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Enterprise social networking and service innovation: a governance perspective

Naseem J. Rahman
Auckland University of Technology, anrahman@aut.ac.nz

Harminder Singh
Auckland University of Technology, hsingh@aut.ac.nz

Subasinghage Maduka Nuwangi
Auckland University of Technology, maduka.subasinghage@aut.ac.nz

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Recommended Citation

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Completed research paper

Naseem J Rahman
Auckland University of Technology
anrahman@aut.ac.nz

Harminder Singh
Auckland University of Technology
harminder.singh@aut.ac.nz

Maduka Subasinghage
Auckland University of Technology
maduka.subasinghage@aut.ac.nz

Abstract

To innovate, firms need to share knowledge across their different functions. An increasing number of organizations are using enterprise social networking (ESN) for knowledge sharing internally because it is more effective than traditional knowledge management systems. However, ESN use can also have some negative outcomes; for example, it may distract employees from their work and overload them with information, while also providing a channel for leaking confidential information. This study aims to understand how knowledge sharing through ESN affects the level of innovation in firms from the service industry and how this relationship is affected by the governance of ESN. Using data from a survey of 104 participants from global financial firms, we find that the level of innovation in firms is enhanced by the use of ESN for knowledge sharing, and that governance positively moderates this relationship. The paper concludes with some theoretical and practical contributions.

Keywords enterprise social networking**,** knowledge sharing, service innovation, governance

1   Introduction

Services are intangible and heterogeneous (Lu & Tseng, 2010), and their creation requires the application and process of knowledge (Vargo & Lusch, 2004). Likewise, developing a service innovation requires the exchange of knowledge and encouraging knowledge sharing within service firms (Lee et al. 2011), motivating them to invest significantly in knowledge management (KM) systems (Carlborg et al., 2014). However, traditional KM systems lack the flexibility to capture, share, and incorporate large varieties and new forms of knowledge (Faraj et al. 2011). Sharing new forms of knowledge is challenging because traditional KM systems are formal, have rigid participation boundaries, and are not easy for users to customize or modify (Leonardi et al., 2013). These limitations have become especially visible when compared to the capabilities of social media technologies. The awareness of these constraints has encouraged firms to adopt the enterprise versions of social media applications, known as enterprise social networking (ESN), for knowledge sharing.

ESN applications, such as Yammer, SharePoint, Slack, Chatter, IBM Connection, and Jira, are usually cloud-based (Pee, 2018) and used within organizations to create online networks among organizational members (Qi & Chau, 2018). In this way, ESN supports knowledge management (Hacker, 2017), knowledge integration (Meske, et al., 2019; Estell & Davidson, 2019), and intra-organisational knowledge sharing (Kalra & Baral, 2019). ESN encourages collaboration and makes the practice of knowledge sharing more open, continuous, and visible (Leonardi & Meyer, 2015). ESN use is related to employee productivity (Aboelmaged, 2018), employee well-being (Berraies et al., 2020; Heymann et al. 2020), and employee behaviour (Nivedhitha & Sheikh Manzoor, 2020). There have also been studies on how ESN use can be promoted (Sundaresan & Zhang, 2020).

However, ESN use may be associated with negative organisational outcomes (Ngai et al., 2015). For example, employees may be overloaded with information (Gibbs et al., 2013), or be distracted from their work (Leonardi et al., 2013). ESN use may also lead to knowledge leaking out of a firm (Molok et al., 2010). Despite these concerns, there is little work on how the potential negative outcomes of ESN use could be mitigated. This paper argues that managers should develop policies and procedures to govern the use of ESN to have a better chance of obtaining its benefits. Thus, this study's research question is: *How does governance influence the impact of ESN on service innovation?*

This paper is structured as follows. Section 2 provides the theoretical background and lists the hypotheses that will be tested to answer the research question. Section 3 explains the study's methodology. Section 4 presents the findings and discusses them, before Section 5 concludes with the study's limitations and implications.

2   Conceptualisation and hypothesis development

This study integrates three concepts: i) service innovation, ii) knowledge sharing using ESN, and iii) governance. Service innovation, which refers to how firms develop core service products and offer improved services (Lu & Tseng, 2010), has become increasingly vital for service firms, as they face greater competitive uncertainty because of globalization and the disruption caused by start-ups (Nambisan, 2013).

