

I focus on perceived individual task performance, since my aim is to examine whether ESNs directly affect employees' work performance and support employees in completing, coordinating, and solving their daily work tasks, and responsibilities (Ali-Hassan et al. 2015; Janssen and Van Yperen 2004; Katz 1964; Kuegler et al. 2015b; Sparrowe et al. 2001). Following prior research, I define individual task performance as the extent to which ESN usage improve individuals' capability to accomplish their task portfolio and their work efficiency (Goodhue and Thompson 1995; Kuegler et al. 2015b). According to Goodhue and Thompson (1995), higher performance is "a mix of improved efficiency, improved effectiveness, and/or higher quality" (p. 213). Prior IS studies have shown that an increase in individuals' task performance positively and directly impact on various organizational outcomes, such as employee productivity, effectiveness, and innovativeness (Delone and McLean 1992; Goodhue and Thompson 1995; Iivari 2005). Therefore, an increase in individuals' task performance is a key desired outcome of ESN adoption (Ali-Hassan et al. 2015) and a highly suitable dependent variable for this study.

In knowledge-intensive work settings, individual task performance is greatly determined by knowledge access and social interaction (Cross and Cummings 2004; Moqbel et al. 2017; Zhang and Venkatesh 2013). Owing to their unique affordances of visibility, persistence, editability, and association (Treem and Leonardi 2012), ESNs afford easy and faster access to existing information and expertise as well as facilitate knowledge sharing (Ali-Hassan et al. 2011; Flyverbom 2016). Furthermore, ESNs foster the creation of new knowledge through

consolidating and exchanging existing knowledge, hence increasing employees' meta-knowledge (Kogut and Zander 1992; Leonardi 2014; Majchrzak et al. 2004; Nahapiet and Ghoshal 1998; Teigland and Wasko 2003). Thus, I argue that an increased ESN usage enhances individuals' abilities to obtain the required resources, and encourages employee interaction and expert advice (Zhang and Venkatesh 2013). In combination with the aforementioned findings regarding ESNs facilitation of social capital (Ali-Hassan et al. 2015; Lu et al. 2015), and ability to strengthen employee-network ties (Suh and Bock 2015; Wu 2013), I posit:

H1: A higher ESN usage frequency will positively impact on perceived individual task performance.

ESN usage practices and perceived individual task performance

ESNs can be used in a myriad of ways (Ali-Hassan et al. 2015; Kane et al. 2017). Thus, ESNs allow for manifold usage practices, such as one-to-one and one-to-many communication, work-related exchanges and collaboration, obtaining information and news, as well as informal talk and networking (Suh and Bock 2017; Mäntymäki and Riemer 2016). Owing to their inherent flexibility and openness in enabling and supporting a multitude of potential usage practices, ESNs allow their users to experiment with and interpret how to best use the platform for their purposes (Richter and Riemer 2013a, 2013b). Correspondingly, their potential only manifests when employees appropriate, make sense of and incorporate ESNs into their daily work routines (Richter and Riemer 2013a, 2013b). Orlikowski (2000) refers to this phenomenon as *technology-in-practice* to note that technologies, when interpreted in the context of social and work practices, can result in very different usage practices and outcomes. Therefore, Richter and Riemer (2013b) stress that “we need to understand how ESNs are used to fully understand what ESNs are and what role they can play in organizations” (p. 2).

This study seeks to advance this understanding of how ESNs are used and to explore the impact of usage practices on employees' performance. In line with recent conceptual research (Kane et al. 2014), I argue that differences in how users respond to the features of ESNs and usage practices, will also result in users' performance differences.

Based on an extensive review of the existing ESN literature which sheds light on different usage practices of ESNs (Gonzalez et al. 2013, Leonardi et al. 2013; Mäntymäki and Riemer 2016; Richter and Riemer 2013b; Steinfield et al. 2009; Turban et al. 2011), I identified four

major usage categories including nine different usage practices. Thus, I will analyze how using the ESN for *work-related communication*, *work-related exchanges and collaboration*, *obtaining work-related information*, and *informal talk and personal networking* impacts on perceived individual task performance.

Work-related communication

The first usage category captures *work-related communication* and broadcasting of messages. As suggested in the above definition, ESNs afford two different avenues of communication: “to communicate messages with specific coworkers or broadcast messages to everyone in the organization” (Leonardi 2013, p. 2). Firstly, ESNs can be used for one-to-one communication (Suh and Bock 2017) by *sending and receiving personal messages* within the system to another ESN user. Additionally, ESNs enable one-to-many and many-to-many interactions (Suh and Bock 2017) by allowing users to broadcast messages to a broader audience in order to communicate current work or project status updates.

Using the ESN for *sending and receiving personal messages* helps employees to complete their task in just one channel and can replace email conversations. Previous IS and knowledge management research suggests that individuals lose time and are less productive if they have to use too many channels and prefer to use one integrated channel (Giermindl et al. 2017; Kaplan and Haenlein 2009). Further, previous studies has demonstrated that a lack of integration of the platform with existing tools is one of the major obstacles for effective knowledge sharing (Chin et al. 2015; Pirkkalainen and Pawlowski 2014; Riege 2005). Additionally, research has shown that email is not an effective channel for supporting business activities (Silic et al. 2015) and often results in email overload (Eppler and Mengis 2004). By contrast, a study accompanying the Zero email initiative of the company Atos, indicates that replacing email by using ESNs available functions to communicate with coworkers can result in productivity and effectivity gains, more time for employees and a decrease of information overload (Silic et al. 2015)

Using the ESN for broadcasting messages to update other users in the community *about one’s current work status*, gives other users insights into one’s daily tasks, contributing to employees’ awareness which in this context can be understood as the “understanding of the activities of others” (Dourish and Bellotti 1992, p. 107). This awareness “involves knowing who is

‘around’, what activities are occurring, who is talking with whom; it provides a view of one another in the daily work environments” (Dourish and Bly 1992, p. 541).

Especially when solving new and challenging situations, obtaining the right information, and being aware of *who knows what* and *who knows whom* becomes critical (Ali-Hassan et al. 2011; Cross and Cummings 2004; Leonardi 2015; Zhang and Venkatesh 2013). I argue that communicating one’s current work progress in ESNs is not only an efficient means to inform a wide audience and increase communication transparency (Flyverbom 2016), but can also lead to valuable inputs and comments from the community, helping a contributor to perform their tasks. Therefore, I posit:

H2a: Using the ESN *to send and receive personal messages* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

H2b: Using the ESN *to communicate one’s work status* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

Work-related exchanges and collaboration

The second usage category encompasses different kinds of work-related information exchanges and collaboration. ESNs offer employees new ways of open, participatory, and collaborative working, afford synchronous and asynchronous team collaboration as well as work-related and task-related exchanges, and knowledge-sharing (Giermindl et al. 2018; Kane 2017; Kaplan and Haenlein 2009; Suh and Bock 2017).

ESNs allow teams and co-workers *to work on joint documents* by creating, posting, editing, discussing, and modifying user-generated content. This corresponds to the third aspect of the abovementioned ESN definition: “to post, edit, and sort text and files linked to themselves or others” (Leonardi 2013, p. 2). Collaborative work on documents allows users to share, co-create, brainstorm, and generate new ideas (Mäntymäki and Riemer 2016). It facilitates new input attainment (Mäntymäki and Riemer 2014) and harnesses the *power of the crowd* (Turban et al. 2011), supporting cooperation, innovativeness and improving individuals’ capacities to accomplish their tasks.

Further, ESNs enable users to ask other users for help “by outlining a specific problem or by asking others to find a resource or expert able to solve a problem” (Mäntymäki and Riemer 2016, p. 1044). Employees can ask specialist questions about their work, discuss answers, and receive timely responses from internal experts. Likewise, experts can ask for more background information, provide help, exchange personal experiences and best practices, attach documents, or refer to other resources (Mäntymäki and Riemer 2016; Razmerita et al. 2014). Hence, employees are able to reach internal experts faster and with less effort, and can solve or manage their daily tasks more efficiently (Razmerita et al. 2014). Owing to an ESN’s transparency, a posting about a problem or question is visible and accessible to everyone (Flyverbom 2016), so that other users with similar problems can re-use, build, and learn from this knowledge to ask further, more detailed questions (Leonardi et al. 2013), preventing duplication of work and enhancing innovation (Leonardi and Neeley 2017; McAfee 2009).

Besides public enterprise-wide communication streams, employees can also communicate in closed (or private) groups with restricted membership (Giermindl et al. 2017; Stieglitz et al. 2014). While public (or open) groups can be viewed by all network users and are open for anyone to join, communications in closed groups are only visible to group members, and only invited users can become members (Stieglitz et al. 2014). In the investigated firm, most exchanges happened in large, open groups or company-wide communication streams, outnumbering conversations in private groups, which are used for knowledge-sharing in closed circles (e.g. as department groups or groups for managers). Psychological research into open-closed groups found that closed groups are more cohesive, identify as a group, and focus on their collective nature to accomplish a shared goal. This is due to a lack of competition for membership (Burnette and Forsyth 2008), stronger reciprocal norms, and more stability (Ziller 1965). Closed groups in ESNs can be safe places for employees to air their views, to speak their minds without self-censorship or fear of criticism (Holtzblatt 2013). Further, studies have revealed that closed groups produced significantly more products, and solved more complex tasks owing to a lack of fluctuation and less social loafing (Argote et al. 1995).

