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Information Technology (IT) Professional Perceptions Regarding the Value of Communication, Collaboration, and the Use of Social Networking Technologies in the Workplace: A Case Study

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Abstract

Continuous communication and collaboration are critical activities for successful information technology (IT) initiatives. Researchers have found that when individuals in an organization network and form strategic alliances they are more innovative. There are many barriers that make it difficult for groups to collaborate across organizational boundaries. However, the use of social networking site (SNS) technologies in the workplace may offer an informal and easy to deploy method to improve enterprise communication and collaboration. This case study found that IT professionals in the case organization believe there is ample room for improvement in communication and collaboration, both within the department and particularly across the organization as a whole. The results also indicate that the IT staff recognize the benefits of open communication and collaboration and are willing to explore new ways to develop these skills, including the use of SNS. However, participants did express concern regarding privacy, the use of 3rd party applications, and blurring the lines between private and personal lives. While individuals may perceive SNS as a useful tool for workplace communication and collaboration, privacy concerns as well as a lack of organizational guidelines and policies for adoption may negatively impact SNS technology acceptance in the workplace.

Keywords: Social networking, information technology, communication, collaboration, trust, technology acceptance

1. INTRODUCTION

Continuous communication and collaboration are critical activities for successful information technology (IT) initiatives (Peterson, 2003; Trubitt & Overholtzer, 2009). Researchers have found that when individuals in an organization network and form strategic alliances they are more innovative (Schilling & Phelps, 2007). Increased communication between work colleagues leads to improved collaboration. Additionally, as individuals work together

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collaboratively they communicate more regularly. It is also true that as communication deteriorates so does collaboration and vice versa (Akkermans & van Helden, 2002). There are many barriers that make it difficult for groups to collaborate across organizational boundaries (Orlikowski, 2002). However, the use of social networking technologies in the workplace may offer an informal and easy to deploy method to improve enterprise communication and collaboration (Schöndienst, Krasnova, Günther, & Riehle, 2011).

Communication, Collaboration and Trust
IT departments are in the business of selecting, building, implementing, and maintaining a variety of information systems (IS). IS typically include the following elements: people, data, hardware, software and communication networks. These components work together to collect, process, store, and disseminate information in an organization (O'Brien & Marakas, 2006). While many people primarily associate IS challenges with the technology-related components, "the weakest link in this overall system of resources is that involving the formal and informal interactions between systems personnel and users" (Kaiser & King, 1982, p. 49). Ineffective communication has plagued IS implementations for decades (Lorenzi & Riley, 2000, 2003; Senn, 1978). Lorenzi and Riley explain that, "[c]ertainly, technical challenges still exist; they always will. However, as our new systems affect larger, more heterogeneous groups of people and more organizational areas, the major challenges to systems success often become more behavioral than technical" (2000, p. 116). The success of IT initiatives is largely impacted by non-technical forces such as people, processes, policies and organizational culture (Fryling, 2012; O'Brien & Marakas, 2006; Peterson, 2003). People are the most complex, unpredictable and critical element of IS implementations. Consequently, as information systems increase in complexity the need to have effective communication between actors in the system becomes increasingly crucial (McNeil, 1979).

Technologists often struggle to communicate effectively, particularly with non-technical stakeholders (Trubitt & Overholtzer, 2009). IT professionals tend to focus on technology often neglecting soft skills, such as effective communication. As IT project failure rates sky rocketed in the 1990s, much research has been conducted focusing on IT project people-related

issues. As Peterson states (2003), "…nontechnical issues play a central role in the success of IT initiatives." IT implementation articles consistently report that failure or success is people-related (Peterson, 2003; Tapp, Hesseldenz, & Kelley, 2003). It is often easier to blame the technology than to explore these deeper issues but in the end they are controlling factors. Therefore, it is important for leaders to understand the non-technical complexities embedded in IT projects.