Developing innovations requires internal collaboration and integrating and sharing knowledge and practices (Felix et al.,2017), in line with the concept of S-D (service dominant) logic is (Lusch & Nambisan, 2015). The S-D logic perspective asserts that the process of service innovation is collaborative, involving a diverse network of actors (including customers) that integrate or synthesise their knowledge and other resources to co-create value (Chen, 2017; Lusch & Nambisan, 2015). Developing new services requires an effective knowledge transfer mechanism (Ordanini & Parasuraman, 2011), which provides capabilities to access both external and internal knowledge (Barrett et al., 2015). This is because, besides internal experiences, service firms need knowledge about customer requirements, product quality, processes, and organisational designs to meet their customers' needs (Tavassooli & Karlsson, 2015).

In the quest to gain knowledge, while external knowledge sources are important for acquiring customers' input when developing new services, internal interaction in the innovation process is also essential (Muninger et al., 2019; Barrett et al., 2015). Intra-organizational knowledge sharing includes getting information from different sources, sharing experiences among individuals across departments, and systematically storing it as organizational memories (Calantone et al., 2002).

Knowledge sharing can be defined as collaborating with others to develop and generate new ideas and solve problems (Cummings, 2004). The knowledge that is shared can be personalized or codified (Choi & Lee, 2002; Hansen et al., 1999). Personalized knowledge requires social interaction to be shared, unlike codified knowledge (Choi & Lee, 2002).

Social media technologies, including ESN, have significantly changed how knowledge is shared (Barrett et al., 2015) and managed (Hacker, 2017). ESN allows employees to communicate with co-workers, see who interacts with whom, edit, post and comment on others' work, and finally, view messages by anyone else in the organisation anytime and anywhere (Robertson & Kee, 2017). Thus, ESN makes knowledge sharing more open, continuous, and visible (Leonardi & Meyer, 2015). However, ESN use can produce both positive and negative outcomes. The positive outcomes are better collaboration and greater sharing of information and resources (Leonardi et al., 2013). The possible negative outcomes include lower productivity, interpersonal conflict, and the loss of confidential information (Gibbs et al., 2013).

To balance these outcomes, firms may need to establish governance mechanisms (Linke & Zerass, 2013) to influence knowledge sharing, integration, and creation toward a preferred direction (Foss et al., 2010). Governance can be formal or informal. Formal governance involves structures, routines, and practices, while informal governance is based on networks and practices, such as rituals and ceremonies (Foss et al., 2010). With codified knowledge, it is possible to provide rules and corrective action so that employees can be given clear direction and procedures (Turner & Makhija, 2006). On the other hand, with personalized knowledge, it is difficult to provide clear directions because the knowledge being shared depends on individual prior experience (Turner & Mukhija, 2006). In this respect, it is important to put in place knowledge governance to provide operational guidance (formal governance) and build social interaction (informal governance) to reduce the risk of knowledge leakage (Leonardi et al., 2013).

This study argues that governance can remove obstacles to knowledge sharing in organizations (Cabrera & Cabrera, 2002). Social media governance refers to policies and documents that guide organizational use of social media (Chen et al., 2016). These policies are not only based on directions and procedures, but also the allocation of resources (Mergel & Greeves 2012). According to Boudreaux (2011), social media guidelines help employees "understand the boundaries of social media activities" (p. 274). It is important to educate employees with proper guidelines on the use of social media (Stohl et al., 2017), focusing on both personal responsibilities as well as responsibility towards the organization (Linke & Zerfass 2013). Implementing appropriate policies (formal controls) ensures that the employees are aware of "what can be shared on ESN platforms" during the product development. Implementing informal controls enhances social relationships and encourage (informal control) employees to share knowledge and built social relationship between co-workers and superiors.

While the impact and use of ESN in organisations has been discussed in the literature, little work has been done on the use of ESN-enabled knowledge sharing to influence service innovation. This is critical to investigate the effectiveness of ESN use in relation to service innovation. Therefore, the purpose of this study is to understand how the use ESN for knowledge sharing influences innovation in service innovation. In the next section, we develop these arguments in more detail.