Organizational science and IS researchers have highlighted that an enhanced cooperation and problem solving as well as better access to knowledge and location of expertise is critical in improving individual performance, and positively influences employees’ performances (e.g. Andriole 2010, Cross and Cummings 2004; Kuegler et al. 2015a; Teigland and Wasko 2003; Wu 2013; Zhang and Venkatesh 2013).

For these reasons, I hypothesize:

H3a: Using the ESN *to work on joint documents* will positively impact on the relationship between ESN usage frequency and perceived individual task performance

H3b: Using ESN *to exchange information about specialist questions with internal experts* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

H3c: Using the ESN *to exchange information in closed groups* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

Obtaining work-related information and news

The third usage category refers to different means to obtain work-related information, updates, news, and user-generated content. It resembles the fourth aspect in the abovementioned ESN definition: to “view the messages, connections, text, and files communicated, posted, edited, and sorted by anyone else in the organization at any time of their choosing” (Leonardi 2013, p. 2). In contrast to the other usage practices, which are knowledge-contribution types, this category is a knowledge-seeking form of usage (Ali-Hassan et al. 2015; Beck et al. 2014). ESNs allow for two different practices of obtaining work-related information. First, employees can actively seek information in an ESN by searching hashtags, keywords, or browsing for specific persons and teams, thereby monitoring conversations and obtaining specific information when they need it (Giermindl et al. 2017). Second, employees can set automated alerts in order to be notified when changes occur in an ongoing conversation, such as group changes, when a certain contributor posts a new message, or across a range of conversations they are interested in (Majchrzak et al. 2013). This process of staying informed yet passive until one’s input is needed is called *triggered attending*, and can reduce the effort required to obtain information, fostering productive knowledge conversations (Majchrzak et al. 2013).

Owing to its affordances of visibility, persistence, and accessibility (Giermindl et al. 2017; Treem and Leonardi 2012), ESNs enable users to easily search and find information about other teams and colleagues, as well as receive news, new topics, and official announcements quicker. Since especially in knowledge-intensive work settings employee performance strongly depends on effortless access to relevant organizational and work-related information, I assume:

H4a: Using the ESN *to get information about other colleagues and teams* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

H4b: Using the ESN *as a source of news, new topics, and announcements* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

Informal talk and personal networking

Besides work-related communication and collaboration, employees can also use ESNs for *personal and informal conversation* as well as *personal networking*. In line with Mäntymäki and Riemer (2016), I argue that this kind of informal, casual interaction differs in content but not form from the other work-related and task-related contributions, since it is “directed at maintaining interpersonal relationships and building social cohesion rather than contributing to work activities” (p. 1044). Hence, workers can share their opinions on general affairs relating to news and topics of interest, such as sporting events and hobbies (Mäntymäki and Riemer 2016). They can also voice their opinion on events inside or outside the company to make an impact. Further, ESNs can be used for keeping up with known colleagues and cultivating social relationships (Steinfeld et al. 2009). Therefore, scholars hold that facilitating informal interactions and the building of social connections is the key benefit of ESNs (Jarrahi and Sawyer 2013).

Previous IS research shows that employees are more willing to exchange work-related information and knowledge once they have socialized and gained personal insights about their coworkers, such as hobbies and opinions (Leonardi and Neeley 2017). Sharing one’s personal opinion as well as personal networking with current and former colleagues can foster trust and social connectedness (Kuegler et al. 2015a; Leidner et al. 2010), and can forge new bonds and strengthen existing ones (Suh and Bock 2015). Further, Davenport (2008) found that the most valuable information for knowledge workers comes from within their personal social network. Based on these findings and results from prior research that suggests that enhanced social capital, stronger network ties, and social connectedness are positively associated with performance outcomes (Kuegler et al. 2015a; Suh and Bock 2015; Wu 2013), I posit:

H5a: Using the ESN *to share one's opinion and make an impact on what is happening in the company* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

H5b: Using the ESN *to maintain contacts and network with (former) colleagues* will positively impact on the relationship between ESN usage frequency and perceived individual task performance.

Methodology

To empirically test my hypotheses, I used a large cross-sectional survey within an organizational setting. The following section describes the research setting, data collection and measures in detail.

Research Setting

The organization I studied is a large technological corporation offering a wide variety of knowledge-intensive products, solutions, and services, primarily to business clients. Its service portfolio is comprised of engineering, manufacturing, and maintaining high-quality products, as well as performing commercial tasks, researching, and developing new technologies (e.g. energy-efficient, resource-saving technologies). Since the company is active in more than 150 countries, its knowledge workers are geographically dispersed and strongly depend on technology to facilitate global collaboration and the sharing of business-related information. In light of its large size, and the prevailing challenges regarding internal information exchanges and connecting the global workforce, the organization introduced an ESN in 2013 to all its employees worldwide. The platform has a similar interface to popular public social networking sites and contains a wide range of Web 2.0 functions such as social networking, searching, tagging, commenting, and authoring information. To achieve openness and transparency, conversations, knowledge requests, and contributions are by default visible to all users of the ESN, except for collaboration in closed groups. The usage of ESN is voluntary and the organization does not incentivize or monetarily reward participation.

Data Collection and Measures

Before collecting the survey data, I conducted preliminary interviews with eight ESN users to gain a better understanding of the prevailing usage practices. Thereafter, I administered a pre-test of the questionnaire with N = 36 participants of the target respondent population. I also

asked the respondents whether there was a usage practice missing, but gleaned no further categories. I excluded all participants engaged in the preliminary survey from the final sample. Further, I was granted access to view the system and able to observe first-hand how the system is being used, gathering field notes and gaining additional rich insights about how the ESN is being used (Mulhall 2003). Finally, I recruited a focus group of six ESN users to discuss the usage practices and to help us refine the questionnaire in several rounds, and considered their feedback before finalizing the questionnaire.

The questionnaire was randomly distributed via email in order to maximize the variation of respondents and to reach frequent users, infrequent users, and non-users of the ESN evenly. No pre-selection was done regarding any sociodemographic characteristic. Overall, I collected data from $N = 9,541$ participants working at this large, multinational technology company in more than 30 countries. The average age of the participants was 41 ($M = 41.21$, $SD = 10.70$), ranging from 17 to 69 years. More than two-thirds of the respondents were male (69.73%) and had been working for the company for about 12 years ($M = 12.50$, $SD = 10.27$), ranging from less than a year to 49 years.

I investigated the dependent variable, perceived individual task performance, according to Iivari (2005). This measure has also been used by Kuegler et al. (2015a) Kuegler et al. (2015b), Goodhue and Thompson (1995), Urbach et al. (2010), and Venkatesh et al. (2003), with minor differences. The items were appropriately worded for better fit with the organizational context. I asked participants to rate their responses along a five-point Likert scale (with 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = and strongly agree). The scale consisted of three questions: 1) The ESN enables me to accomplish tasks more quickly, 2) The ESN increases my productivity, and 3) The ESN makes it easier for me to do my job. The three items showed very good reliability ($\alpha = 0.93$). Since there are various approaches for measuring individual performance, including both self-reported and third-party measures, it is important to note that self-reporting of individual performance is common (Ali-Hassan et al. 2015; Teigland and Wasko 2003), especially when it is not possible to access objective data for reasons of confidentiality. Moreover, studies have found that self-reporting measures are as reliable and sometimes even superior to third-party measures (Heneman 1974; Wexley et al. 1980; van Emmerik 2008). Thus, researchers have not yet reached consensus on the optimal measure for individual performance, since each measure suffers from its own type of biases (Ali-Hassan et al. 2015; Teigland and Wasko 2003).

I assessed the dependent variable, ESN usage, with three questions adapted from Brown et al. (2010) and Alarifi et al. (2015). First, I asked participants to rate how frequently they use the collaboration platform ESN. Second, I asked how often they create posts or comment on posts of other users. Both questions were presented along a five-point Likert scale (1 = never, 2 = less than once a month, 3 = several times a month, 4 = several times a week, and 5 = daily). Further, I asked participants how many hours they spend per week on the ESN, as a free-text question (On an average week, how much time (in hours) do you use ESN (read, follow discussions, take part in debates ...)? ____ hours), drawing on Brown et al. (2010) and Venkatesh and Bala (2008).

