

AN EXPLORATION OF GENDER DIFFERENCES IN THE USE OF SOCIAL NETWORKING AND KNOWLEDGE MANAGEMENT TOOLS

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ABSTRACT

Over the last five to ten years, corporations have attempted to incorporate social networking and knowledge management tools to facilitate the exchange and sharing of knowledge through increased communication among its employees. Social networking has also enhanced inter- and intra-firm learning and knowledge sharing and has become a source of competitive advantage for many firms. However, research has shown that knowledge is socially-embedded, and in particular, there are differences between how men and women adopt and use technology. In this research we were interested in investigating how gender differences can exist in the adoption and utilization of social networking, and better understanding how these differences can influence a firm's knowledge management initiatives. To frame this research phenomenon, we leveraged the foundational literature on knowledge management to argue that knowledge and technology can be socially-embedded and to illustrate how this can be problematic for organizations attempting to leverage the knowledge of the firm. We learned that there were significant differences between the levels of relationship continuity that men and women established over social networking and knowledge management tools. These differences affect how genders learn within their own work environments, and possibly could be detrimental for organizations attempting to generate new knowledge for a competitive advantage.

INTRODUCTION

Why don't men ever stop to ask for directions? This question was the key question which inspired many academic researchers to investigate whether or not gender differences can have a profound influence for how and why men and women approach doing business differently. Particularly to the information systems (IS) field, it has helped to frame research questions for how gender differences can influence the adoption and use of technology.

Corporations have learned that information systems and knowledge can be important assets for firms, but few organizations truly understand how to manage their technology and knowledge practices to achieve their goals [29]. To implement effective knowledge-based management practices, companies have frequently turned to information systems such as knowledge repositories and expert databases [8] to store and maintain the firm knowledge. Most recently, social networking technologies (e.g., chats, blogs, firm internal employee-specific webpages, etc.) have aided in connecting and enhancing communication among employees. Corporations have attempted to leverage these information systems to support and enhance knowledge creation, sharing, and learning [2].

Much of the literature that exists on knowledge management (KM) has focused on the process of capturing, disseminating, and managing knowledge. However, there exists an important opportunity to understand how gender differences can influence how employees use information systems and the effects that it has on an organization's efforts to manage knowledge.

Throughout history, researchers have known about and have examined the differences between how men and women conduct business. In this research we were interested in investigating how gender differences can exist in the utilization of social networking and how it can influence a firm's knowledge management efforts. To frame this research phenomenon, we leveraged the foundational literature on knowledge management to argue that knowledge and technology can be socially-embedded and to illustrate how this can be problematic for organizations attempting to introduce social networking to the firm and to leverage the technologies to encourage new knowledge generation.

LITERATURE REVIEW

Knowledge Management. Knowledge is defined as a justified belief that increases an entity's capacity for effective action [2] [14]. The belief is justified because it is grounded in information as well as the values and prior understandings of the holder [17] [18], which means that knowledge is relational and context-specific [6]. The belief is related to prior beliefs and in order to be meaningful, the context in which it was developed must be understood [20] [19]. The belief must also be linked in some way to effective action, so that the creation of knowledge also implies the creation of something of value [26]. Whether or not a belief has value, and therefore whether or not it is considered knowledge, is based on the context in which it is created or used, including the beliefs of others [17].

Knowledge is comprised of both explicit (e.g., documented concepts, procedures, laws, and routines) and tacit (e.g., experience, relationships, and know-how) knowledge [24] [2]. Explicit knowledge can be articulated, codified and transmitted in some type of symbolic form or natural language [3] [2]. Tacit knowledge on the other hand has a personal quality, and is rooted in action, commitment and involvement in a specific context [18]. Tacit knowledge is difficult to articulate, and is often characterized as personal skills, mental models and 'know-how' that are deeply ingrained in an individual [20].

Knowledge is context-bound and highly specific [19], hence posing a difficult challenge for any firm attempting to effectively create, coordinate, and use knowledge to sustain an advantage [23]. Knowledge is held by individuals (know-what and know-how), and is socially-embedded in the organizing principles by which people voluntarily cooperate within an organizational context [6]. Socially-embedded is defined here as the manner in which the social actions and experiences of the firm -- such as industry regulations, alliances, and organizational culture -- influence how an individual or organization develops and manages its IS [30] and knowledge [13]. Socially-embedded knowledge can have a profound influence on how individuals are able to create and to integrate new knowledge into their own knowledge sources. It also contributes to differences in how individuals share and acquire knowledge.