2.1 Hypotheses

Knowledge sharing is a key factor for innovation (Lin, 2007), especially through ESN (Leonardi & Meyer 2015; Majchrzak et al., 2013). Both personalized and codified knowledge are important for intra-organizational knowledge sharing for the purpose of innovation (Greiner et al, 2006). Although capturing personalized knowledge is difficult because it resides in the minds of individuals (Stenmark, 2001), ESN tools such as blogs, wikis, and discussion forums can overcome these problems (Jalonen, 2014) by reducing the time to interact and increase better collaboration (Wagner, 2004). Additionally, ESN can change the knowledge management process from one that is centralized and repository-based to one that is decentralized and openly available (Majchrzak et al., 2013), reducing knowledge duplication and enhance innovation (Leonardi, 2014). Therefore, the following is hypothesised:

H1: *Knowledge sharing using ESN is positively related to service innovation*

However, ESN use could have some possible negative outcomes. For example, ESN makes it easy for employees to leak sensitive information (Sarigiannai et al., 2015). Knowledge governance is essential for ensure knowledge is valid and reliable (Foss et al., 2010; Turner & Makhija, 2006) while social

media governance is important for employees to understand their personal and organizational responsibilities (Stohl et al. 2017; Chen et al., 2016). Stohl et al. (2017) provided a comprehensive list of categories by investigating social media use by organizations and their employees (Chen et al., 2016; Linke & Zerfass, 2013). For instance, the guidelines indicate 'how to stay safe when connecting with people online' and 'how social media are places to create what the organization is about by listening to employee voices'. Such guidelines are an example of governance mechanisms that may reduce the occurrence of negative outcomes from ESN use, such as employee distraction (Leonardi et al., 2013), information overload (Gibbs et al., 2013), knowledge leakage, and increased interpersonal conflict (Sarigianni et al. 2015; Molok et al., 2010). Thus, this paper argues that governance (formal and informal) positively moderates the relationship between ESN use for knowledge sharing and the level of service innovation. Therefore, Hypothesis 2 states that:

H2: Governance positively moderates the relationship between knowledge sharing using ESN and service innovation

3   Research methodology

The financial sector was chosen as the context for this study because of the importance of ICT-based innovations in that industry (Alt et al., 2018). Financial institutions are using cutting-edge technologies to enhance their customer service (Gomber et al., 2017) and expand their markets and products.

An online survey using Qualtrics was conducted to test the research model. The target respondents of this study were product managers, product owners, and product developers from the global financial industry. Service innovation (SER_INN), the dependent variable, is measured with six items. The first three (SER_INN1 – SER_INN3) items were adopted from the work of Calantone et al. (2002). Items SER_INN4 and SER_INN5 were taken from the work of Bienkowska et al. (2018), while SER_INN6 was derived from Liao et al. (2007). Enterprise social networking for knowledge sharing (ESN_KS) measured with five items. Items ESN_KS1 and ESN_KS2 were adopted from Van den Hooff and Weenen (2004); item KSN_KS3 from Lin (2007); while items ESN_KS4 and ESN_KS5 were adopted from Choi and Lee (2002). All five statements were reworded to reflect the use of ESN. The items for governance (GOVRN) are related to both formal and informal governance. Terms such as 'stressed' or 'policy' in the items refer to formal governance, while terms such as 'encourage' refer to informal governance. Items GOVRN1-GOVRN5, related to knowledge sharing governance, are adopted from Choi and Lee (2002) and Gold et al. (2001), while GOVRN6-GOVRN8, related to social media governance, is from Stole et al. (2017) and Gold et al. (2001). See Appendix 1 for survey items used in this study.

From September 2019 to February 2020, 1,455 participants were contacted via LinkedIn from firms in the banking, investment, and insurance industries. Around 31% (n = 446) accepted the invitation to connect and around 10% (n = 147) completed the survey. Out of these 147, 40 contained no data and three were incomplete. These 43 responses were deleted. The remaining 104 were checked for errors, such as values possible outside the range and scale items for nonnormality distribution (Pallant, 2016). In general, there were no significant issues with outliers and nonnormality in the dataset. In the next section, the demographics of the participants is discussed, followed by the statistical analysis.