On average, participants spent one hour per week on the ESN ($M = 1.24$, $SD = 1.87$), ranging from less than one hour to 40 hours per week. I then classified respondents according to their usage intensities into five categories, following Ellison et al. (2007) and Steinfield et al. (2008) (see Table 1). To provide a more comprehensive and compelling measure of ESN usage, and consider frequency, duration, and intensity, as proposed by Brown et al. (2010) and Venkatesh et al. (2003), I computed the general usage frequency from all three abovementioned variables ($\alpha = 0.70$).

Classification	Usage time	Frequency
very low intensity users	< 1 hour per week	38.64%
low intensity users	1 to 2 hours per week	38.62%
medium intensity users	2 to 3 hours per week	13.76%
high intensity users	3 to 5 hours per week	5.27%
very high intensity users	> 5 hours per week	3.71%

Table 1. Classification of Respondents according to their Usage Intensity

Further, I asked participants what they used the ESN for most often. The usage categories and practices were derived from existing conceptual and empirical studies which described usage forms of ESNs (Gonzalez et al. 2013, Leonardi et al. 2013; Mäntymäki and Riemer 2016; Richter and Riemer 2013b; Steinfield et al. 2009; Turban et al. 2011). As outlined above, I synchronized, refined and discussed these usage practices with internal experts, interviewees and pre-tested them to ensure capturing the prevailing usage practices in the investigated company. I presented the employees with nine questions in binary response format (yes vs. no) to understand whether or not they used the ESN for this usage form, allowing multiple answer options.

Thus, participants were allowed to check several usage practices (1 = to send and receive personal messages, 2 = to communicate the current status of my work, 3 = to work on joint documents, 4 = to exchange information about specialist questions with internal experts), 5 = to exchange information with closed groups, 6 = to get information about other colleagues and teams, 7 = as a source of up-to-date news, new topics and announcements of events and publications (videos, etc.), 8 = to share my opinion and make an impact on what is happening in the company, and 9 = to maintain contacts and network with colleagues and former colleagues).

I also gave respondents the option to name additional usage practices (if none of these applied) by including a free-text field marked as *other usage practices*. In total, I received 398 comments and coded these comments manually in three rounds. However, I found that employees used the field more to specify their usage (e.g. “to receive news – I mainly read, not post on, ESN” or “to download documents”). Hence, no additional category emerged through the coding process. Besides 84 comments such as “I don’t use it” or “no comment”, I matched all comments to the respective usage practice. This process reaffirmed the assumptions that I had captured the most relevant prevailing ESN usage forms in the case company.

Quantitative Analysis and Findings

As can be seen in Table 2, most participants use the ESN as (7) a source of up-to-date news, new topics, and announcements of events and publications (videos, etc.) ($N = 5,728$). Participants using the ESN (8) to share their opinion and influence what happens in the organization, were the ones with the highest mean value for *ESN usage frequency* ($M = 3.29$, $SD = 1.03$). Respondents who used the ESN to (2) communicate the status of their work showed higher mean values for individual tasks performance than any other group ($M = 3.17$, $SD = 1.01$). Notably, participants who use the ESN for any of the nine different practices perceive themselves as more productive than employees who did not use the ESN for the respective practice, except for the group of users, who use the ESN as (7) a source of news and perceive themselves as less productive ($M = 2.52$, $SD = 1.07$).

Usage Practices (UP)	RC ^a	ESN Usage Frequency (IV)			Individual Task Performance (DV)		
		M	SD	<i>n</i>	M	SD	<i>n</i>
(1) to send and receive personal messages	yes	3.00	1.09	804	2.99	1.12	537
	no	2.49	0.98	8577	2.42	1.03	5,626
(2) to communicate the current status of my work	yes	3.14	1.11	947	3.17	1.01	633
	no	2.47	0.97	8 434	2.39	1.03	5,530
(3) to work on joint documents	yes	2.84	1.07	740	3.04	1.06	491
	no	2.24	0.99	8 641	2.42	1.04	5,672
(4) to exchange information about specialist questions with internal experts	yes	2.93	1.08	2 306	2.87	1.033	1,591
	no	2.41	0.94	7 075	2.33	1.03	4,572
(5) to exchange information with closed groups	yes	3.02	1.04	2 598	2.61	1.07	1,869
	no	2.35	0.93	6 783	2.41	1.04	4,294
(6) to get information about other colleagues and teams	yes	2.78	1.01	3 689	2.65	1.03	2,553
	no	2.38	0.97	5 692	2.34	1.05	3,610
(7) as a source of up-to-date news, new topics and announcements of events and publications (videos, etc.)	yes	2.64	1.02	5 728	2.44	1.05	3,876
	no	2.37	0.96	3 653	2.52	1.07	2,287
(8) To share my opinion and make an impact what is happening at the company	yes	3.29	1.03	1 013	3.01	1.05	719
	no	2.45	0.96	8 368	2.40	1.04	5,444
(9) to maintain contacts and network with colleagues and former colleagues	yes	2.90	1.03	1 473	2.77	1.04	1,020
	no	2.47	0.98	7 908	2.41	1.05	5,143

Note. ^a Response category [yes/no];

Table 2. Descriptive statistics for Usage Practices regarding ESN usage and Perceived Individual Task Performance

To further analyze the connection between these factors, I computed a multiple OLS regression with usage practice (UP) as the binary moderating variable. In the first model, I assessed the general influence of ESN usage on individual task performance. For the second model, I controlled for age, gender, and tenure, which have shown to be important covariates, both in the organizational behavior and IS context (e.g. Morris and Venkatesh 2000; Furst and Cable 2008). Moreover, previous research have shown that these covariates are associated with performance outcomes (Bowen et al. 2000; Butler and Skattebo 2004; Carlson et al. 2011; Shirom et al. 2008). Finally, in the last model I estimated a regression model with usage practice (UP) as the moderating variable. As can be seen in Table 3, the R² increases slightly with each model.

In the final model, only tenure is a significant covariate. All moderating variables show significant interaction terms, except for categories (9) to maintain contacts and network with colleagues and former colleagues, and (8) to share my opinion and make an impact on what is happening in the company. The three models predict 21% to 28% variance. I used the Bayesian Information Criterion (BIC) to compare models, with a decrease in the value of the BIC indicating a better model fit. Thus, the final model performs better in terms of explained variance and BIC.

	<i>b</i>	<i>SE B</i>	β	<i>CI</i>	<i>R</i> ²	BIC
Model 1					0.21	16 673.86
Constant	1.04	0.04		[0.96; 1.11]		
Usage	0.58	0.01	.46***	[0.55; 0.61]		
Model 2					0.25	16 318.13
Constant	1.05	0.07		[0.90; 1.19]		
Usage	0.59	0.01	0.47***	[0.56; 0.61]		
Age	0.01	0.00	0.03	[-0.00; 0.01]		
Gender	0.08	0.03	0.03*	[0.03; 0.13]		
Tenure	-0.02	0.00	-0.22***	[-0.03; -0.02]		
Model 3					0.28	16 175.63
Constant	1.20	0.07		[1.06; 1.35]		
Usage	0.54	0.02	0.43***	[0.50; 0.58]		
Age	0.00	0.00	0.03	[0.00; 0.01]		
Gender	0.04	0.03	0.02	[-0.01; 0.09]		
Tenure	-0.02	0.00	-0.20***	[-0.02; -0.02]		
Usage x UP ^a 1 ^b [1= yes] ^k	0.04	0.01	0.03*	[0.01; 0.06]		
Usage x UP ^a 2 ^c [1= yes] ^k	0.07	0.01	0.07***	[0.05; 0.10]		
Usage x UP ^a 3 ^d [1= yes] ^k	0.08	0.02	0.06***	[0.05; 0.10]		
Usage x UP ^a 4 ^e [1= yes] ^k	0.08	0.01	0.10***	[0.06; 0.10]		
Usage x UP ^a 5 ^f [1= yes] ^k	-0.07	0.01	-.09***	[-0.09; -0.05]		
Usage x UP ^a 6 ^g [1= yes] ^k	0.03	0.01	0.04**	[0.01; 0.04]		
Usage x UP ^a 7 ^h [1= yes] ^k	-0.05	0.01	-0.07***	[-0.07; -0.03]		
Usage x UP ^a 8 ⁱ [1= yes] ^k	0.01	0.01	0.01	[-0.01; 0.04]		
Usage x UP ^a 9 ^j [1= yes] ^k	0.00	0.01	0.00	[-0.02; 0.03]		
<i>Notes:</i> * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; ^a Usage practice; ^b (1) to send and receive personal messages; ^c (2) to communicate the current status of my work; ^d (3) to work on joint documents; ^e (4) to exchange information about specialist questions; ^f (5) to exchange information in closed groups; ^g (6) to get information about other colleagues and teams; ^h (7) as a source of up-to-date news, new topics, and announcements; ⁱ (8) to share my opinion and make an impact what is happening at the company; ^j (9) to maintain contacts and network with (former) colleagues; ^k reference category is [0 = no].						