Researchers have found that a core component of successful collaboration in IT projects is trust between organizational departments (Luna-Reyes, Black, Cresswell, & Pardo, 2008, p. 291). The communication/collaboration reinforcing loop can be set in a positive or negative direction based on trust (Hardin, 2001; Kramer, Brewer, & Hanna, 1996; Luna-Reyes, 2004; Zand, 1972). Risks associated with IT project implementations can be mitigated by cultivating trust early and nurturing it throughout the project lifecycle (Luna-Reyes, 2004). The most loyal, long-term and valuable relationships are built on trust (Gefen, 2004, p. 282). In turn, trust is built based on solid relationships. Strong bonds, particularly between the IT department and the rest of the organization, help the IT division better align their goals and objectives with those of the enterprise (Trubitt & Overholtzer, 2009).

Social Networking Site (SNS) Workplace Technology Acceptance
In order for organizations to be successful they must process information at the right level of richness (Daft & Lengel, 1984). Because face-to-face interactions offer immediate feedback they are considered the richest form of communication (Daft & Lengel, 1984). However, in organizations where employees are physically dispersed, face-to-face interactions may be limited. In addition, some researchers have found that for certain tasks, such as the generation of ideas, computer text systems are actually a better fit than face-to-face communications (McGrath & Hollingshead, 1993). Informal communication methods and tools can greatly improve business relationships and help build trust between coworkers (Toda, 1991; Trubitt & Overholtzer, 2009). Social networking sites (SNS) have exploded in recent years as a popular way in which to stay connected with friends and family regardless of physical proximity. While SNS may not offer the same richness as face-to-face communications,

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they are certainly an improvement over older forms of text communication such as email. SNS technologies are beginning to find their way into the enterprise, offering a variety of new ways in which to communicate and collaborate in the workplace (Günther, Krasnova, Riehle, & Schöndienst, 2009; Schöndienst et al., 2011). While email has become a widely adopted formal method of business communications, replacing many written documents, instant messaging has become a popular tool for some informal communication (Isaacs, Walendowski, Whittaker, Schiano, & Kamm, 2002; Nardi, S., & Bradner, 2000). Similarly, micro-blogging tools, such as Twitter, are slowly gaining acceptance as a legitimate form of enterprise communication and knowledge sharing (DiMicco et al., 2008; Günther et al., 2009; Schöndienst et al., 2011; Zhao & Rosson, 2009). Users of instant messaging in the workplace acknowledge its positive effects (Wilkins, 2007) but large-scale technology acceptance by organizations has been limited (AMA, 2006).

The technology acceptance model (TAM) theorizes that technology acceptance and use are determined by individuals' perceptions regarding a particular technology's usefulness and ease of use (Davis, 1989). Venkatesh and Davis extended TAM to include social and cognitive constructs and their empirical research supported the theory that perceived usefulness of a technology is a strong predictor of intention to use (2000). Gefen found that trust was also an important construct in determining technology acceptance (2004). Instant messaging has a perceived ease of use and an ability to foster relationships yet it is still often considered a more personal form of communication, while email is considered a more appropriate workplace communication method (Lancaster, Yen, Huang, & Hung, 2007). While some of this lack of penetration may be related to individual perceptions and TAM constructs, Peslak et al. (2008) found that critical mass is a major factor. As Metcalfe's Law states, the value of a communication network is proportional to the number of other users (Shapiro & Varian, 1998, p. 184). Organizations have greatly embraced email, often running their own email systems and issuing email addresses to all employees, but this enterprise-wide adoption has yet to take hold for new SNS technologies such as instant messaging (Peslak et al., 2008).

While some organizations may still be reluctant to allow employees to use SNS in the workplace, it should be considered that email was once looked at suspiciously by corporations (Perin, 1991; Pickering & King, 1992). There can also be some averseness from employees to use SNS technologies in a work setting, particularly if they believe data is being recorded and archived (Lovejoy & Grudin, 2003; Schöndienst et al., 2011). Nonetheless, some researchers believe that if employees understand the communication advancement these technologies can offer, organizations realize the knowledge management benefits and clear ground rules regarding privacy and archiving are set, enterprise adoption will grow (Schöndienst et al., 2011).