4   Findings

The demographic statistics of the 104 survey participants is provided in Table 1.

Demographic information		Frequency (f)	Percent (%)
GENDER	Male	59	56.7
	Female	40	38.5
	Prefer not to disclose	5	4.8
AGE	Between 21 - 30	8	7.7
	Between 31 - 40	64	61.5
	Between 41 - 50	28	26.9
	More than 50	4	3.8

YEAR of EXPERIENCE	Less than 1 year	8	7.7
	1-10 years	70	67.3
	11-20 years	23	22.1
	21-30 years	2	1.9
	Over 30 years	1	1

Table 1. Demographic information of participants

Out of the 104 respondents, 59 were male (56.7%). Most participants were between the ages of 31 to 40 (61%), followed by those between 41 and 50 (27%). Most participants had working experience of between 1 to 10 years (n=70, 67%) followed by 11-20 years (22%), and the rest (11%) had either less than one year or over 21 years of experience.

To evaluate the measurement model, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted (Chen & Kuo, 2017). First, the reliability of the item scales is checked using Cronbach's alpha. This is followed by running a factor analysis and examining the item loadings and cross-loadings. This is followed by a CFA to further validate the factors (Dwivedi et al., 2020; Mohammed & Kamalanabhan, 2019).

4.1 Exploratory Factor Analysis

EFA was used to determine the correlation among the variables in a dataset by checking the reliability of items scale using Cronbach's alpha and factor loadings using factor analysis for low/cross loadings, using SPSS v 26. During the reliability check, ESN-KS5 and GOVRN1 were dropped due to the value exceeding the total alpha value causing poor reliability, and ESN_KS4 was dropped due to low loading during factor analysis. The results of the factor loadings and reliability analysis are shown in Table 2 below.

Items	GOVRN	SER_INN	ESN_KS	Mean	SD	Alpha
ESN_KS1			0.97	4.41	1.86	
ESN_KS2			0.98	4.40	1.79	0.86
ESN_KS3			0.62	4.75	1.59	
ESN_KS4	Dropped due to low loading (0.30)					
ESN_KS5	Dropped due to poor reliability (0.90, exceeding total alpha value)					
SER_INN1		0.89		5.64	1.38	
SER_INN2		0.83		5.57	1.29	
SER_INN3		0.89		5.18	1.47	0.92
SER_INN4		0.76		5.69	1.14	
SER_INN5		0.73		5.53	1.18	
SER_INN6		0.73		5.14	1.38	
GOVRN1	Dropped due to poor reliability (0.93, exceeding total alpha value)					
GOVRN2	0.88			4.95	1.46	
GOVRN3	0.94			4.61	1.48	
GOVRN4	0.93			4.75	1.47	
GOVRN5	0.72			4.84	1.46	0.92
GOVRN6	0.69			5.81	1.32	
GOVRN7	0.59			5.43	1.26	
GOVRN8	0.48			5.09	1.39	

Table 2. EFA reliability and factor analysis

We also examined KMO (0.876/.000, cut-off >0.50, Tabachnick & Fidell, 2013). The eigenvalues of first three components recorded eigenvalues greater than 1 (6.97, 2.02, 2.37), with variance explained 67% (> 60%) determined the number of items/factors retained (Hair et al., 2014). We proceed with the CFA in the following section.

4.2 Confirmatory Factor Analysis

Next, the measurement model was examined with a CFA using SPSS-AMOS v26. Table 3 provides the results, indicating that the items' values are significant in the current context.