Table 3. Multiple OLS regressions for Perceived Individual Task Performance and ESN Usage Frequency

Notably, participants who used the ESN more frequently have a higher individual task performance. With an increase of one unit in the ESN usage, the perceived individual task performance increased by 0.60 units. Regarding the interaction of usage type with the ESN usage frequency, I found that only employees who used the ESN (5) *to exchange information in closed groups*, or (7) *as a source of up-to-date news, new topics, and announcements of events and publications (videos, etc.)* perceived lower individual task performance with an increase in usage. For all other usage practices, the individual task performance increases as the ESN usage increases. The strongest effect is observable in participants who used the ESN (4) *to exchange information about specialist questions with internal experts* compared to those who did not use the ESN for this purpose. Regarding the covariates, only tenure was a significant predictor in the final model, indicating that employees with higher tenure showed lower individual task performance.

Work-related communication

Using the ESN for both usage practices of work-related communication, *sending and receiving personal messages* (UP 1), and *communicating one's work status* (UP 2) positively impacts the perceived individual task performance, while the latter usage practice has a stronger effect on perceived individual task performance. Overall, only 9% (UP 1) to 10% (UP 2), indicated that using the ESN for these purposes. Employees using the ESN for the practice of *communicating one's work status* have the highest mean values for ESN usage frequency as well as perceived task performance, hence indicating these employees to be very active ESN users.

Work-related exchange and collaboration

Within the second usage category, the three usage practices *working on joint documents* (UP 3), *exchanging information about specialist questions* (UP 4), and *exchanging information in closed groups* (UP 5) revealed diverse findings. Whereas the first two usage practices positively impact the perceived individual task performance, the latter shows a negative effect. Among these practices, *working on joint documents* (UP 3) is not only employed by far fewer employees (7.9% of the surveyed users) compared to the other two forms of work-related collaboration, but also is the least deployed usage practice compare to all other options. In contrast, 24.6% of the participants used the ESN for *exchanging information about specialist questions* (UP 4). Notably, using the ESN for this practice has the strongest interaction effect compared to those who did not use the ESN for such a purpose. Interestingly, the third usage

practice, *information exchanges in closed groups* (UP 5), was found to have a negative impact on perceived individual task performance. Although more than a quarter (27.7%) of the surveyed ESN users indicated that they use it for this practice, this category shows the second lowest mean value and the strongest negative interaction effect.

Obtaining work-related information

The third usage category also disclosed a mixed pattern. Interestingly, I found using the ESN to *get information about other colleagues and teams* (UP 6) positively affects performance, whereas utilizing it as a *source of news, new topics, and announcements* (UP 7) negatively affects perceived individual task performance. Of the ESNs users, 39.3% indicated they used the ESN to *get information about other colleagues and teams* (UP 6) making it the second most commonly deployed usage practice. With more than 61% of the ESN's users using it as a *source of news, new topics and announcements* (UP 7), this is by far the most commonly deployed usage practice. Nonetheless, employees who use the ESN for this purpose, also experienced decreased individual task performance, as evidenced by the lower mean values for ESN usage frequency for individual task performance (compared to non-users of this practice), the lowest mean values in total, and the negative interaction effect.

Informal talk and personal networking

Fourth, the quantitative findings revealed that 10.8% used the ESN for *personal and informal talk* (UP 8) and 15,7% of the employees used the ESN for *personal networking with former colleagues* (UP 9), but both usage practices showed no significant interaction effect with perceived individual task performance.

As can be seen in Figure 1, I did not find support for all hypotheses, since two usage practices had significant negative effects and two usage practices showed non-significant effects. These finding contradict not only my proposed hypotheses but also existing research on the benefits and impacts of ESNs as well as IS research that suggests that an increased transparency and access to information (Ali-Hassan et al. 2011; Majchrzak et al. 2013), as well as collaboration in closed groups (Holtzblatt 2013) and informal talk (Jarrahi and Sawyer 2013; Mäntymäki and Riemer 2016) enhances employee performance. Therefore, I was especially interested in reasons that explain these counterintuitive findings. To gather a more comprehensive understanding of the circumstances and contextual factors, I conducted a qualitative post-hoc analysis.

Hypothesis	Support
<u>Usage Frequency</u> H1: A higher ESN usage frequency is positively related to perceived individual task performance.	✓
<u>Usage Practices^a:</u> Work-related communication H2a: To send and receive personal messages H2b: To communicating one's work status	✓ ✓
Work-related exchange and collaboration H3a: To work on joint documents H3b: To exchange information about specialist questions H3c: To exchange information in closed groups	✓ ✓ ×
Obtaining work-related information and news H4a: To get information about other colleagues and teams H4b: As a source of news, new topics, and announcements	✓ ×
Informal talk and personal networking H5a: To share my opinion and make an impact on what is happening in the company H5b: To maintain contacts and network with colleagues and former colleagues	× ×
<i>Note.</i> ^a Using the ESN to.... will positively impact the relationship between ESN usage frequency and perceived individual task performance	

Figure 1. Hypothesis Summary

Qualitative Interviews and Post-Hoc Analysis

The goal of the qualitative study was: (a) to get a deeper and more nuanced understanding about how and why employees make use of the respective usage practices (b) to better comprehend how and why ESN usage positively and negatively impacts on perceived employee performance (c) gain explanations and insights for the counterintuitive findings, and (d) overall to assemble a richer picture and complement my findings on the interplay between usage frequency, usage practices and perceived performance.

To this end, I designed a semi-structured interview guide to preserve flexibility to adjust the interview questions based on informant responses according to Flick (2014) and Gioia et al. (2013). I started by asking the interviews about their general ESN usage, their usage frequency as well as how they use the ESN. After they described their preferred usage practices, I asked them to explain in more detail how, when and for which purpose they deployed this usage practice. Furthermore, I asked them if they feel that the ESN as well as the described usage practices help them to complete, coordinate, and solve their daily work, and enhances their performance.

Overall, I conducted 15 in-depth, face-to-face interviews with members from the same organization. The interviewees were selected for their variation on the following dimensions: organizational units, job families, locations and hierarchical levels, age and usage frequency (very frequent vs. infrequent users) (see Table 5). The interviews lasted between 40 minutes and 70 minutes and were audio-recorded, and later transcribed verbatim. All interviewees were assured of confidentiality and informed that the provided information will be anonymously used for publication. I terminated conducting further interviews once I had established a comprehensive and consistent understanding (Paré 2004). I transcribed all interviews according to Flick’s (2014) transcription procedure. In coding the data, I followed the approach and claim for rigor in qualitative analysis as suggested by Gioia et al. (2013). Thus, I screened the statements separately and filtered them for relevance for my research question, the respective usage practice and individual task performance. Afterwards, I aggregated the statements to categories to a higher level of abstraction, assessed final dimensions and searched for meaningful correlation between the different statements (in-depth analysis).

Interviewee 1	female	38	IT Manager
Interviewee 2	male	52	Head of Human Resources
Interviewee 3	female	26	Talent Manager
Interviewee 4	male	39	Team Lead Talent Acquisition
Interviewee 5	male	54	Senior IT Manager
Interviewee 6	male	31	Treasury Manager
Interviewee 7	female	40	Process Consultant
Interviewee 8	male	43	Community Manager
Interviewee 9	male	35	Strategy Consultant
Interviewee 10	female	39	Innovation Manager (Research & Development)
Interviewee 11	female	32	Recruiter
Interviewee 12	female	44	Sales Development Manager
Interviewee 13	female	33	Controller
Interviewee 14	male	37	Vice President of Marketing
Interviewee 15	female	56	Strategic Project Manager

Table 5. Overview of the Interviewees

Interestingly, the interviewed employees also expressed their perception that while certain usage practices helped them to accomplish their tasks more efficiently, others lowered their performance level and outcomes. I will now explicate my qualitative findings for each usage category.

Work-related communication

The quantitative results for the usage practice *sending and receiving personal messages* revealed that while a relatively small number of participants use the ESN for the respective practice, those who do use it, report a positive impact. In line with this findings, most interviewees did not use the ESN for this purpose and still relied on email for one-to-one communication. The interviewees who reported to deploy this practice were very frequent users who have (partly) replaced email as a channel and used the ESN as an integrated communication tool wherever possible. Thus, the interviews confirmed my assumption that these employees are users who have incorporated the ESN into their daily routine:

I also send personal, work-related messages to exchange with other users on a bilateral basis if I feel that the information are not relevant enough for a broader audience. I am glad we do not have to switch channels anymore to do this, as it makes life so much easier to do it all on one platform. I really believe we should be eliminate emails and outlook completely, since they are just outdated time-eaters. Instead the ESN should be used with all it available functions, as this would help us to become a truly digital company. (Interviewee 9)

Users of these practice also lamented that they still have to resort to emails to reach the required contact persons, if these are not (regular) users of the ESN and expressed their assumption that this is one of the reasons this usage practice has not become more predominant.

