The acceptance of corporate wiki use for knowledge diffusion purposes

Introduction

According to DeTienne and Jackson (2001), knowledge is considered a critical asset by many organisations because it is a key to success in the digital economy. Organisations that make effective use of this critical asset have a competitive advantage; this is why many have developed an interest in knowledge management (KM) practices and are willing to spend increasing amounts of money to implement KM systems and projects (Kakabadse *et al.,* 2003).

Information technology (IT) plays a vital role in KM initiatives, but KM is not confined to the realm of IT. A vast array of KM systems has emerged, such as expert systems and knowledge repositories (Schultze, 2008). However, such conventional KM systems have shortcomings; knowledge is managed in a limited manner by a small group of knowledge workers who adopt a centralised approach (Levy, 2009). Collaborative and social KM systems derived from Web 2.0 applications, on the other hand, are perceived to be encouraging. Web 2.0 could be defined as a new generation of Web applications that permit people to connect, collaborate and share information (Dwivedi *et al.,* 2011; Husin *et al.,* 2016). There are several types of Web applications, such as wikis, blogs and social networking sites (Alqahtani and Abunadi, 2016). Free of the limitations inherent in traditional systems, wikis are viewed as next-generation KM systems (Hasan and Pfaff, 2006). Wikis decentralise the work of managing knowledge and making use of intelligence among many people. Furthermore, wikis support the management of both implicit and explicit knowledge (Alqahtani *et al.,* 2010; Alqahtani *et al.,* 2014b; Bolisani and Scarso, 2016).

Many organisations are eager to adopt wikis as an emerging KM technology because of the competitive advantages they offer. Similarly, commentators have become more enthusiastic in exploring the potential of wikis as a KM technology. However, the literature still contains only a few empirical studies that examine the adoption of enterprise wikis for the purposes of knowledge creation and diffusion (Iglesias-Pradas *et al.,* 2015). The available studies are somewhat limited: the research has examined the adoption of wikis in non-organisational contexts (Liu, 2010); investigated employees' reasons for adopting general social media platforms without considering the actual adoption of specific enterprise wikis (Behringer and Sassenberg, 2015); or considered the adoption of enterprise wikis in general terms, without examining its adoption for the purposes of knowledge creation and diffusion (Bolisani and Scarso, 2016; Hester,2014; Shu and Chuang, 2011). Few studies have investigated the adoption of enterprise wikis for knowledge creation and diffusion; for example, Iglesias-Pradas *et al.* (2015) focuses on covering the social mechanisms of wiki adoption, neglecting other factors like technology. Unlike Iglesias-Pradas *et al.* (2015), the current study investigates the adoption of an enterprise wiki for knowledge creation and diffusion purposes by using a holistic approach that considers the influence of technological, personal and organisational factors. The current study aims to explore the factors influencing employees' adoption and use of enterprise wikis as well as how such factors affect knowledge creation and diffusion.

This paper is organised as follows: The Background section provides information on wiki technology and KM and reviews a selection of existing works on topics related to those examined in this paper. The next section, Hypothesis Development, presents and discusses the hypothesis examined in this work. Thereafter, the Research Method section describes the research methodology, including the data collection and data analysis as well as the measurement and structural models. Thereafter, this paper discusses the results of the current study and compares them with the findings in the literature. Lastly, the concluding section summarises this study's contributions and implications for stakeholders.

Background

A variety of concepts are presented in this section. To begin with, the concept of a wiki is introduced and its advantages as a collaborative technology are discussed. The discussion moves on to illustrate KM and the supporting role played by IT. Finally, this section appraises previous studies of the advantages of using, and the challenges involved in, the implementation and use of wikis for KM.

The Wiki Concept

The Internet offers many ways of manipulating and arranging information. To publish and share information on the Internet, Web 2.0-based social platforms that facilitate the creation of user-generated content have recently become popular. A wiki is an example of such social software: an online hypertext system that enables collaborative editing via monitoring through a framework that maintains users' updates and/or contributions to the available edited text (Wang and Wei, 2011; Jimoyiannis and Roussinos, 2017). Wiki technology is seen as an effective, easy and quick way of developing text collaboratively. Hence, wiki applications have been adopted by groups such as cyber teams and virtual communities.

Wiki applications have also been found useful in the creation, accumulation, distribution and sharing of knowledge (Brichni *et al.,* 2014; Cozzani, 2015; Wagner and Majchrzak, 2007).

The numerous inherent advantages of wikis as a collaborative Web technology have attracted the interest of experts (Wang and Wei, 2011). Their freeform nature, simple look and feel, collaborative knowledge management capability, search functionality and interactive features are the most commonly cited advantages of using the technology (Du *et al.,* 2016). While installation and configuration might require an IT background, using wiki systems does not. Many are available as open source systems that are accessible free of charge, but commercial versions are also available in the market. Open source wikis enable small businesses to manage their knowledge comprehensively and give big enterprises a taste of the KM concept before they decide whether to purchase a commercial wiki. Adopting a wiki can benefit an organisation by meeting its needs in terms of organisational learning and KM. Indexing is a technical feature of wiki systems that enables quick content searches using a wiki's engine. Additional features, such as commenting and talk pages, enable interaction and improve engagement with the community and wiki content.

KM and IT

Davenport and Prusak (1998) claim that managing knowledge is one of the most important endeavours for any kind of organisation. It is critical for a modern organisation to remain competitive, and this requires that organisational knowledge be created in a timely manner, maintained effectively and diffused efficiently (Heavin and Neville, 2006). KM initiatives facilitate the successful creation, sharing, and, finally, use of organisational knowledge (Alavi and Leidner, 2001). The ultimate objective of KM is to diffuse collective knowledge across the units in an organisation (Metaxiotis *et al.,* 2005). Knowledge diffusion is based on the social connections among people, which act as communication channels, and people's ability to understand and use knowledge (Klarl, 2009). People form a critical aspect of knowledge diffusion; hence, organisations encourage their employees to share their knowledge. According to Yang (2007), knowledge sharing refers to activities that help people working together to learn from each other.