Researchers have argued that new knowledge is created through the conversion of tacit and explicit knowledge [3] [18]. There are four modes of conversion: socialization, combination, externalization or internalization [27]. *Socialization* is the process of converting one individual's tacit knowledge to another individual's tacit knowledge through interpersonal interaction. *Combination* is the process of creating new explicit knowledge by reconfiguring, re-categorizing and re-conceptualizing existing explicit knowledge. *Externalization* is the process of converting tacit knowledge to explicit knowledge, while *internalization* is the process of converting explicit knowledge to tacit knowledge. An example of externalization is the articulation of best practices or lessons learned, while internalization is exemplified by the learning that occurs from reading [2].

Since research has shown that knowledge is socially-embedded, one can generally assume that the role of gender can have a profound impact between how men and women create, store, share, and transfer knowledge. Next, we discuss foundational research that has been conducted on gender differences in the adoption and use of technologies.

Gender Differences In Knowledge Management. *Why don't men ever stop to ask for directions?* This question was the key question which inspired many academic researchers to investigate whether or not gender differences can have a profound influence for how and why men and women approach business so differently. Particularly to the IS field, it has helped to frame research questions for how gender difference can influence technology adoption and use.

It has been long documented that gender differences exists and influences how individuals engage in everyday activities. Research has shown that gender plays a significant role in social and competitive preferences [7], investments [12] [5], planning [15], and risk aversion and choices [22]. However, from an IS perspective, there exists evidence to show that there are significant gender differences between how men and women adopt and use technology.

IS researchers have investigated the influence of gender differences in the use and the adoption of technology [25] [4], the influence it has on the work environment [1], the perception and use of technology such as email [11], and social networking [10] [14]. Venkatesh and Morris [25] used a framework grounded in the technology acceptance model and conducted a longitudinal study of 342 workers in order to investigate gender differences in the use and adoption of a new technology. Across five organizations, employees were introduced to a new software system in their respective organizations. Over a five-month period, the researcher measured the user reactions to the systems and usage behaviors. They found significant gender differences for how employees used and adopted technologies.

Comparatively, Geffen and Straub [11] conducted research investigating the gender difference in the use of computer-based media. Their research found that women and men differ in their perceptions, but not the use of email. They suggested that researchers should be aware of gender differences during the diffusion of technology and those managers and co-workers need to be aware that the same mode of communications may be perceived differently by the sexes. Even when moderating for social presence and perceived usefulness, their attempts to find evidence of gender differences in the use of email were inconclusive.

Researchers understand that there exists gender differences in the use and adoption of technology, but there exists little research that has investigated how gender differences can exist in the context of social networking and KM tool technology adoption and use, and the effects that it can have on a firm's knowledge management efforts. Hence, this is the point of departure for this research. This research was interested gaining a better understanding for how gender differences in the use and adoption of social networking technologies can impact and influence a firm's knowledge management efforts.

METHODOLOGY

The research was conducted through a single longitudinal case study. Case studies are appropriate when the unit of analysis is a system of action rather than individuals or groups, and the viewpoint of multiple respondents is desired [28]. The author focused on understanding the use of social networking technologies to support knowledge management efforts at one company, *Defense Technologies Incorporated (DTI)*¹, and how those initiatives facilitated the exchange of knowledge among the corporation's employees. The longitudinal analysis aided in providing a rich understanding and evaluation of continuity and change in the firm's KM initiatives. In particular, it enabled the authors to examine the phenomenon in a natural setting and to explore new theoretical ideas where there has been relatively little prior research and theory formulation [16] [28]. DTI was selected for study because they recently implemented social networking and KM tools within a three year period prior to this research.

¹ Acronym used for company name in order to protect the confidentiality agreements made with the firm.

Data Collection. Data collection involved multiple sources of historical data, which were triangulated to establish construct validity and reliability. The data collection was performed in two phases during a 12-month time period. In the first phase, one of the authors collected both public and confidential corporate archival data related to the firm's KM initiatives. The primary sources of data were archived corporate internal analyses, organization charts, strategic planning documents from the KM department, minutes of meetings, external consultant reports, internal correspondence, memos, and e-mails. Secondary sources included industry reports, public disclosures, media publications, and Internet articles. While collecting archival data, the authors together documented the general direction of the process that DTI followed to design and implement KM initiatives, the primary actors involved, as well as the features and use of the KM systems.