Regarding the usage practice, *communicating one's work status*, the interviewees corroborated the strong positive effect on perceived performance. Regardless of their usage intensity, they voiced that if they use the ESN for distributing and spreading information, it saves them time and enhances their efficiency by quickly reaching out to many people:

If I have to communicate something [...] and there is a target audience in the ESN, then I do not need to bother to put together an adequate email distribution list, but I post it in there, and if someone posts a question, everyone will see the answers. This is simply not the case with an email. So, there is certainly an advantage in the ESN and it's an enormous time saving. So overall, I can say if I have to communicate something, if I have to address someone, then I would say the ESN is a relief, otherwise not. (Interviewee 7)

Further, some employees also explained that this usage practice not only benefits their own work and helps them to complete their tasks more efficiently, but can facilitate others' work and enhances other employees' performance by increasing transparency and awareness, hence being valuable to the company as a whole:

Because we are a large corporation, we have many departments working on things in parallel that you do not notice. And by the fact that, from time to time, employees also post their current status and provide updates of their work or sometimes ask questions, you can see, oh, there is someone already working on this subject. So that really helps a lot. (Interviewee 12)

Additionally, one interviewee described his experience how this form of open sharing and collaborative working not only helped him to do his job and receive attention for his topics, but can also changes the mindsets of other community members:

So, I did something, I showed not only what I did, but how I did it, which means 'working out loud'. And so, I showed people, we can do it ourselves. We can also contribute to something, we can change things and that's how it works. And this has had two positive effects. On the one hand, it attracted people to the topic I am currently working on, and on the other hand, it encouraged people who thought, well, we can really make a difference here. (Interviewee 8)

Overall, the interviews revealed that the ESN is perceived as an effective means for internal, work-related communication. More specifically, employees voiced that using the ESN for one-to-many communications and for information dissemination increases organizational transparency as well as their efficiency and perceived task performance.

Work-related exchanges and collaboration

The quantitative data suggested that *working on joint documents* is the least deployed usage practice, but likewise makes the employees who utilize the ESN for this purpose feel more effective and productive. The interviews disclosed a similar pattern, which supports the notion that there is an untapped potential in this category. Thus, one marketing manager, stressed that people need to be made more aware of the option to aggregate information in a single document and the advantages of collaborative working on joint documents over traditional working:

I use it for materials need to stay consistent in. So, I use it frequently for solving problems, to make sure I use the right billboard, the right image etc., but also during campaigns with file sharing. So every month I run a report on how our consumer social media is performing for every region. So instead of e-mailing it back and forth and people missing the file, I upload it there. I just send an email that says, 'Hey, the new report is on the ESN'. And they can go get it, take out what they need and comment. And so we teach people how to nurture themselves and where to get their information. (Interviewee 14)

In the interviews, *exchanging information about specialist questions with internal experts*, also emerged as a dominant usage practice. Thus, most of the interviewed employees found using

the ESN to exchange advice with internal experts on specialist topics improves their ability to find and access the required information and to complete their tasks in their daily work:

So, I personally would say I use it more for specialist topics, where I extract information. For instance, if you have problems ordering tools and you don't know what to enter, you can look it up on the ESN. If you encounter a problem there, someone else has probably already had it. This means I could find somebody who already knows, then I could look it up. Or when the IT migration took place. There it really made sense to look things up in the ESN and to exchange with the people there, because I knew exactly someone will read it and that either someone who has had the same problem can tell me the solution, or that the problem has just occurred and I can read this in the group. (Interviewee 6)

Further, several interviewees voiced that they regularly engaged in exchanges with internal experts about technical or specialist questions. All of them stated that it helps them to reach experts more easily and get faster responses for their questions, compared to traditional channels, thus increasing their work efficiency and performance:

It also facilitates exchange immensely. Before, I would probably have only come to certain information by having asked twenty people, and then hopefully somehow end up with a person who MAYBE knows how works. Now I put a specific post in the group and most likely within two hours I have a meaningful answer. That's better! Not for every topic, I cannot ask about the meaning of the world, yes, and expect a meaningful answer. But when it comes to specialist topics, yes, it is extremely helpful. (Interviewee 1)

Particularly, they described that the ESN improved their ability to immediately solve problems as well as unprecedented, challenging or complex situations in their daily work:

It helps me a lot to solve problems faster than before. [...] Before using the ESN, it often cost me A LOT OF TIME to find a solution. Either you had to find it yourself or you had to find out over phone calls, emails, or another channel, just to find someone who can help you. This has become so much faster and much more efficient. (Interviewee 6)

Particularly complex topics can be handled more easily, topics such as I'm looking for someone for a task. So, there are tasks here, we have a problem here, but no idea how to solve it. Before it always depended on who is aware of it, who has an idea for it? Today I ask the question and if I'm lucky it will be answered within a few hours and before maybe it took WEEKS until maybe, MAYBE, I found the right person. (Interviewee 8)

Surprisingly, the quantitative data disclosed that employees who used the ESN for collaboration in closed groups perceived a negative impact on their perceived individual task performance. The interviewees revealed possible explanations for this negative interaction effect, depicting that exchanges in closed groups can complicate knowledge-sharing immensely, owing to different participant groups. I interviewed a department head and one of

his team leads regarding the problems and independently from each other they described the difficulties they face in their day-to-day interaction and information-sharing in closed groups:

So, my boss' boss often posts work-related information in groups I have no access to. If it is something important, my boss then forwards the notification to me via email, because there is no other way. But this is cumbersome and chaotic. Another problem is if I post something in our team-internal closed group now and then I ask my boss: "Would you make this query available in your management group?" Then he does it and tags the group below, but it still does not mean they have access to it, because again they are not members of our closed group. (Interviewee 4, Team Lead)

I think I would seriously make it that you can no longer utilize closed groups. Because, in the end, it's a bit contradictory to the whole character and aspect of the social network. Anyhow, we should not share anything that is strictly confidential or classified in such a network or platform. So conversely, it should apply that clearly there are groups and they are potentially interesting for everyone. Hence, I wonder 'Why exclude some, in advance, from access to the group?' (Interview 2, Department Head and Supervisor of Interviewee 4)

Another interviewee corroborated that the creation and collaboration in closed groups counteracts open sharing of information, expertise and knowledge:

There are so many small and closed groups that know certain things, but these information are just not spread over the entire community and I wish, and I had thought the idea of the ESN is that someone posts something and EVERYBODY can access it. So what happens is quite often that I know Susan knows something, then I call Susan. Then there are three other people who call Susan, because many people know that Susan has already done some work on this topic. So wouldn't it be nice if Susan prepares something and posts this in the community and then everybody who needs it can read it and ask questions. And if I read then this conversation and I still have more questions, I know that I can approach them. So this open sharing of information is what I am missing the most. (Interviewee 13)

In addition to this lack of open knowledge sharing, one interviewee also highlighted the origin of many closed groups by critically commenting on the outdated mindset and hidden agenda behind many of them:

What I observe again and again is just that we create closed groups by department designation, that is, we actually replicate the structures, the formal structures, and not the value creation, not the value added groups or chains. (Interviewee 8)

In total, all of the interviewees declared that they used the ESN for one or more practices of work-related exchange and collaboration and reflect the mixed quantitative findings: Whereas collaborative working on joint documents and especially exchanging information about specialist questions enhances employees efficiency, performance and ability to solve problems,

collaboration in closed groups inhibits and complicates effective knowledge sharing, thus lowering respondents' efficiency and performance.

Obtaining work-related information and news

In line with the quantitative findings, the majority of the interviewees used the ESN for obtaining work-related information, updates and news and information seeking. Further, the respondents using the ESN *to get information about other colleagues and teams* articulated that it allows them quicker and easier access to relevant information about teams and colleagues. The interviews revealed two main purposes for this practice. First, the interviewees reported to use the ESN to browse and look up the ESN profile of unknown colleagues as preparation before and after personal meetings. Hence they stated that it helped them to get an idea of how they look and remember their faces and raises their understanding what topics they are interested in as well as their responsibilities and attitude:

I have to admit I use the ESN mainly to profiling. I look for what the person has done so far in which job. So, I use it mainly to inform myself about someone with whom I get in contact, both before and after meetings. [...] Particularly, if someone asks a lot of questions or one already has an impression in a certain direction, then I look for what he has been doing so far and what he put on his profile. [...] And this helps me to understand why they are asking certain types of questions and with which intentions. (Interviewee 11)

I also use it take a look if you have not yet met someone. Particularly, I do that before moderating workshops, which means several times a week. Just to see how exactly do they look? What does he do? Are there some posts? What department is it? Which topics concern him? [...] So, this is a quick, efficient, and easy way to get an overview of who to expect. (Interviewee 1)

Second, the interviewees voiced they use the ESN to get information about certain colleagues' associations and to understand team affiliations:

Sometimes I also look for people, and look who follows whom, to recognize any team member structures, searching purposely for people. In our organization charts I have position names, but not what somebody is doing and whom he or she collaborates with closely. In the ESN most users include their job description and describe what exactly they are doing. For instance, the person is a recruiter and writes for what country and which division he or she recruits. And this kind of information is incredibly helpful and it is so much easier than looking it up in org charts or trying to get his information through other channels. (Interviewee 3)

In both cases, the interviewees reported, that it affords them quicker and easier way to get relevant information about teams, thus facilitating them to perform their tasks in a more efficient manner and enhancing their performance. Further, the participants described that the

ESN strengthened their capacity better judge unknown colleagues and understand their responsibilities, to know what to expect and anticipate potentially conflicting views and hence enabled them to adapt their behavior to work more efficiently with new colleagues and teams.