This study has two primary objectives. First, it seeks to investigate how information technology (IT) professionals in one organization perceive the value of communication and collaboration within their institution. Secondly, how willing these individuals are to use social networking site technologies to improve communication and collaboration with coworkers.

2. METHODOLOGY

The case institution is a public research university and has approximately 5,000 employees, of which about 137 are employed by the IT department. The IT department is dispersed across several different physical locations. In fact, members of some work teams within IT are not co-located, making face-to-face communication and collaboration more difficult. The organization as a whole does not restrict use of SNS and some employees currently use these technologies in the workplace. The only organizational and departmental standard SNS is a Wiki, which is installed and managed locally. The case approach was primarily selected as it will allow for in-depth and longitudinal analysis of an IT organization with physical location challenges that may hinder communication and collaboration efforts. The findings of this initial research will be used to guide intervention strategies and compare changes in SNS acceptance/adoption as well as communication and collaboration.

In 2008, an online survey on communication, collaboration, and social networking technologies was circulated to all IT staff. The survey included questions regarding attitudes towards the value of communication/collaboration and

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the use of social networking technologies in the workplace (see Appendix A). Prior to administering the survey it was reviewed by several IT professionals and minor wording adjustments were made to improve clarification. Standard 5-point likert-scales were used and questions were grouped by topic to improve readability. In this particular case the use of an online survey was appropriate because the studied population all have Internet access and as IT professionals are likely comfortable in the online environment.

The purpose of this survey was to gain insight into organizational communication and collaboration perceptions, help identify new opportunities for sharing information as well as guide future efforts for improvement in these areas. The survey enabled a broader representation of the organization than interviews or focus groups would likely have allowed. 63 people completed the survey, yielding a response rate of approximately 46%.

3. RESULTS

Communication and Collaboration
The first set of questions addressed perceived value of communication and collaboration efforts in the workplace. Over 91% of those surveyed saw open communication and collaboration as important institutional values. More than 95% of the respondents were open to trying new communication and collaboration tools. At least 80% of respondents felt that open communication helped them do their job more effectively and allowed IT to be more responsive to the needs of the institution. One respondent commented:

> The more that we can have open and direct lines of communication between other areas and groups the better off we will all be. I realize that some areas and some disciplines in the IT field invariably close off either because of who we are or what we do but communication needs to stay open. Not just between the people at the upper end of the food chain, but steps below where much of the real work happens. Anything that can further facilitate this would be good.

Next, the survey questions focused on perceptions regarding the existing levels of communication within work units, across the IT organization, and throughout the institution as a whole. 72.7% reported they were cognizant about what was going on in their unit. 57.6% of respondents indicated they were knowledgeable about IT as a whole, while 47.5% thought they were informed about what was going on across the university. As for collaboration activities, 63.5% of respondents felt individuals in their unit collaborated well together, 27.4% reported IT collaborated well between units and 28.6% felt ITS collaborated well with the rest of the university community. One respondent explained that time was a major limitation to communication and collaboration, stating:

> I feel that the biggest obstacle to communication and to a large extent collaboration is the time required to do a good job at it. There simply is not enough time in the day to ensure that communication/collaboration is given the attention required. Communication requires a time commitment that's must be adhered to on a regular basis and not 'when there's spare time'. Unfortunately there's just not enough time available to do the job correctly.

This same respondent acknowledged that Web 2.0 tools do offer some assistance in improving communication efforts, adding "…tools, like the wiki, do provide the possibility of some forms of communication that can be done in an efficient manner." Nonetheless, respondents did acknowledge that many of the ways in which humans communicate can be lost and/or misrepresented when using technology. Tone-of-voice, body-language, and facial expressions are all part of human communication and, depending on the technology used, can get lost causing miscommunication. As one participant stated:

> … successful communication can then only be achieved if the writer is capable of communicating effectively in that media and the reader is capable (and even perhaps unbiased) to try to understand what the writer has attempted to convey. As long as the tool permits a running dialogue, as in the case of the wiki, there is the possibility of questions/answers. However, since the written word does not include the ability to make emphasis where needed and instant feedback (as in a conversation) misunderstandings can occur and defeat the purpose of the dialogue. Still, I feel, it's a tool that offers a great chance to improve communication and collaboration.