In the second phase of data collection, one of the authors and 15 members of DTI's KM team together spent two months conducting formal interviews with individuals who sponsored, supported, or participated in the project. Included were 40 top executives from the firm's eight product groups and six program teams. These interviews provided detailed data on how the KM systems were perceived and experienced, and how initiatives evolved. To ensure accuracy and to promote triangulation, case data were reviewed and verified by key actors involved in the project. Participant observation activities were conducted, which culminated in field notes and journal reflections. Covered were activities such as informal hallway conversations with employees, status report meetings, and planning meetings. A database was generated to organize and store the data.

Also during the second phase of the data collection, the researchers downloaded usage data from each of the social networking and KM tools used to facilitate corporate learning. Included were the employee blogs, inter-company profile pages, and chat sessions. A detailed social network analysis was conducted to understand five primary questions of the research: *How long did it take the scientist to begin using the social networking and KM tools? Who did the scientist contact to share knowledge? How many contacts did the scientists communicate with and include in their personal network of contacts? How frequently did the scientists contact other employees to share or obtain knowledge? What were the topics being discussed within the network of scientists?* The research team specifically only analyzed data from users with 10+ entries into the social networking and KM tools.

The data extracted from these multiple sources were coded to reflect the constructs identified in the theory being studied. After the data had been coded and grouped, it was put into a temporal process model which was used to identify gaps to compare trends in the observed data with those predicted by theory [28]. The technique of pattern matching was used to move back and forth between the empirical data and possible theoretical conceptualizations [9] [28]. Specifically the authors began by looking for examples of new knowledge creation through socialization, combination, externalization and internalization. In instances where the researchers identified gaps between the empirical data and possible theoretical conceptualizations, the authors revisited the data by going back to the interviewees to obtain additional data or to clarify data that already had been collected.

Case Study: Defense Technologies Incorporated. *Defense Technologies Incorporated* (DTI) is a leader in the United States aerospace and defense industry. One of the company's main core competencies is the development and manufacturing of rocket propulsion and space exploration engines for the defense industry. Over 4,000 scientists are employed at DTI. When scientists are hired into the company, they are assigned to both a process group and a program-group. Throughout their careers at DTI, scientists were encouraged to rotate among process and program groups to diversify their skill set and knowledge base. Limited project budgets encouraged a competitive environment at DTI, causing scientists to generally not want to share their expertise with other scientists, so that they would appear to be more valuable to the firm. The motivation to help others through knowledge sharing was constrained and generative learning was stifled.

DTI was under constant pressure from their customers to develop products that were better, faster, and cheaper. However, individualized KM systems and program efforts across the process and product groups in the firm continued to plague effective KM in the organization as a whole. Scientists rarely shared their knowledge with others outside their process and product groups. Methodologies for managing knowledge were typically documented within process groups and program groups and existing knowledge was stored at the desks of the scientists. Knowledge that was created within process and program groups often remained in the minds of the seasoned scientists, or was documented on notepads and stored in personal filing cabinets and computer hard drives. This made the creation of new knowledge challenging across the organization since existing knowledge was rarely exploited or refined by others. Existing knowledge was seldom experimented with in new contexts and knowledge generation was not promoted.

As a first step in improving knowledge management at DTI was hiring the newly created position of Chief Knowledge Officer (CKO). The CKO was tasked with rejuvenating the firm's KM efforts. Within a month of investigating the current state of the firm's KM environment, the CKO and the KM team found there were two key issues that plagued the firm's ability to leverage existing knowledge and to create new knowledge. First, scientists did not leverage existing knowledge because they were not aware that other knowledge sources existed within the firm. The team recommended that the IS infrastructure be improved to support and maintain knowledge so that new knowledge could be generated. Secondly, the KM team acknowledged that the culture of the firm typically did not support leveraging of existing knowledge, as scientists hoarded knowledge to make themselves more valuable to the firm. As a result, scientists were prevented from learning of their colleagues' work and using it to generate new knowledge.