While KM within organisations is not concerned solely with technical issues, IT is regarded as a critical aspect (Money and Turner, 2007). IT supports the KM process as a key enabler (Alavi and Leidner, 2001); many barriers to KM, including time, organisational problems and geographical issues, are addressed by IT. Various KM technologies have been developed, such as expert systems, knowledge repositories (Schultze, 2008) and document management systems (intranets). KM systems are categorised as First Generation or Traditional KM systems and Second Generation or Collaborative KM systems (McElroy, 2003). Intranets, document management systems (DMS) and databases are considered first generation. Second-generation KM systems are Web 2.0-based and used within organisations as collaborative platforms that facilitate knowledge creation by employees and enable them to work collaboratively (McElroy, 2003). Suited to informal use and allowing employees to discuss matters during work, Web 2.0 systems, including wikis for KM, help capture implicit knowledge (Levy, 2009). The latest trend in (and a more important feature of) wiki-derived KM systems (Chu *et al.,* 2013) is an emphasis on the involvement of all users in building a social linkage to the KM effort, where everyone in an organisation contributes and shares. Rather than creating a centralised repository of knowledge, wikis enhance the KM endeavour by nudging it in a more interactive direction (Bolisani and Scarso, 2016; Brichni *et al.,* 2014; Lee and Lan, 2007). Ultimately, organisations enjoy lower operating and research-and-development costs, increased returns and higher innovation rates (Ali-Hassan and Nevoy, 2009).

Wikis as KM Tools

Wikis have a number of basic functions, such as providing the ability to edit an existing page. The editing function allows users to easily add, delete or modify the content of a wiki page. Updates to the wiki page can be instantly published. These functions facilitate the creation of new, explicit knowledge by collecting and harvesting the knowledge of people, which exists in their minds, and sharing it with others (Richter *et al.,* 2013). The idea behind wiki updates is to encourage continuous user-generated content and direct interaction to edit content based on new insights and experience (Andreano, 2008). In other words, employees use wikis to externalise their tacit knowledge and make it available on a medium as explicit knowledge (Alqahtani *et al.,* 2012).

Furthermore, wiki pages can be edited by any member of the wiki community. No additional functions are required on the Web browser to edit pages or add comments. This facilitates collaborative updates to wiki pages. Thus, wikis enable the management of organisational knowledge in a social manner based on the interactions between the members of the wiki community (Alqahtani *et al.,* 2014). Wikis support such management in two respects: firstly, connecting users with shared experience and, secondly, fostering this experience in an informal and social space (Hasan *et al.,* 2007; Andreano, 2008). As KM theories acknowledge the importance of informal meetings, wikis can serve as an informal virtual place to transfer organisational knowledge among employees (Alqahtani *et al.,* 2014).

Enterprise Wikis for KM: Benefits and Challenges.

While they offer many benefits, adopting wikis to manage knowledge also poses a challenge to both organisations and individual users. Challenges to wiki adoption primarily arise in the process of implementation (Bolisani and Scarso, 2016;

McAfee, 2009). As users' rate of IT adoption plays an important role in the success of these systems, investigating the barriers to their success has become a major theme in research (Davis and Venkatesh, 2004). In the context of IT systems, adoption is defined as the user's intention to accept and use these systems (Venkatesh and Goyal, 2010). Consequently, research has been conducted to investigate the usage and adoption of IT and information systems (IS) by individual users in specific types of institution, such as universities and hospital or in general traditional organisations (Venkatesh *et al.,* 2016). Further, some IT adoption research focuses on examining specific types of technologies, such as e-governmental portals (Kurfalı *et al.,* 2017), mobile technologies (Wu *et al.,* 2016) and Web 2.0 tools (Husin *et al.,* 2016).

There are gaps in the literature, particularly when it comes to delineating the advantages and challenges of adopting wikis for KM (Alqahtani *et al.,* 2014b). A general review paper by Pfaff and Hasan in 2006 reflects on the implementation of wikis for KM, aiming to explore the advantages and challenges of using wikis to manage organisational knowledge. On the positive side, their study showed that wikis can turn the development of a knowledge repository into a collaborative process and, more importantly, that they have the flexibility to be used for other purposes as well. Because wikis support individuals' efforts to gain and deploy knowledge, they are believed to promote organisational learning. Their ability to break bottlenecks to knowledge acquisition is considered another benefit. Because of the real-time nature of the publication of wiki content, the time required for knowledge creation and sharing is reduced.

Pfaff and Hasan (2006) viewed the challenges of wiki implementation as comprising 'management concerns' and 'social concerns'. Staff use of wikis to gain and deploy knowledge can be of concern to management. Since senior managers treat knowledge as power, they are perceived as being reluctant to share or disclose it. When managers enforce central control out of concern for the content in a wiki system, knowledge creation becomes sluggish, affecting user participation and diminishing the richness of the content (Brichni *et al.,* 2014, Kiniti and Standing, 2013).

Hypothesis Development

Relevance of Enterprise Wikis

In the workplace, attitudes towards emerging technologies are affected by their relevance to the job (Son *et al.,* 2012). Venkatesh and Davis (2000) defined the relevance of IT as the degree to which individuals believe a technology is applicable and useful in the work environment. There are many benefits to using wikis within organisations, such as allowing the creation and exchange of organisational knowledge. Wikis facilitate the management of knowledge and knowledge resources, thereby providing informational benefits. As a result, the cost to organisations reduces, and their rates of returns and innovation increase. In some organisations, however, the benefits are less tangible; as a result, employees' uptake of wikis is minimal.

Hypothesis 1: The relevance of enterprise wikis has a positive significant effect on its adoption for knowledge creation.

Top Management Support for Enterprise Wikis

Support from top management is one of the most influential factors in the adoption of IT (Armstrong and Sambamurthy, 1999). This support encompasses management recognising the importance of emerging technology, sharing this belief with others, and being involved in its adoption (Ragu-Nathan *et al.,* 2004). The result is a strong management commitment that facilitates strategic and operational activities to ensure a high level of IT adoption (Son *et al.*, 2012). A number of studies, such as those by Alqahtani *et al.* (2014a) and Paroutis and Saleh (2009), found that the management plays a critical role in the adoption of any wiki system. Like any other form of IT, wikis need to be official, endorsed and planned by management (Dwivedi *et al.,* 2011); otherwise, they will be perceived as an overhead and will not be adopted by employees. In contrast, management involvement and leadership, in combination with rewards offered to employees who participate in knowledge creation on wikis, motivates staff to adopt such participatory technology.