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Social Networking Site Technologies

The final set of survey questions covered familiarity and willingness to use social networking technologies in the workplace. While respondents were quite familiar with wikis, instant messaging and Facebook, 69.9% indicated they were unfamiliar with Twitter. Nonetheless, a fair percentage of respondents were willing to learn Twitter (75.5%). Overall respondents seemed willing to explore new social networking tools to improve communication and collaboration in the workplace. In fact, one respondent expressed frustration that adoption was not happening more rapidly stating, "Let's get with it faster and start using new technology more thoroughly without all the hemming and hawing!" The percentages of those "somewhat to very willing" to use social networking technologies in the workplace were as follows:

Wikis	98.4%
Instant Messaging	90.5%
Facebook	71.4%
Twitter	67.2%

Despite the willingness to use social networking technologies in the workplace, several respondents commented on the potential security risks of communicating across the organization using social networking technologies. As one respondent commented, "None of our communication should take place through third-party services. Bad idea. You have no way of knowing who has access to your information." While many of these tools have multiple uses, some respondents felt the technologies are better suited for personal social interaction. Several members of IT, for example, belong to the organization's Facebook group but not all were comfortable sending and accepting Facebook friend requests from colleagues. In addition to privacy concerns, some respondents also expressed feeling overwhelmed by a variety of new technological tools and "information overload". A respondent stated:

> While I think the majority of the technology innovations are really good, my major concern with the use of all of these technologies in our current workplace is that there are too many of them that need to be checked. Let's focus on the best one or two and use them to their capacity. We need to also keep in mind the negative parts of some of these technologies and how people use

them to track/stalk individuals online, perform identity theft, etc. When using these technologies in the workplace we need to be sure security and the protection of personal information is high on the priority list. What happens with your information when we use the social networking sites like Facebook, etc. for work related activities?

A few survey participants pointed out that they felt it was important to incorporate social networking tools with more traditional forms of communication; that these tools are intended to complement not replace more formal communication methods. One respondent expressed that:

> Web 2.0 is participatory but it can be somewhat passive in knowledge sharing. Simply posting something to a web 2.0 environment should not always be translated to knowledge sharing. We should continue to use more formal mechanisms to summarize/synthesize/share information from time to time. This will help confirm shared knowledge more formally and collectively as well as to underscore the importance of using the web 2.0 tools that we take up for those that might lag in their use.

4. CONCLUSIONS

The results of this survey indicate that the case institution IT staff believe there is ample room for improvement in communication and collaboration, both within the department and particularly across the organization as a whole. The results also indicated that the IT staff recognize the benefits of open communication and collaboration and were generally willing to explore new ways to develop these skills, including exploring new communication/collaboration technologies. Nonetheless, the staff did express concerns regarding privacy and stressed the importance of using social networking tool to complement not replace traditional communication methods.

One of the challenges of the case institution is that the staff are physically located in a variety of locations. Often larger groups have an inability to create a shared framework of who they are and what they are doing together. Leveraging social networking technologies is one way in which to build a communication framework that facilitates team building,

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collaboration, innovation and knowledge sharing among central IT and beyond. These technologies offer the ability to reduce the number of degrees of separation between individuals in the organization. Respondents reported that the organizationally managed Wiki did help improve communication efforts. Nonetheless, organizations should consider the way in which social networking technologies impact individuals, groups and the organization as a whole in both positive and negative ways prior to adoption; establishing appropriate policies and guidelines. This is particularly important for tools that are managed by 3rd parties, where there are typically additional privacy and data ownership concerns. Institutions may also need to consider more formal adoption methods, such as those employed for email, to bring about a critical mass of participation.