Items	Path	Construct	(β)	(R^2)	(B)	S.E.	C.R.
ESN_KS3	<---	ESN_KS	0.74	0.44	1.00		
ESN_KS2	<---	ESN_KS	0.99	0.66	1.52	0.14	10.82 (***)
ESN_KS1	<---	ESN_KS	0.98	0.94	1.55	0.15	10.67 (***)
SER_INN6	<---	SER_INN	0.78	0.75	1.00		
SER_INN5	<---	SER_INN	0.76	0.70	0.83	0.08	10.57 (***)
SER_INN4	<---	SER_INN	0.74	0.38	0.78	0.10	7.99 (***)
SER_INN3	<---	SER_INN	0.91	0.41	1.24	0.12	10.02 (***)
SER_INN2	<---	SER_INN	0.73	0.74	0.88	0.12	7.66 (***)
SER_INN1	<---	SER_INN	0.86	0.54	1.10	0.12	9.42 (***)
GOVRN7	<---	GOVRN	0.64	0.83	1.00		
GOVRN6	<---	GOVRN	0.62	0.54	1.02	0.12	8.59 (***)
GOVRN5	<---	GOVRN	0.84	0.58	1.52	0.21	7.25 (***)
GOVRN4	<---	GOVRN	0.87	0.61	1.59	0.22	7.38 (***)
GOVRN3	<---	GOVRN	0.97	0.96	1.79	0.23	7.90 (***)
GOVRN2	<---	GOVRN	0.81	0.98	1.47	0.21	7.03 (***)
GOVRN8	<---	GOVRN	0.67	0.54	1.15	0.19	6.05 (***)

*Table 3. CFA results (Note: β = regression weight, R^2 = squared multiple correlation, B = unstandardized regression weight, S.E. = estimated standard errors, C.R. (t value) = critical ratios, p value < 0.001 ***)*

4.3 Validity and reliability check

The reliability of the constructs has been assessed using Cronbach's Alpha ranging from 0.86 to 0.92, which is above the cut-off level of 0.70 as suggested by Nunally and Bernstein (1994). The composite reliability (CR) and average variance extracted (AVE) were calculated through CFA (Hair et al. 2014). Table 4 shows that all composite reliabilities are above the threshold of 0.70 and AVEs above the recommended value of 0.50 (Fornell and Larcker 1981). To verify discriminant validity, AVE and inter-construct correlations of variables were compared, following Fornell and Larker (1981). The results show that all squared roots of the AVEs are greater than the latent variable correlation to prove discriminant validity. Furthermore, the maximum shared variance (MSV) is less than AVEs, suggesting a valid model.

	CR	AVE	MSV	ESN_KS	SER_INN	GOVRN
ESN_KS	0.933	0.826	0.389	0.909		
SER_INN	0.914	0.640	0.279	0.528	0.800	
GOVRN	0.915	0.612	0.389	0.624	0.491	0.782

Table 4. Reliability, AVE and correlations

In the second stage, the structural model was examined to test the hypotheses (Hair et al., 2014). A model fit is required, even though the factor loadings are above 0.60 in the initial model. For model fit, Hair et al. (2014) suggested that at least one fitness index from each category (absolute fit, incremental fit, and parsimonious fit) should be reported. As the initial model showed a poor model fit ($\chi2$ = 255.314, df = 101, p < 0.001, $\chi2$/df = 2.528, CFI = 0.897, IFI = 0.898, TLI = 0.878, and RMSEA = 0.122), moderation indices (MI) were used to achieve the desired model fit (Hair et al., 2014). The second model shows a satisfactory model fit ($\chi2$ = 155.667, df = 196, p < 0.001, $\chi2$/df = 1.622, CFI = 0.960, IFI = 0.961, TLI = 0.95, and RMSEA = 0.078).

Table 5 and Figure 1 depict the results of the hypothesis tests. To assess the second hypothesis, a third pathway was added to the model to depict the interaction (Gaskin, 2016). ITGOESN (interaction) is

calculated using the value of ESN_KS multiply by the value of GOVRN. Both hypotheses are supported. The results are discussed in the next section.

Construct	Path	Construct	Standardized estimate	Unstandardized estimate	S.E.	C.R.	P	Significant
SER_INN	<---	ESN_KS	0.367	0.326	0.086	3.799	***	Yes
SER_INN	<---	GOVRN	0.368	0.483	0.135	3.573	***	Yes
SER_INN	<---	TGOESN	0.251	0.232	0.079	2.935	0.003	Yes
SER_INN	<---	AGE	0.229	0.360	0.118	3.055	0.002	Yes
SER_INN	<---	GENDER	0.135	0.236	0.132	1.785	0.074	No