Hypothesis 2: Support from top management has a positive significant effect on wiki adoption for knowledge creation.

Complexity of Enterprise Wikis

It is widely accepted that the degree of complexity of an IS has a significant impact on the degree to which a user accepts it (Sun and Fang, 2010). A number of academics have defined the concept of complexity, such as Rogers and Shoemaker (1971) and Thompson *et al.* (1991). Complexity in the context of IS refers to an individual user's beliefs regarding how difficult it is to learn and use a system (Thompson *et al.*, 1991). A related concept is the perceived ease of use of an IS, which is considered the opposite of IS complexity (Thompson *et al.*, 1991) and has been widely studied (Venkatesh and Bala, 2008). According to Vasquez and Potter (2013), 'If perceiving a [wiki] technology as easy to use tends to foster adoption, then complexity will discourage users to adopt this technology' (pp. 148).

While most Web 2.0-based technologies are intuitive and easy to use, wikis can be further improved to be more user-friendly and easier to use (Alqahtani *et al.,* 2014a). Wikis are perceived as being complex if their user interfaces are unfriendly (Hester and Scott, 2008) and their content is overly dynamic in nature (Vasquez and Potter, 2013). Therefore, fostering the adoption of a wiki for knowledge creation can be facilitated by ensuring its simplicity (Sun and Fang, 2010).

Hypothesis 3: Wiki complexity has a significant effect on wiki adoption for knowledge creation.

Technical Support for Enterprise Wikis

The availability of the required technical support has a positive impact on users' adoption of IS (Igbaria *et al.,* 1997). The term 'technical support' refers to providing assistance to users of IS by IT experts (Wilson and Illustrator-Stein, 1995). The role of these experts is to meet IT users' needs by providing instruction and guidance, as well as by coaching and motivating users to use IT systems. In an exploratory study, Alqahtani *et al*. (2014a) found that the stewardship of Web 2.0-based technologies such as wikis is essential to their adoption. Experienced employees who can see the value of a wiki drive its adoption by coaching other employees and developing guidance for using it effectively to create knowledge. The greater the level of technical support provided, the greater the likelihood that the wiki will be successfully adopted.

Hypothesis 4: Technical support has a significant effect on wiki adoption for knowledge creation.

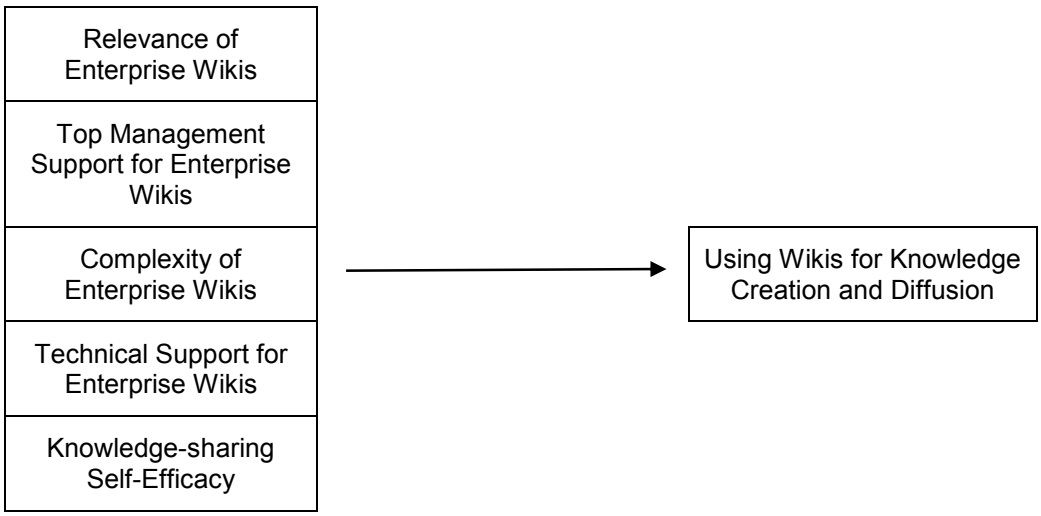
Knowledge-sharing Self-Efficacy

Different types of self-efficacy, such as computer self-efficacy and Internet self-efficacy, have been identified as having a significant influence on users' adoption of these technologies (Bassam, 2006). According to Compeau and Higgins (1995), in the context of IT, self-efficacy is a variable derived from social cognitive theory and refers to individuals' confidence in their abilities to successfully use computer-related technologies. While many studies, such as those by Bassam (2006), Eastin (2005) and High and Caplan (2009), have investigated the role of self-efficacy in general computer and Internet adoption, little research has been done on the influence of self-efficacy on users' adoption of wikis (Liu, 2010). The use of wikis to add new posts and edit existing ones supports KM activities by codifying knowledge and allowing it to be shared. This adds another level of self-efficacy: knowledge-sharing self-efficacy. This refers to wiki users' confidence in their ability to use wikis to create and share knowledge. According to Hsu *et al.* (2007), 'These capabilities include authoring knowledge content, codifying knowledge into 'knowledge objects' by adding context…[and] sharing personal knowledge in formal interaction with or across teams or work units, or in informal interactions among individuals' (pp. 155).

Hypothesis 5: Knowledge-sharing self-efficacy has a positive significant effect on wiki adoption for knowledge creation.

Five main influences emerge in this study: these include the relevance of enterprise wikis, support for enterprise wikis from top management, the complexity of enterprise wikis, technical support for enterprise wikis and knowledge-sharing self-efficacy. The figure below illustrates these influences.

Figure 1: The Conceptual Model



Research Methods

This research employed a cross-sectional survey to examine the acceptance of wiki technology for knowledge creation among users. As noted by Yang and Land (2008), a predictive correlational design is the most appropriate method for examining relationships between variables. The aim of this study was to explain the influence of several factors on the use of wikis to create knowledge within organisations. As described above, the factors discussed are the relevance of, senior management support for, and technical support for enterprise wikis as well as the complexity of enterprise wiki and knowledge-sharing self-efficacy. A cross-sectional survey design was used determine the prevalence of the outcomes of interest for the population at a particular point in time. The survey also enabled data collection on diverse groups of participants in terms of gender, age, job role and sector; this ensured that the research results could be generalizable.