Future research will include working with the IT professionals at the case institution to introduce SNS tools and examine acceptance, changes in communication/collaboration, and changes in attitudes towards SNS in the workplace. This research can be extended in a variety of ways, including administering a follow-up survey to further explore obstacles to technology acceptance of SNS in the workplace. Possible research questions to be addressed include:

- What are the individual and organizational barriers to adoption of SNS for enterprise communication and collaboration?
- What impact do privacy and trust concerns have on SNS technology acceptance in the workplace?
- Have attitudes regarding SNS changed since the original survey was administered?
- Have employees experienced any negative consequences from using SNS in the workplace?

One of the potential benefits of social networking tools is their ability to build professional and personal ties. These technologies can offer organizations a way to build strong relationships that improve communication, collaboration, and ultimately improve job performance. The benefits of social networking between colleagues can reach far beyond personal enjoyment but both the organization and its employees must be willing to participate. Understanding the unique complexities of implementing social networking

site technologies in the workplace is critical to successful adoption. This research sheds some light on potential adoption challenges but additional investigation is needed.

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APPENDIX A - SURVEY

Demographic Questions

Q1. Which of the following best describes your role in ITS?

- *Response Options*: Director (I regularly attend ITS Cabinet meetings); Manager (I regularly attend ITS Managers meetings); Other

Q2. Which ITS unit do you currently work for?

Q3. How long have you worked for the University in an IT related department (round up for partial years).

- *Response Options*: < 1 year; 1-5 years; 6-10 years; 11-15 years; 16 years or more

Q4. Do you have permanent appointment?

Communication Questions

Q5. Please indicate the degree to which you agree with the following statement.

a) Open communication is an important institutional value.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q6. Please indicate the degree to which you agree with the following statements.

a) I am informed about what is going on in my unit.
b) I am informed about what is going on in ITS.
c) I am informed about what is going on at the university.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q7. Please indicate the degree to which you agree with the following statements.

a) Open communication in my unit helps me do my job more effectively.
b) Open communication between ITS units helps me do my job more effectively.

c) Open communication between ITS and the University helps ITS be more responsive to the needs of the institution.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q8. Please indicate the degree to which you agree with the following statement.

a) I am open to trying new communication tools/methods in ITS.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Collaboration Questions

Q9. Please indicate the degree to which you agree with the following statement.

a) Collaboration is an important institutional value.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q10. Please indicate the degree to which you agree with the following statements.

a) Individuals in my unit collaborate well together.
b) ITS units collaborate well between units.
c) ITS collaborates well with the rest of the university community.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q11. Please indicate the degree to which you agree with the following statements.

a) A more collaborative environment within my unit helps me do my job more effectively.
b) A more collaborative environment between ITS units helps me do my job more effectively.
c) Collaboration between ITS and the University helps ITS be more responsive to the needs of the institution.

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- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Q12. Please indicate the degree to which you agree with the following statement.

a) I am open to trying new collaboration tools/methods in ITS.

- *Response Scale*: 1-Strongly Disagree; 2-Disagree; 3-Neither Agree nor Disagree; 4-Agree; 5-Strongly Agree

Social Networking Questions

Q13. Would you be willing to use Web 2.0 technologies (such as Twitter, Facebook, etc.) for professional communication and collaboration?

Q14. Please indicate the degree to which you are familiar with the following Web 2.0 technologies.

a) Wikis
b) Instant Messaging (e.g. AOL IM)
c) Social Networking (e.g. Facebook, MySpace)
d) Twitter
e) Second Life

- *Response Scale*: 1-No Familiarity; 2; 3-Somewhat Familiar; 4; 5-Very Familiar

Q16. Please indicate the degree to which you are willing to explore the use of the following Web 2.0 technologies within the ITS community for communication and collaboration.

a) Wikis
b) Instant Messaging (e.g. AOL IM)
c) Social Networking (e.g. Facebook, MySpace)
d) Twitter
e) Second Life

- *Response Scale*: 1- Not Willing at All; 2; 3-Somewhat Willing; 4; 5- Very Willing

General Open-Ended Question

Q17. Please provide any comments you would like to make regarding communication and/or collaboration in your unit, between ITS units and/or between ITS and the rest of the university community.

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