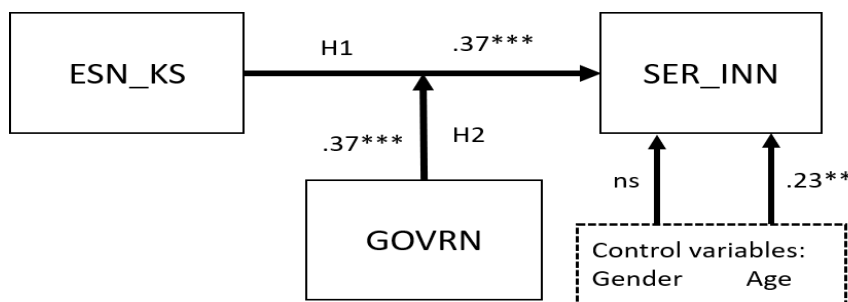*Table 5: standardized and unstandardized regression estimates (<0.001***, <0.05 **)*

Figure 1. Results of hypothesis tests (<0.001***, <0.05**) (Note: ESN_KS = enterprise social networking for knowledge sharing, SER_INN= service innovation, GOVRN= governance)

5   Discussion

The findings support the arguments made in this paper. For the first hypothesis, the results showed a positive relationship between ESN_KS and SER_INN ($t > 1.96$, $p < 0.001$). In other words, participants perceived that knowledge sharing using ESN enhances innovation in their organization. This result is aligned with previous studies that revealed the use of ESN supports employee productivity (Aboelmaged, 2018) and drives innovation (Song et al., 2019). Therefore, it is important to acknowledge how knowledge is shared (Barrett et al., 2015) and managed (Hacker, 2017) using ESN in organisational context.

The results for the second hypothesis show that governance enhances the impact of ESN use on service innovation. A simple slope model (Figure 2), as suggested by Gaskin (2016), depicts the relationship clearly. The y-axis indicates the outcome, service innovation, while the x-axis shows the predictor variable (ESN use). The impact of the moderator (governance) is shown in the two different slopes.

Figure 2 is prepared using values of unstandardized regression coefficients (Gaskin, 2016) provided in Table 5. The results show that governance has a significant impact on the relationship between ESN use and service innovation, and that this impact is larger as the level of ESN use increases. This is reasonable because greater use of ESN, perhaps through the use of more ESN applications or using the same applications more intensively, would make the knowledge-sharing environment more complicated in an organisation, and potentially lead to a higher possibility of negative outcomes being realised. This makes governance more important in such environments. We also examined the effect of control variables such as gender and age on innovation. We found that age was significantly correlated with the perceived level of innovation in a firm. We can conclude that, employees are more experienced in sharing knowledge with others and are interested in developing innovative products and services.
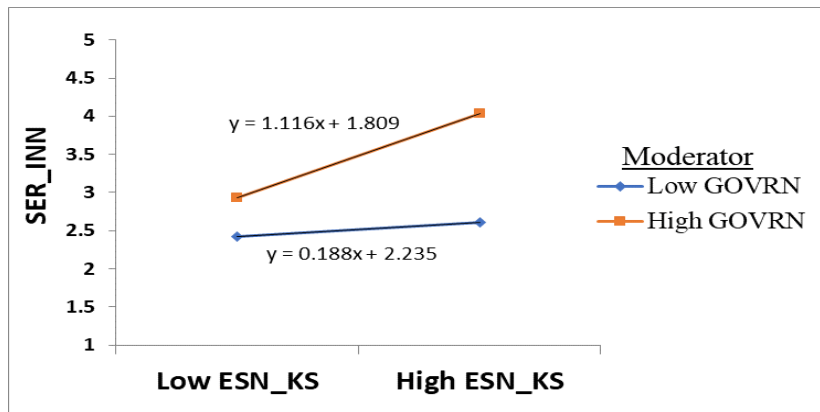
Figure 2. Plot moderating effect

6   Conclusion, limitations and implications

This research aimed to understand how the use of ESN can influence innovation in the service industry. The results showed that ESN enhances the level of innovation in firms, and that governance significantly and positively moderates the effect of ESN use on innovation, and that the impact was stronger at higher levels of ESN use.