Data Collection

In studies on IT acceptance, the units of analysis can be individuals or some other entity. In accordance with the aim of this study, the unit of analysis is the individual employee who uses a wiki at the workplace to create and share knowledge.

The measurement in the survey-questionnaire was adapted from validated and published research that investigated the adoption of IT/IS systems (Son *et al.*, 2012) as well as the influencing factors on knowledge creation and diffusion (Hsu *et al.*, 2007; Iglesias-Pradas *et al.*, 2015). Although the context of Son *et al.* (2012) is not related to KM, it has informed the literature with a number of constructs including top management support, technical support, and complexity, which are relevant to KM and KM systems. The appendix presents the questionnaire items used for collecting data in this study.

Invitation letters containing a link to an online survey were sent to 1,000 employees via LinkedIn. The letter introduced the aim of this study as well as the condition of participation: namely, experience with using wikis for knowledge creation in the workplace. Participation was voluntary and the survey was available for 3 weeks. Overall, 102 employees participated in the online survey, yielding a response rate of 10.2%. All responses were complete due to the use of a 'required' feature for all fields in the online questionnaire. The participants' names and the names of their employers were not included in the survey to maintain anonymity. Of the participants, 30% worked for IT/telecommunications companies, the largest percentage for any business sector represented in the study. The adoption of IT/IS can vary across industries; as Oliveira and Martins (2010) indicate, the most extensive e-business technologies uptake occurs in the telecommunications industry. However, the purpose of this study is to develop as generalised an understanding as possible of wiki adoption for knowledge creation. Accordingly, participants were recruited from different industries. A large proportion of the participants—72% of the total sample size—belonged to the 'Generation Y' demographic (below 36 years of age). Furthermore, 87% of the participants had more than five years of work experience.

Data Analysis

In quantitative research, a statistical technique is typically used in the data analysis to test a theoretical model. The partial least squares (PLS) statistical technique was used in this study for a number of reasons: first, in the research area of IS, PLS is widely used to test an entire theoretical model; second, according to McDonald (1996, p. 240), the PLS path is considered the 'most fully developed and general system'. Furthermore, PLS is an effective solution for theoretical testing and can also deal with smaller sample sizes (Henseler *et al.,* 2016).

To test the hypotheses developed in this study, the SmartPLS M2 Version 2.0 software was used to analyse the data. The software performed structural equation modelling using a second-generation multivariate data analysis technique (Fornell and Cha, 1994). A PLS analysis capable of evaluating the measurement model (the associations between indicators and their related constructs) was applied simultaneously. The structural model was used by the researcher in order to minimise error variance (Gil-Garcia, 2008). In line with the suggestions made by Gil-Garcia (2008), a bootstrapping method (200 resamples) was used. This is a non-parametric technique used to test, by estimating standards of errors, whether coefficients such as outer weights, outer loadings and path coefficients were significant.

Measurement Model

To begin with, convergent validity was tested. Convergent validity is a subtype of construct validity that tests the degree to which the measures of a construct that should theoretically be associated are, in fact, related. To assess convergent validity, factor loadings, average variance extracted (AVE) and composite reliability were used, as suggested by Hair (1998). The threshold value of 0.6 Chin *et al.,* 1997) was exceeded by loadings for all items ranging from 0.709 to 0.936, as shown in Table 1. In addition, composite reliability (the degree to which construct indicators represent latent constructs) exceeded the recommended value of 0.7 (Hair *et al.,* 1998). The overall variance in the indicators explained by the latent construct is reflected in the AVE. In this study, the AVE values were in the range of 0.623 to 0.854, which is also above the cut-off value of 0.5 (Hair *et al.,* 1998).

Table 1: Scale reliability

Variable	Item	Mean	SD	Factor loadings	Composite reliability	AVE
Relevance	Rel1	3.51	1.175	0.90	0.941	0.801
	Rel2	3.55	1.077	0.833		
	Rel3	3.40	1.145	0.923		
	Rel4	3.49	1.079	0.921		
Top management support	TMS1	2.79	1.245	0.940	0.946	0.854
	TMS2	3.03	1.173	0.895		
	TMS3	2.91	1.135	0.936		
Complexity	Com1	4.09	0.857	0.801	0.868	0.623
	Com2	4.18	0.789	0.801		
	Com3	3.75	0.927	0.842		
	Com4	4.07	0.870	0.709		
Technical support	TS1	3.49	0.962	0.883	0.959	0.823
	TS2	3.55	0.886	0.920		
	TS3	3.49	0.876	0.928		
	TS4	3.55	0.887	0.927		
	TS5	3.48	0.887	0.876		
Knowledge-sharing self-efficacy	KSSE1	3.80	0.879	0.889	0.951	0.736
	KSSE2	3.75	0.906	0.869		
	KSSE3	3.77	0.855	0.860		
	KSSE4	3.81	0.898	0.846		
	KSSE5	3.86	0.833	0.842		
	KSSE6	3.84	0.829	0.877		
	KSSE7	3.87	0.804	0.822		
Knowledge Creation/Diffusion	KCD1	3.13	1.096	0.830	0.952	0.768
	KCD2	3.05	1.146	0.906		
	KCD3	3.28	1.138	0.834		
	KCD4	3.17	1.153	0.898		
	KCD5	2.81	1.069	0.905		
	KCD6	2.82	1.172	0.880		

Next is the assessment of discriminant validity, also referred to as divergent validity, which tests whether measurements or constructs that are not supposed to be associated are, in fact, unrelated. This aspect is indicated by the 'low correlation between the measure of interest and the measures of the other constructs' (Cheung and Lee, 2010). The discriminant validity is tested by comparing the variance extracted for a construct with the squared correlations between constructs (Fornell and Cha, 1994). The square roots of the AVE indicators are greater than the squared correlations for each construct, as seen in Table 2, showing that the constructs meet the adequate convergent and discriminant validity requirements.