In contrast to this targeted form of information seeking, the quantitative data unveiled that using the ESN as *a source of news, updates and announcements* decreases the performance. This pattern was also strong in the interviews, since all employees experienced some form of information overload and a feeling of excessive demand, particularly due to the unsolicited notifications they receive from the ESN:

But this mass, it is too much. Every day I have to plan half an hour to simply scan and delete ESN notifications. And then you arrive at 08:00 in the morning, look in your mailbox and you have 120 unread emails even though yesterday you left the office at 19:00. During this time, no normal person, would write about important topics. Of these, 90% are actually ESN notifications and 80% of those are not as relevant, so I would need them. So, your day starts with a flood of emails you have to screen one by one. I guess that already leads to some demotivation of users and demotivates myself. (Interviewee 3)

It's just so overwhelming. [...] Maybe people who has ten to thirty years less under their belts grew up with this logic anyway. They do not perceive this overwhelming scenario and argue that it's too much for them. Instead, they only judge whether or not they are either interested in this information. And I'm not talking about the physical overload. That's why I could not name anyone in my immediate vicinity I know of. And of course, no one dares to tell executives that what they are posting is nonsense. (Interviewee 2)

Some interviewees also expressed that this enormous overload negatively influences their overall assessment of the ESN's impact on performance outcomes:

So, on balance, I think it reduces productivity because there really is too much nonsense. The advantage that such a social network has, to provide many people with relevant ad hoc information is unfortunately lost owing to this flood of irrelevant information. (Interviewee 4)

Several interviewees also described how they struggled in their everyday lives and sought to develop different strategies to deal with this overload, either through technical aids (e.g. unsubscribing from notifications, setting up configurations to dispatch ESN notifications in a separate mail folder), or by disciplining themselves:

So especially the ESN notifications annoy many and me too. All these notifications suddenly mix in the middle of your normal inbox and you just see the abundance of emails and you cannot easily differentiate between: What are work orders or work issues? And what is informational topics now? Of course, I could say, just shut off the default notifications. I tried this, too. But again, it's not really the purpose, because then

I did not get the information I required and lost a lot time for logging into each group for news and over time I forgot to log in and missed many relevant information. Then, many of us have started to set up a rule in outlook to get the notifications out of our normal inbox and I did that too. Although it prevents me from being distracted by each notification, I am still struggling to filter through this enormous information flood and have no idea how to solve it. (Interviewee 7)

And I find it quite exhausting sometimes and then I need time. Time to get my head clear again. That means the information often challenges me a lot, concerns me, my head, and then I have to somehow make a cut somewhere and say, now I've got enough impulses, I've got enough input, now I have to form an opinion. (Interviewee 8)

Yet, despite different efforts and strategies, none of the interviewees had found a solution or effective way to cope with the new abundance and flood of information.

Informal talk and personal networking

The quantitative findings exhibited no significant effect of both usage practices of this category on perceived individual task performance. Although several respondents addressed these usage practices in the course of my interviews, the interviewed employees were quite divided about its appropriateness for these practices.

Concerning the usage practice *to share one's opinion and impact on what is happening in the company*, the interviews uncovered a chasm between employees advocating its main utility for such usage purposes and others feeling that the ESN is not an adequate place for sharing personal things:

So, I have this group for working moms and dads. That's where I'm in the lead, I also use the ESN to post stuff. So, it's used more for informal purposes within the company. (Interviewee 10)

I do not post any funny pictures from the weekend or weekly motivational quotes like some others do. This means I post content and work-related stuff, which does not necessarily always concern only our company or internal activities. But it can also be an interesting blog or article, with some insights from other organizations, but that is always relevant to our job. (Interviewee 3)

Owing to this inconsistent usage, some interview partners also expressed that they are confused about the ESN's purpose and the company's objectives with it, demanding the management to clearly define and communicate the mission of the platform:

So I am missing an announcement: for what? And why do we want to use it? This, I mean our ESN? Is it really a free platform? So, do whatever you want; let's bond and talk, please post your flowers. Or do I want to use it as a communication medium [...] where relevant content can be communicated quickly and in an efficient way? So, for me, there is at least no selectiveness, until now. (Interviewee 4)

This inconsistent use and unclear goals of the ESN also seems to influence employees' perceptions about the ESNs' impact on performance. Thus, a few employees voiced that there were and still are some concerns and doubts about the value of the ESN for raising productivity:

I think one of the disadvantages we had earlier, was the perception it would take away from peoples work. Especially older, more traditional employees almost viewed it as a distraction, as something that would not add value to a team work. So we had to overcome the resistance with the perception that it creates value [...]. Everybody defines value differently, so for me the value to my work is gaining communication that I otherwise wouldn't have. (Interviewee 14)

Besides such informal exchanges, several interviewees also highlighted that they used the ESN to *maintain contact and network with current and former colleagues*. Yet, the interviews again revealed a divide between employees who found it suitable and practical for networking and others who did not:

I am in a closed group from the past, with my former department, where we stay in touch with one another from time to time. [...] So sometimes they post content-related topics and then I'll bring in what I've found. And sometimes something interesting comes in and I keep in touch, I would call it pure networking in the old department. This is also a practice that is important to me. (Interviewee 1)

Since the ESN has not yet come to be used like Facebook, in the sense that you stay in touch with people who are further away, it does not really help me to network. (Interviewee 4)

Nonetheless, those who used the ESN for this usage practice stressed its value and usefulness for networking and communication:

Certainly my network has extended. But what may be even more important than expanding networks is that it is useful to maintain the network and to stay connected in a fairly simple and efficient way. (Interviewee 15)

You know in every social network weather it is consumer Facebook, twitter or Instagram or internal, it really is all about not replacing that connection but ideally it makes your connection stronger to be able to connect with the person virtually and have a conversation that didn't replace it, but it adds more value so you can reach your conversation goals. (Interview 14)

Overall, the interviewees confirm the quantitative findings in the way that employees did not exceedingly engage in socializing, sharing their personal opinion or building relationship outside of work-related conversations. Further, the interviews uncovered no consistent pattern and no evident link between these two practices and performance outcomes.

Discussion

I started this paper by asking whether an increased usage frequency results in enhanced individual task performance. Further, my goal was to understand if and how the impact of ESNs usage frequency on individual task performance varies depending on how the ESN is used, given that ESNs allow for manifold usage possibilities. More specifically, I examined how using the ESN for *work-related communication, work-related exchanges and collaboration, obtaining work-related information and news, and informal talk and personal networking* impacts on individual task performance. By surveying over 9,500 participants, I found evidence that an increased ESN usage frequency also leads to an increase in perceived individual task performance. Further, the findings affirmed that this relationship varies depending on how the ESN is used and the deployed usage practice. Whereas some usage practices have positive impacts on ESN usage and individual task performance, others have negative effects. To understand this phenomena and gain richer insights into prevailing ESN usage practices and their particular influences on individual task performance, I conducted 15 in-depth interviews with employees from different organizational units and hierarchy levels.

Discussion of Key Findings

Both my quantitative and qualitative data provide evidence that using the ESN for *work-related communication* increases perceived individual task performance. Within this category I found that employees using the ESN for *communicating their work status* perceive a stronger and more positive effect on their performance than employees using the ESN for *sending and receiving personal messages*. These observations substantiate existing research into ESNs' ability to create transparency (Flyverbom 2016) and increase awareness and meta-knowledge (Dourish and Bly 1992; Leonardi 2015; Mäntymäki and Riemer 2016). Additionally, my findings suggest that ESNs are more effectively used for one-to-many communication than for traditional one-to-one communication in order to take advantage of the open nature of ESNs.

Regarding the second usage category, *work-related exchanges and collaboration*, the findings yield a mixed picture. Firstly, they suggest that while *working on joint documents* positively impacts on perceived performance, this practice is underutilized by employees. This is surprising, given that ESNs are destined for collaboratively editing documents to reduce version control problems (Holtzblatt 2013; Kane 2015) and to co-create, brainstorm, and generate new ideas (Mäntymäki and Riemer 2016). By contrast, *exchanging information about*

specialist questions emerged as a frequently deployed usage practice with strong positive effects on performance. Thus, especially the interviews demonstrated the ESN help employees to solve very specific and immediate problems at hand, which are directly associated with their daily work. By posting the problem and asking the community for advice, the employees engaged in a form of ad-hoc, internal crowdsourcing (Mäntymäki and Riemer 2016) which increased their ability to find answers more quickly and increased their perceived individual task performance. These observations are congruent with prior research that suggests that ESNs facilitate employees' access to knowledge and location of expertise (Ali-Hassan et al. 2011; Beck et al. 2014). The findings also highlight that employees find ESNs important when exchanging problems with other users in order to re-use, build, and learn from this knowledge to ask further or more detailed questions (Leonardi et al. 2013).