These findings have several implications. First, the results further support the value of ESN-enabled knowledge sharing. Second, the results suggest the critical role of governance in mitigating the issues related to knowledge sharing using ESN. There is limited empirical research on the role of governance (Foss et al., 2010) to facilitate both formal and informal governance of ESN for knowledge sharing. This paper, therefore, extends the field of knowledge governance to both knowledge management and social media. Third, the roles of both formal and informal governance were considered in this study, building on prior research on the importance of social lubricants (Leonardi & Meyer, 2015) for informal discussions that can enhance knowledge transfer. The results indicate that besides establishing formal policies, firms need to think about how they can strengthen social relationships in their organizations (Mantymaki, 2016) to limit the negative implications of ESN use. For practitioners, this study suggests that, to reduce the inappropriate use of ESN, management should create policies, guidelines and informal norms to support its proper use (Vaast & Kaganer, 2013).

The study has a few limitations, which suggest directions for future research. First, the use of a cross-sectional design limits the strength of the inferences that can be made from the results. A longitudinal design would be useful to enrich the findings. Second, using the financial industry as the research context may bias the results, because of the pervasiveness of ICT in all functions in the industry. Future researchers should explore how ESN use has affected firms in other industries, both service, such as hospitality and retail, and manufacturing. Third, this study is limited to enterprise social networking; public-facing social media is not considered in this study. It is possible that the use of public-facing social media may influence the findings because organisational use of externally-directed social media or personal use of public-facing social media may be related to individuals' use of ESN. The knowledge of stakeholders, such as customers and suppliers, is a valuable resource for generating new ideas, and can be accessed using public-facing social media. Future studies should aim to conceptualise social media use more broadly to include its public-facing as well as internally-focused dimensions. Fourth, this research did not consider the emergence of co-destruction behaviours in our context. While co-creation refers to the process whereby providers and customers collaboratively create values, co-destruction, on the other hand, refers to the collaborative destruction or diminishing of value by providers and customer (Zhang et al., 2018). In this context co-creation and co-destruction could occur through ESN for knowledge sharing practices between co-workers and superiors facilitating service innovation. Future research could explore how the co-destruction behaviours in ESNs affect knowledge sharing and service innovation.

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Appendix 1

Construct	Item code	Items used in this study	Source
SER_INN	SER_INN1	My organization frequently tries out new ideas	Calantone et al., 2002
	SER_INN2	My organization seeks out new ways to do things	
	SER_INN3	My organization is creative in its methods of operation	
	SER_INN4	The quality of products/services in my organization is high.	Bienkowska et al., 2018
	SER_INN5	The quality of products/services in my organization is constantly increasing.	
	SER_INN6	My organization always develops novel skills for transforming old products into new ones for customers	Liao et al., 2007
ESN-KS	KS_ESN1	In my organization when I have learned something new, I share it with my colleagues using ESN	Van den Hooff & Weenen, 2004
	KS_ESN2	In my organization when my colleagues have learned something new, they share it using ESN	
	KS_ESN3	Knowledge sharing using ESN among colleagues is considered normal in my organization	Lin, 2007
	KS_ESN4*	Knowledge can be easily acquired from experts and co-workers through ESN	Choi & Lee 2002
	KS_ESN5*	Knowledge can be easily acquired from formal documents and manuals that are stored on ESN	
GOVEN	GOVRN1 *	My organization stresses the creation of manuals and documents on products and services	Choi & Lee, 2002
	GOVRN2	My organization stresses the use of ESN to systematically store documents on our products and services	
	GOVRN3	My organization stresses the use of ESN to generate new knowledge from existing knowledge	Gold et al., 2001
	GOVRN4	My organization stresses the use of ESN for distributing knowledge throughout the organization	
	GOVRN5	My organization encourages employees to search and share new values and thoughts through ESN	Choi & Lee, 2002
	GOVRN6	My organization has a policy to ensure that employees do not engage in illegal activities via ESN	Stole et al., 2017
	GOVRN7	My organization's guidelines state that employees should respect differences that may arise when using ESN	
	GOVRN8	Employees are encouraged to interact with other groups of employees through ESN	Gold et al., 2001

Note (* items dropped during reliability and factor loadings using EFA)