Table 2: Discriminant validity

Constructs	Rel	TMS	Com	TS	KSSE	KCD
Rel	**0.895**					
TMS	0.726	**0.924**				
Com	0.406	0.327	**0.790**			
TS	0.479	0.387	0.481	**0.907**		
KSSE	0.545	0.475	0.467	0.495	**0.895**	
KCD	0.628	0.635	0.391	0.591	0.637	**0.876**

Structural Model

The causal relationships among the constructs in the model, including the path coefficient estimates and R^2 value, which determine the model's prediction power, are indicated by the structural model (Sang *et al.,* 2010). According to Sang *et al.* (2010), the R^2 (loadings) and the path coefficients (significance) indicate the degree to which the data support the hypothesised model. The PLS output, that is, the results of the structural modelling, are presented in Table 3.

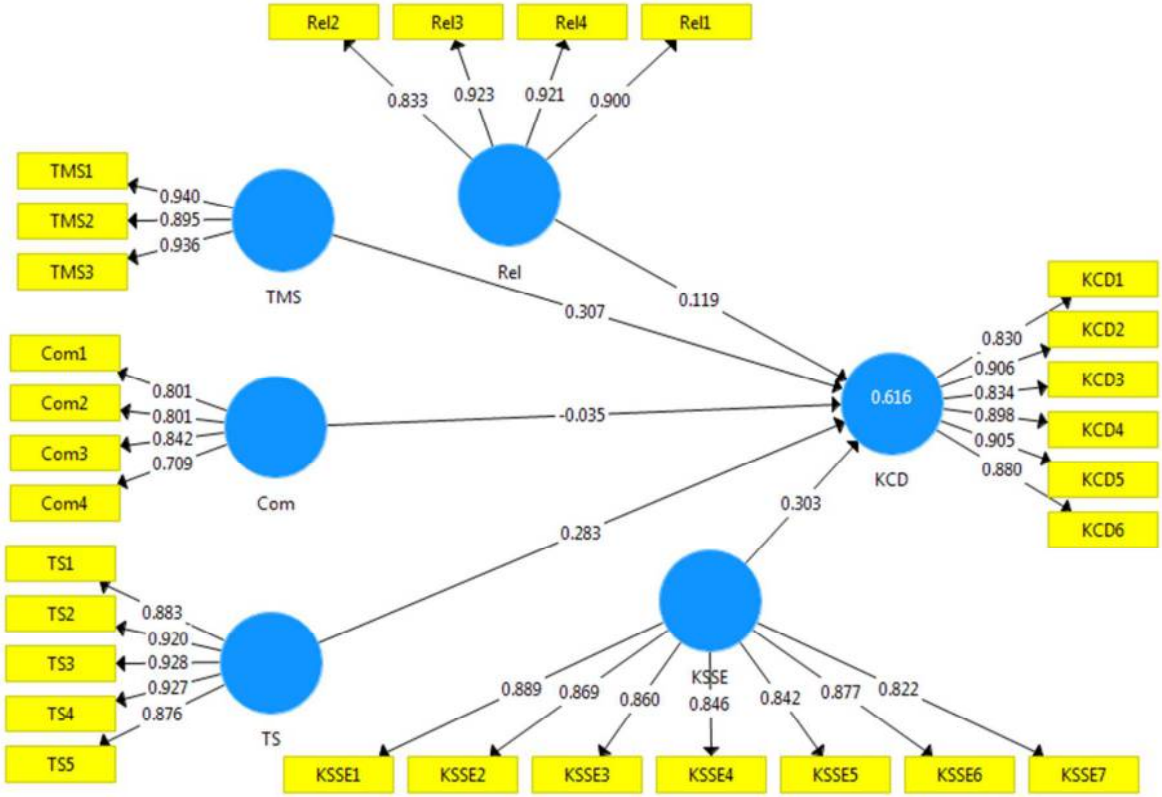
Table 3: Testing hypotheses

Path	Description	Hypothesis	Path coefficient	t-Value (P)	Results
Rel -> KCD	Relevance of enterprise wikis -> Knowledge creation/diffusion	H1	0.119	1.051	Not supported
TMS -> KCD	Top management support for enterprise wikis -> Knowledge creation/diffusion	H2	0.307	3.538	Supported
Com -> KCD	Complexity of Enterprise wikis ->Knowledge creation/diffusion	H3	–0.035	0.538	Not supported
TS -> KCD	Technical support for enterprise wikis -> Knowledge creation/diffusion	H4	0.283	3.556	Supported
KSSE-> KCD	Knowledge-sharing self-efficacy -> Knowledge creation/diffusion	H5	0.303	3.882	Supported

P < 0.01

With top management support, 61% of the variance in using a wiki for creating and diffusing knowledge is explained by the b value of 0.307 ($p < 0.01$), the technical support b value of 0.283 ($p < 0.01$) and the knowledge-sharing self-efficacy b value of 0.303 ($p < 0.01$). This means that hypotheses H2, H4 and H5 are supported, while H1 and H3 are not. Figure 2 illustrates the results of the research model.

Figure 2: Results of the PLS analysis



Discussion

This study examined the factors impacting employees' use of enterprise wikis for knowledge creation and diffusion: namely, the relevance of enterprise wikis, top management support for enterprise wikis, complexity of enterprise wikis, technical support for enterprise wikis and knowledge-sharing self-efficacy.

Relevance of Enterprise Wikis

The results of this study reveal that the relevance of enterprise wikis does not have a positive significant effect on its adoption for knowledge creation. This result is inconsistent with the findings of Son *et al.* (2012) or Venkatesh and Davis (2000), according to which individuals' belief in the applicability of IT/IS technologies for work is a strong predictor of the use of such technologies. Employees take a significant amount of time to recognise wikis as useful work-related systems, as reported by Bolisani and Scarso (2016).This is due to the differences between wikis as a KM technology (shadow technology) and other platforms such as enterprise resource planning (ERP) systems. The participants of this study did not consider this shadow technology to be relevant to their daily routine at work or see it as providing direct business value, in the way that ERP systems were perceived. Nonetheless, they viewed wikis as a useful technology for creating knowledge and occasionally learning from colleagues' experiences.