Surprisingly and counterintuitively, the quantitative and qualitative findings suggest that *exchanging information in closed groups* is not an effective means to increase employee performance, since it erodes collaborative working and open knowledge-sharing. This finding contradicts research that claims that closed groups are more productive owing to greater cohesion, less fluctuation, more stability, and less social loafing (Argote et al. 1995; Holtzblatt 2013; Burnette and Forsyth 2008; Ziller 1965). Concurrently it confirms prior conceptual research has assumed that creating closed group editing environments in ESNs can imply shortcomings, since it prevents the formation and fostering of interpersonal ties (McAfee 2009). My results also substantiate and extend previous studies that challenge the notion of ESNs as inherently open (Denyer et al. 2011; Mettler and Winkler. 2016) and stress that companies deprive themselves of significant benefits when promoting this usage practice.

In terms of the third usage category *obtaining work-related information and news*, this study discloses findings that are astonishing and counterintuitive in two ways: First my findings reveal, that while most employees use the ESN for knowledge-seeking purposes, both usage practices are not the most advantageous to increase employee performance, as evidenced by the lowest mean values for individual task performance and the unanimous opinion by the interviewees. The finding that most employees use the ESN for knowledge-seeking, is in agreement with previous findings on lurking and posting behaviors (Alarifi et al. 2015; Beck et al. 2014; Giermindl et al. 2018), suggesting that most ESN users are only passive readers. Nevertheless, by showing that that the majority of employees do not utilize ESNs in an effective way, my results are compelling and highly relevant to both researchers and

practitioners. Thus, they demonstrate that merely using an ESN for knowledge retrieval is not an effective form of usage, nor results in the desired outcomes of raising productivity and employee performance – but rather results in the opposite effect. Second I found evidence that while the targeted *seeking of information on other teams and colleagues* still proved to have a positive impact on employees' performance, using the ESN as *a source of news, up-dates and announcement* even lowered perceived individual task performance.

The purposive searching for *information about other colleagues and teams* enabled employees quicker and easier access to relevant information, as suggested by prior research (Leonardi 2015; Flyverbom 2016), hence helping them to perform their tasks in a more efficient manner and enhancing their performance. In particular, the interviewees voiced that they browsed the profile of unfamiliar colleagues and teams to prepare for meetings and workshops. This confirms prior research who described the process, of getting a general understanding and coming to a conclusion who someone is, as *people sensemaking* (DiMicco et al. 2009). Further, the qualitative findings indicate that this usage practice supports employees in their *interpersonal adaptability*, indicating that ESNs could also increase other performance dimensions, such as *adaptive performance*, as outlined by Pulakos (2000).

Regarding the negative impact of using the ESN as *a source of news, up-dates and announcement*, the results of this study stand in contrast to studies that underline that ESNs' strongest asset is as an information medium for employees to stay informed about news, new topics, and updates (Majchrzak et al. 2013; Treem and Leonardi 2012). Particularly they contradict research on the positive effects of the affordance *triggered attending*, which suggests that receiving news via ESN notifications enables employees to stay passively informed, reducing the effort to obtain information and fostering productive knowledge conversations (Majchrzak et al. 2013). At the same time, the findings reflect the well-known phenomena of information and technology overload (Karr-Wisniewski and Lu 2010) and social media-induced technostress (Brooks and Carliff 2017; Maier et al. 2015), which are considered major drawbacks of communication technologies and social networks. The literature on technology overload notes that using technologies to obtain information corresponds positively with individual performance only up to certain point; if further information is provided, the individual's performance will rapidly decline (Eppler and Mengis 2004; Karr-Wisniewski and Lu 2010).

With respect to the fourth usage category, *informal talk and personal networking*, the quantitative and qualitative findings reveal no significant effect or clear indication, that the two usage practices positively influence employees perceived individual task performance. Interestingly, the interviews uncover that employees judged the ESNs utility for these usage practices very differently. Whereas some emphasized they use the ESN mainly as a social network for informal exchanges, others stressed that it is not a suitable means for these practices. These findings are, to some extent, in line with research that found that an ESN's purpose is often unclear (Giermindl et al. 2017). However, they also contradict results from other studies on various accounts: Thus, previous research suggests that facilitating informal talk and personal opinion-sharing leads to increased socialization, stronger relationships, and strengthens existing ties (Jarrahi and Sawyer 2013; Richter and Riemer 2013b). Moreover, several studies have shown that these forms of ESN usage positively impact on performance outcomes via the mediating effects of enhanced social capital, and social connectedness (Ali-Hassan et al. 2015; Kuegler et al. 2015a; Suh and Bock 2015; Wu 2013). The findings of Mäntymäki and Riemer 2016 even suggest that “without such informal conversations the community from which individuals derive informational value might not emerge and exist in the first place.” (p.1050). One possible explanation for this discrepancy with previous research is that there is no direct, but only an indirectly link between using the ESN for informal purposes and perceived individual task performance and or that employees are not conscious that using the ESN for these practices helps them to perform their tasks. Furthermore, the investigated ESN might be used less for informal and personal talk compared to the investigated ESN systems of the respective studies.

Overall, the findings reveal that ESNs are more effectively used if they are used for open and collaborative working compared to traditional working. Thus, I found stronger and more positive effects on perceived individual task performance when the ESN is used for open sharing, one-to-many communications, and knowledge exchanges with experts. In contrast, the usage practices that resemble traditional working practices and mindsets – collaboration in closed groups, private one-to-one conversations and using it passively as a source of news or kind of newsletter – negatively affected or only had very small positive effects on individuals' perceived task performance. Further, ESNs are often interpreted by employees and companies as internal social networks, as an internal Facebook for the workplace (Giermindl et al. 2017; Steinfield et al. 2009) for fostering connections and informal exchange (DiMicco et al. 2009; Farzan et al 2009; Sparrowe et al. 2001). I found this was not the most common usage practice

in this organization, nor did employees articulate a need for such a platform. Instead, employees preferred to use the ESN as a collaborative platform for work-related communication and cooperation and to solve very specific and immediate questions and problems and tasks. This indicates that ESNs must be used in an open, participative, and collaborative way and for work-related usage practices if their intention is to increase performance outcomes.

Theoretical Implications

This research makes several notable contributions to IS research: First, this research contributes to the IS community by shedding light on the use-performance relationship of social technologies in the workplace. Although increasing employee performance is a key net benefit and desired outcome of almost every technology use (DeLone and McLean 1992), there is still a lack of empirical research into the effect of IT usage on performance in general (Rai et al. 2002; Zhang and Venkatesh 2013) and into ESNs' impacts in particular (Ali-Hassan et al. 2015; Bala et al. 2015; Kuegler et al. 2015b; Suh and Bock 2015). Further, numerous IS researchers have demonstrated that the link between an increased IT usage and an increased performance should not be taken for granted (Brynjolfsson 1993; Brynjolfsson and Yang 1996; Devaraj and Kohli 2003; Kuegler et al. 2015b; Pentland 1989) and called upon scholars to challenge and analyze the intuitive assumption that increased use of technology increases performance levels (Goodhue 2007; Goodhue and Thompson 1995).

By investigating a rich dataset of more than 9,500 respondents, I have empirically validated de facto ESN usage frequency's impact on individual task performance. I have provided powerful evidence that ESN usage frequency relates positively to employees' perceived individual task performances. Thus, this study expands our understanding of technologies' impacts on job performance, and contributes to several streams of IS and organizational research, such as research on IS success (e.g. DeLone and McLean 1992; DeLone and McLean 2003; Iivari 2005; Rai et al. 2002), research on the technology-task fit (e.g. Goodhue and Thompson 1995), research on performance impacts of collaboration and information communication technologies (ICTs) (e.g. Brown et al. 2012; Zhang and Venkatesh 2013) and literature on performance (Borman and Motowidlo 1997; Christian et al. 2011; Janssen and Van Yperen 2004). Further, my findings add to the nascent research into individual-level ESN usage, their impact on performance and the growing debate about their value for business (Ali-Hassan et al. 2015; Kuegler et al. 2015b; Mäntymäki and Riemer 2016).