Top Management Support of Enterprise Wikis

Top management support was found to have a positive significant effect on wiki adoption for knowledge creation. This finding is supported by prior studies pertaining to the impact of top management support on IT adoption, such as Armstrong and Sambamurthy (1999) and Ragu-Nathan *et al.* (2004). Furthermore, Meloche *et al.* (2009) indicated that top management support is a critical success factor of KM systems in general and, more specifically, wiki technologies. This study found that the impact of top management support on wiki adoption for knowledge creation could be greater than that of enterprise systems, such as ERP. As discussed earlier, a wiki is a shadow technology supporting secondary business

activities and therefore requires extra support from management to ensure a high level of adoption. If the wiki is not endorsed and supported by management, it will be perceived as an overhead and thus not adopted by employees.

Complexity of Enterprise Wikis

This study did not find a positive significant effect of enterprise wiki complexity on its adoption for knowledge creation. This finding contradicts with previous research, such as Thompson *et al.* (1991) and Sun and Fang (2010), which investigated the influence of complexity on the adoption of large enterprise systems. This is because lighter technologies, such as wikis, are not difficult to use. The contradiction can be further explained by the fact that 72% of the study participants belonged to the Generation Y demographic, being under 36 years of age. For most of the study participants, using a wiki in addition to other Web 2.0 technologies was intuitive and part of their method of communication in daily life. Further, recently developed wiki systems were found to provide a user-friendly environment to create and share knowledge (Miron *et al.*, 2017). Therefore, participants in the current study did not demonstrate the need for a simpler wiki to facilitate adoption.

Technical Support for Enterprise Wikis

This study found that technical support has a positive significant effect on wiki adoption for knowledge creation. Assistance provided by experts to users of enterprise wikis encourages wiki adoption for knowledge creation and diffusion. This finding aligns with the results of Igbaria *et al.* (1997), Hasan *et al.* (2007) and Alqahtani *et al.* (2014a). While using wikis can be intuitive, in order to drive its adoption, it is essential to meet the users' needs by communicating the technology's value for knowledge creation and diffusion. Further, there is a need to provide instructions and guidance on possible scenarios in which wikis might be used to support knowledge creation and diffusion. This type of support enhances the success of implementing enterprise wikis.

Knowledge-sharing Self-Efficacy

Knowledge-sharing self-efficacy was found to have a positive significant effect on wiki adoption for knowledge creation. This finding is supported by previous research, including Bassam (2006), Compeau and Higgins (1995) and Hsu *et al.* (2007). This result reveals that having a high level of confidence in one's ability to use enterprise wikis for knowledge creation motivates wiki adoption. Individual capabilities relating to the use of wikis for corporate knowledge include authoring knowledge content, codifying knowledge into knowledge objects by adding context and sharing personal knowledge in formal interactions. In contrast, employees' lack of collaborative knowledge creation and sharing can negatively affect the uptake of wikis (Hester, 2014).

In light of this discussion, the following recommendations can guide organisations towards the successful implementation of wikis as a means to manage organisational knowledge.

1. Wikis have to be endorsed by the management and aligned with the business objectives.
2. It is important to select a good quality wiki platform that is easy to use and self-directed.
3. From the early stage of implementation, wiki champions across business-units need to be identified and encouraged to promote and demonstrate the use of the wiki.
4. Management can lead by example to effectively support the implementation of wikis.
5. The use of wikis can be embedded within business processes so that it is not perceived as an overhead.
6. Awareness tasks can be frequently run in order to communicate the benefits, best practices and success stories of using a wiki.
7. A culture of sharing and collaboration can be enhanced by management support, the recognition of wiki contributors and peer appreciation.
8. Regular training sessions can be held to enable the use of the wiki for articulating knowledge, communicating and collaborating with colleagues.

Conclusion

This study examined the factors that influence enterprise wikis as a technology for knowledge creation and diffusion. Rather than considering the topic from the management's perspective, these factors were studied from the perspective of enterprise wiki users. The study's findings add significantly to the existing literature on the implementation of wikis as a KM technology.

Enterprise wikis were found to be the best interactive tool for collaboratively building knowledge-based content. Wikis stimulate dialogue and facilitate discussion within organisations. Enterprise wikis create a platform for combining bottom-up, top-down and horizontal communication; this facilitates the creation and development of professional relationships among employees and improves knowledge within organisations. However, the implementation of this technology is challenged by the negative effects of several factors: top management support, technical support and knowledge-sharing

self-efficacy. This study found that the availability of these resources and capabilities has a positive significant effect on employee behaviour in terms of using a wiki for knowledge creation within organisations.

Top management support, in particular, has a major impact on wiki adoption for knowledge creation. By recognizing the contributions made by active wiki users in terms of knowledge and ideas, senior managers can encourage them to maintain their active adoption behaviour. In the absence of encouragement and guidance from top management, employees form the view that using the wiki goes against organisational policies. Furthermore, in the context of KM, using enterprise wikis to support secondary business activities requires extra support from management to ensure a high level of adoption. If knowledge is a source of power, supporting the adoption of enterprise wiki management can be seen as a way for management to harness their organisation's competitive advantages.

Technical support was also found to have a positive significant effect on wiki adoption for knowledge creation. During implementation, wiki champions can be nominated to provide technical support to the intended users. These wiki experts can increase the awareness of the technology and its benefits for the individual user and the organisation. Wiki experts can also provide instructions and guidance on possible scenarios involving the use of wikis in order to support knowledge creation and diffusion, thereby ensuring its successful implementation as a KM technology. Appropriate authorship policies could be maintained by these wiki experts to attain and sustain a high level of active wiki use for knowledge creation and diffusion.

Knowledge-sharing self-efficacy was found to have a positive significant effect on wiki adoption for knowledge creation. Being open, social and real-time, this type of wiki makes for a worthy technology that can create knowledge in a communicative and collaborative manner. By its very nature, however, such a technology will be enjoyed by one group, while another will find it difficult to participate in knowledge creation using such an open and transparent platform. Individuals' confidence in their abilities to use an enterprise wiki to create knowledge influences their adoption of the wiki. Therefore, a supportive, collaborative culture is essential to create a positive and friendly environment in which employees can share their experience and participate in the creation of corporate knowledge.

This study has several implications. Firstly, when buying enterprise wiki products, attention must be paid to a number of technical considerations. The products should be easy to use, self-directed and intuitive. Learning how to use wiki products with user-friendly interfaces is a pleasurable activity. Once a suitable product has been selected, wiki users should be provided with the support needed to work with the technology. Awareness of the importance of this tool can be increased, demonstrations of how the technology can be used for knowledge creation activities may be held, and so on. Such support can be provided through one-on-one consultation, community-based moderation or formal training. Finally, an organisational culture that promotes teamwork and cooperation and encourages knowledge sharing should be developed.

Like all research, this study has its limitations, the main one being its cross-sectional nature. Because the investigation spans various organisations, causal claims cannot be drawn from the current findings. Therefore, a longitudinal design is recommended for future studies of this nature. However, since it is virtually impossible to find two measuring points with a suitable time interval between the decision to introduce a new technological tool and its actual introduction, this will not be viable in most cases (as proved to be the case in this study). In other words, the aspect of this study that keeps it from qualifying as a longitudinal one—that it was carried out during the period in which enterprise wikis were introduced by organisations—is also its major strength. Future research employing a longitudinal design can enable the observation of changes that may occur over time based on the influence of the factors identified in this study. Furthermore, the adoption of wikis can vary across industries. There may be certain significant factors that influence the uptake of wikis for creating knowledge in a specific industry, but their influence is minimal in other industries. Therefore, future research that focuses on comparing wiki initiatives across industries is useful.

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Appendix

	Measure	Source
Relevance		
R1	In my job, the use of a wiki is important.	Son *et al.* (2012)
R2	In my job, the use of a wiki is relevant.	
R3	In my job, using a wiki provides direct business value.	
R4	In my job, using a wiki enhances work effectiveness.	
Top Management Support		
TMS1	Top management encourages me to use a wiki for job-related tasks.	Son *et al.* (2012)
TMS2	Top management is aware of the benefits that can be achieved with the use of a wiki.	
TMS3	Top management recognises my efforts in using a wiki for job-related tasks.	
Complexity		
Com1	I have no difficulty reading the wiki content.	Son *et al.* (2012)
Com2	I have no difficulty navigating through the wiki.	
Com3	I have no difficulty with entering or editing content from the wiki.	
Com4	I have no difficulty learning how to use the wiki.	
Technical Support		
TS1	If I run into technical difficulties, wiki experts will be easy to reach at any time.	Son *et al.* (2012)
TS2	If I run into technical difficulties, wiki experts will provide a satisfactory response.	
TS3	If I run into technical difficulties, wiki experts can help me solve technical problems.	
TS4	If I face difficulties, wiki experts can help me and provide the right guidance.	
TS5	If I face technical difficulties, wiki experts can coach me on using the wiki effectively.	
Knowledge-sharing Self-Efficacy		
KSSE1	In terms of sharing your knowledge on the wiki, how confident are you with sharing your experiences, insights or expertise as an example?	
KSSE2	In terms of sharing your knowledge on the wiki, how confident are you with sharing your experiences, insights or expertise by engaging in dialogue with others?	
KSSE3	In terms of sharing your knowledge on the wiki, how confident are you in providing your ideas and perspectives to others by	

	participating in discussions?	Hsu *et al.* (2007)
KSSE4	In terms of sharing your knowledge on the wiki, how confident are you in articulating yourself in written or symbolic forms?	
KSSE5	In terms of sharing your knowledge on the wiki, how confident are you with authoring an article or posting a message?	
KSSE6	In terms of sharing your knowledge on the wiki, how confident are you with responding or adding comments to messages or articles posted by others?	
KSSE7	In terms of sharing your knowledge on the wiki, how confident are you with answering questions, giving advice or providing examples to questions or inquiries from others?	
Knowledge Creation and Diffusion		
KCD1	I frequently visit the organisational wiki to share information and knowledge.	
KCD2	I frequently share my experience or knowledge with other colleagues in the organization through the wiki.	
KCD3	I share my knowledge and useful information on the wiki at the request of colleagues in my organization.	Iglesias-Pradas *et al.* (2015)
KCD4	I post useful documentation for other colleagues in my organization through the wiki.	
KCD5	I frequently edit wiki contents that was created by other colleagues.	
KCD6	I add new content to the organisational wiki on a regular basis.	