Second, I provide rich insights into the different prevailing usage practices of ESNs with both quantitative evidence and qualitative explanations. By identifying and describing concrete ESN usage practices, I have responded to the call by Mäntymäki and Richter (2016) to conduct a quantitative and qualitative analysis within one organization to obtain an in-depth understanding of the contextual aspects of ESN use. My findings affirm the malleable nature of ESNs, and demonstrate that individuals' interpreting and sense-making of these technologies (Orlikowski 1992; Richter and Riemer 2013b) results in varying usage practices even within one organization. By considering how the system is used and different usage practices instead of a dichotomous approach (whether or not an organization implemented a specific technology), I have also answered calls to enrich the conceptualization of IT uses (Ali-Hassan et al. 2015; Benbasat and Barki 2007; Burton-Jones and Straub 2006). Furthermore, my study complements prior research on the affordances of ESNs (Majchrzak et al. 2013; Treem and Leonardi 2012) and on knowledge sharing in ESNs (Kankanhalli et al. 2005; Leonardi 2015; Von Krogh 2012), advancing our understanding of how employees uses social media in the organizational context (Ali-Hassan et al. 2015; Kuegler et al. 2015b; Mäntymäki and Richter 2016).

Third, I demonstrate that the way that ESNs are used, determines its impact on performance. To my best knowledge, this is the first study to examine whether performance is impacted by how an ESN is used. By exploring how different ESN usage practices influence performance outcomes, I answer numerous calls to consider different usage practices and contextual factors when explaining ESNs' impacts on task performance (Kuegler and Smolnik 2013; Kuegler et al. 2015b; Richter and Riemer 2013b; Suh and Bock 2015; Wehner et al. 2017b; Zhang and Venkatesh 2013). For instance, researchers claimed that it "would be insightful to elaborate on how the organization uses the implemented IT in order to better understand the value it provides" (Ali-Hassan et al. 2015, p.78). These study's findings provide evidence that the ESN, can have differential impacts – positive and negative and no impacts - on performance depending on how it is used, which corroborates prior research that the same technology can result in different outcomes (Orlikowski 1992). Thus, my findings raise the understanding of the contextual nature of ESNs (Richter and Riemer 2013b) and show how they can add value in a business context, thus laying the groundwork for more research on ESNs' usage practices.

Practical Implications

My research also has numerous strategic and operational implications for organizations and managers: First, this study raises the managerial understanding of the potential business benefits of ESNs and their impact on employees' performance. Although companies are increasingly turning to ESNs, most companies still lack a solid understanding of the potential effects of ESNs and how to effectively utilize these platforms to accomplish the desired outcomes (Kuegler et al. 2015b), ultimately resulting in failure rates of up to 80% of all ESN initiatives (Mann et al. 2012). Furthermore, many managers doubt the value of these tools and are afraid that their employees will waste their time in the ESN, lowering their performance and productivity levels (Ali-Hassan et al. 2015; Leftheriotis and Giannakos 2014; McAfee 2009; Turban et al. 2011). In contrast to these concerns, my findings point out that ESNs can significantly increase individual task performance, if they are utilized and effectively deployed. By demonstrating the positive impact of an increased ESN usage frequency on perceived individual task performance, my research helps managers not only to justify their adoption decisions and create business cases for the high investment costs, but also affirms them to continue promoting ESN usage, since their efforts can be rewarded in the end.

Second, this research highlights that ESNs are deployed by employees for very different usage practices and that these practices also determine the impact of usage frequency on individual task performance. By identifying and illuminating four usage categories with nine different usage practices, my study advances managerial understanding about the different usage possibilities of ESNs. Managers should be aware that users interpret how to best use ESNs for their purposes and that usage practices can differ markedly among organizations but also within one organization. Thus, I encourage practitioners to observe and analyze the prevailing usage practices to better anticipate and understand the value and potential of the ESN system.

Last but not least, this research helps managers to understand how ESNs can be used effectively. Thus, my findings show that ESNs are most effective when used in an open manner for one-to-many communication, collaboration in open groups, specialist exchanges, and the location of expertise. Conversely, the usage practices that resemble more traditional working mindsets – collaboration in closed groups, private one-to-one conversations and using the ESN as a source of news – negatively affected or only had very small positive effects on individuals' perceived task performance. Further, this study reveals that ESNs enhance productivity when they are used as a collaboration platform for sharing specialist and work-related knowledge,

rather than as internal social network. This implies that companies, when adopting ESNs, must also change how they work and promote a mindset and cultural change among their managers and employees towards open knowledge sharing and collaborative working, instead of sticking to their traditional working styles, in order to use them efficiently. Further, the study's results indicate that there is an untapped potential to use ESNs for collaborative *work on joint documents* and *sending and receiving personal messages*, which should encourage practitioners to foster these underutilized practices.

Likewise, the quantitative and qualitative findings imply that companies should be wary when supporting collaborative closed groups and should consider ways to limit these practices should they become too dominant, to avoid ineffective knowledge-sharing. Also, companies should concentrate efforts on reducing information and technology overload, since these discourage use, drain productivity and overwhelm employees (Giermindl et al. 2017; Karr-Wisniewski and Lu 2010).

Overall, companies should keep these findings and insights in mind when seeking to increase performance outcomes via ESNs as well as to make better and more informed decisions when it comes to ESN adoption and usage.

Limitations and Future Research

Despite these intriguing findings, my results should be interpreted in light of limitations: One limitation is the study's sampling frame with employees coming only from one company using one ESN. Owing to its size, its global presence in several sectors, and its geographically dispersed knowledge workers, this company still provides a representative sample which is suitable for my study. The fact that the company had already implemented the ESN platform in 2013 and successfully completed the adoption phase allowed us to account for time-lags and delayed performance impacts, since the workforce has had enough time to learn and fully exploit the system (Brynjolfsson 1993; Brynjolfsson and Yang 1993). Nonetheless, I recommend future research to investigate and compare different usage practices in more organizations to generalize my results (Lee and Baskerville 2003).

Second, I relied on a cross-sectional survey to assess the relationship between ESN usage frequency, usage practices, and perceived individual task performance. Cross-section surveys cannot confirm causality in a relationship (Singleton and Straits 2005) since they only capture

information at a certain point in time. Thus, I encourage scholars to conduct longitudinal research in the form of field surveys or field experiments or even a combination with social network analysis to replicate and broaden my findings.

Another limitation concerns the measurement. Owing to confidentiality and data protection concerns, I was unable to utilize objective performance data, relying instead on survey-based, self-reported data on performance. Although my perception-based measure for individual task performance was equally or very similarly conceptualized, tested, and employed by several prior studies in comparable research designs (e.g. Iivari 2005; Kuegler et al. 2015a; Kuegler et al. 2015b; Goodhue and Thompson 1995; Urbach et al. 2010; Venkatesh et al. 2003), and self-reported measures of performance have been proven to be as reliable as supervisor evaluations (Teigland and Wasko 2003), they increase the risk of common method bias.

To counter this threat, I employed several procedural remedies recommended by Podsakoff et al. (2003, 2012) and Singleton and Straits (2005), including ensuring respondent anonymity, verifying the items' wording to alleviate risks of social desirability bias and evaluation apprehension, varying question formats, and counterbalancing question order. Further, I conducted preliminary interviews and pre-tests, and engaged with employees to configure my measures for the moderating factors, test all constructs to eliminate ambiguity, and check for consistency. Additionally I conducted a qualitative post-hoc analysis, since the combination of quantitative and qualitative approaches helps address the limitations of each approach by increasing statistical objectivity and a deeper understanding and consideration of contextual factors (Kaplan and Duchon 1988; Lee and Xia 2010).

Despite these efforts, I cannot completely warrant that my findings are unbiased in this regard. Therefore, I recommend further research to validate my results with objective performance data. Further, I encourage researchers to study other dimensions of performance, such as contextual performance (Borman and Motowidlo 1997; Christian et al. 2011), work role performance (Griffin et al. 2007) or adaptive performance (Pulakos 2000).

Conclusion

I sought to advance the understanding of ESNs' impacts on employee performance. More specifically, I analyzed the linkage between ESN usage frequency, ESN usage practices, and perceived individual task performances. With this end in view, I conducted a quantitative and qualitative analysis with a survey of over 9 500 participants followed by 15 interviews in a multinational and knowledge-intensive company. I found that an increased ESN usage frequency leads to increased perceived individual task performance. Further, I have provided rich insights into the different prevailing ESN usage practices by illustrating nine different usage practices of ESNs with both quantitative evidence and qualitative explanations. My findings provide evidence that the relationship between ESN usage frequency and perceived individual task performance is moderated by the specific usage practice. Particularly I found ESNs are more effectively used if they for open sharing and collaborative working, one-to-many communications, and knowledge exchanges with experts. In contrast, the usage practices that are similar to traditional working practices such as collaboration in closed groups and using it as a source of news negatively affected individuals' perceived task performance. With these valuable insights, I provide meaningful implications for both academia and industry. For academia, my research advances IS research by shedding light on the use-performance relationship in this novel context and goes beyond prior work by considering usage practices. For industry, this study raises managers' understandings of the effects of ESN usage and how to effectively deploy, design, and improve ESNs to increase employees' task performances.

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