Figure 1: The Conceptual Model

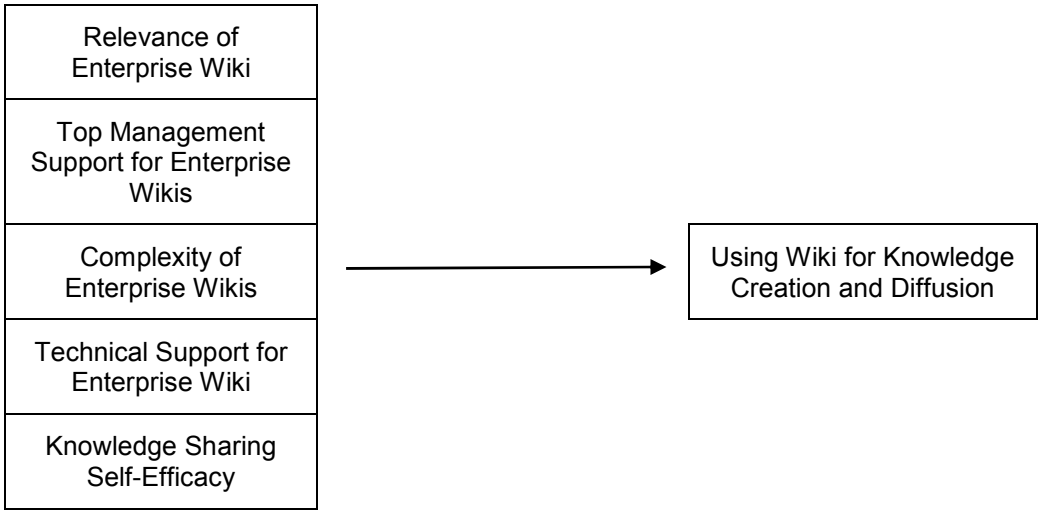

Figure 1: Results of the PLS analysis

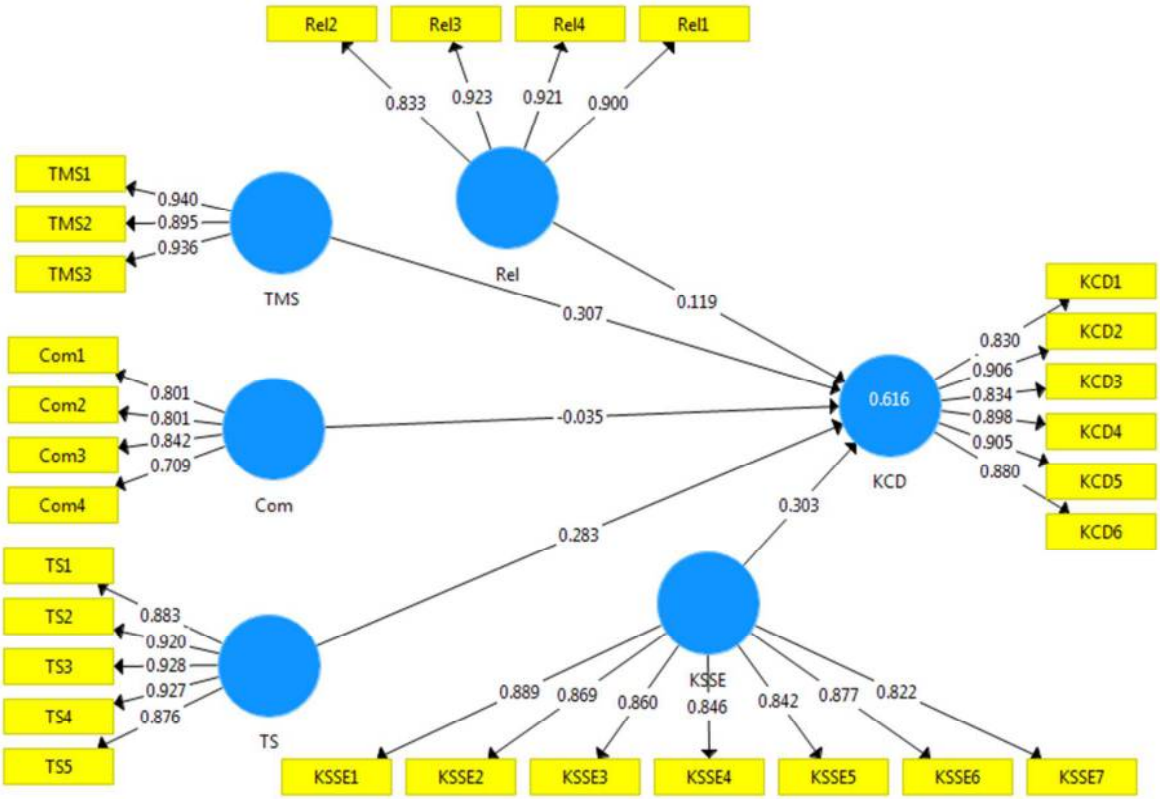

Table 1: Scale reliability

Variable	Item	Mean	SD	Factor loadings	Composite reliability	AVE
Relevance of enterprise wiki	Rel1	3.51	1.175	0.90	0.941	0.801
	Rel2	3.55	1.077	0.833		
	Rel3	3.40	1.145	0.923		
	Rel4	3.49	1.079	0.921		
Top management support	TMS1	2.79	1.245	0.940	0.946	0.854
	TMS2	3.03	1.173	0.895		
	TMS3	2.91	1.135	0.936		
Complexity	Com1	4.09	0.857	0.801	0.868	0.623
	Com2	4.18	0.789	0.801		
	Com3	3.75	0.927	0.842		
	Com4	4.07	0.870	0.709		
Technical support	TS1	3.49	0.962	0.883	0.959	0.823
	TS2	3.55	0.886	0.920		
	TS3	3.49	0.876	0.928		
	TS4	3.55	0.887	0.927		
	TS5	3.48	0.887	0.876		
Knowledge sharing self-efficacy	KSSE1	3.80	0.879	0.889	0.951	0.736
	KSSE2	3.75	0.906	0.869		
	KSSE3	3.77	0.855	0.860		
	KSSE4	3.81	0.898	0.846		
	KSSE5	3.86	0.833	0.842		
	KSSE6	3.84	0.829	0.877		
	KSSE7	3.87	0.804	0.822		
Knowledge Creation/Diffusion	KCD1	3.13	1.096	0.830	0.952	0.768
	KCD2	3.05	1.146	0.906		
	KCD3	3.28	1.138	0.834		

KCD4	3.17	1.153	0.898
KCD5	2.81	1.069	0.905
KCD6	2.82	1.172	0.880

Table 2: Discriminant validity

Constructs	Rel	TMS	Com	TS	KSSE	KCD
Rel	**0.895**					
TMS	0.726	**0.924**				
Com	0.406	0.327	**0.790**			
TS	0.479	0.387	0.481	**0.907**		
KSSE	0.545	0.475	0.467	0.495	**0.895**	
KCD	0.628	0.635	0.391	0.591	0.637	**0.876**

Table 3: Testing hypotheses

Path	Description	Hypothesis	Path coefficient	t-Value (P)	Results
Rel -> KCD	Relevance of enterprise wiki -> Knowledge creation/diffusion	H1	0.119	1.051	Not supported
TMS -> KCD	Top management support of enterprise wiki -> Knowledge creation/diffusion	H2	0.307	3.538	Supported
Com -> KCD	Enterprise wiki complexity ->Knowledge creation/diffusion	H3	-0.035	0.538	Not supported
TS -> KCD	Technical support for enterprise wiki -> Knowledge creation/diffusion	H4	0.283	3.556	Supported
KSSE -> KCD	Knowledge sharing self-efficacy -> Knowledge creation/diffusion	H5	0.303	3.882	Supported

P < 0.01