In May 2007, the CKO and the KM team embarked on introducing social networking and KM tools into the organization, in hopes of boosting communication among employees and encouraging scientists to learn from each other. They deployed several social networking tools, intended to capture and disseminate knowledge from different sources or to facilitate new ways of sharing knowledge across the program and product groups. Examples of social networking tools and capabilities that were implemented within the firm's infrastructure were blogs, chat session, and inter-company employee profile pages. All employees were given access to and the ability to utilize the social networking tools at once. The CKO and KM team did not limit the type or kinds of content that could be shared or discussed within the company's social networking and KM infrastructure. Employees were free to share or distribute professional (e.g., work- and industry-related documents) material, as well as engage in socially-related topic discussions (e.g., sports, travel, food, and entertainment).

FINDINGS

Three key findings emerged from this research investigation. First, the authors learned that there are gender differences in the adoption rates of social networking and KM tools. Second, the authors found that there is a variation difference between men and women in the frequency and content depth for using these social networking and KM tools. And, thirdly, there are significant gender differences for how social networking and KM tools are used for professional vs social topics. The details of the findings are discussed in the following sections.

Based on the social networking and KM tools usage data collected from DTI, the research team analyzed the research data and found that after three years of the social networking and KM tools being available to the scientists (2007 – 2010), 77% of the users were men and 23% of the users were women.

Finding #1: Gender differences exist in the adoption rates of social networking and KM tools. Women took 3-6 months longer to adopt the technology. Recall that all employees in the company were given the option to sign up and to use the social networking and KM tools at the same time. An analysis

on the adoption rates between men and women, we found that the most of the women who adopted the technology did so three to six months after the men immediately adopted it after the applications were made available to all employees. During our interviews, we learned from the women users that they were hesitant to adopt the technologies until they understood *how* the technology worked and *how* to use it properly. One of the primary ways that women attempted to learn about the usefulness and functionality of the technology was by talking with their colleagues and peers in the organization to learn how they used it. Through these actions, women users were not only given an opportunity to assess the technology, but they also began to establish alliances and contacts for their social networks. Conversely, during our interviews with the men, we learned that they were generally eager to experiment with the technology and were willing to play around with it in order to determine how to use it, to understand the functions within the technologies, and to determine the levels of effectiveness.

Recall that the research team only analyzed the data of employees to made 10+ entries into the social networking and KM tools. In aggregating the research, we counted that across all users there were a total of 2,570 comments made using the social networking and KM tools. Of the total comments, men made 1,970 of the comments and women made 600 comments. We learned that in general, the men's comments were shorter (i.e., # or words used in each entry) than their women counterpart's comments, which typically contained more detail per response. This represented an approximate 3:1 ratio of men to women for overall blog content usage. This finding indicates that men were generally more willing to use the tools and engage others in obtaining, sharing, and disseminating their knowledge across the entire organization, than women. The average number of posts across the men users was 240. Women users made an average number of 26 post entries. Again here, the average number of posts between men and women were significantly different at a 9:1 ratio.

Men initiated a higher rate of original blog authorship. The research team also analyzed all original blog authorship and found that there were a total of 31 original blogs created by DTI's scientists. Of these blogs, 28 original authorships were created by men, and 3 by women. Interestingly, the ratio of original blog authorships between men to women was significantly different, at a 9:1 ratio. This provided an indication that more men were more willing to engage and adopt social networking and KM tools to learn about or to share knowledge on many more topics than women. It may also be an indication that men are more comfortable seeking input or contribution to their topics at hand via solicitation to the general public (versus to their established network of colleagues).

Finding #2: Gender differences in the frequency & depth for using social networking and KM tools.

Men had an overall lower corporate adoption rate. Normalizing the data for the fact that there are generally more men were employed at DTI than women (and across almost the entire aerospace and defense industry), we learned that there was a higher social networking and KM tool adoption rate by women, compared to men. The data indicated that across all DTI men employees, only 25% adopted and engaged in using social networking and KM tools. Consequently, the data also indicated that women only accounted for approximately 34% of the entire user population of the social networking and KM tools. The implications is that men may rely on and access a wider range of knowledge sources when attempting to acquire or share knowledge with others in the corporation. It may also imply that men are not as apt to rely on social networking and KM technologies to access and to generate new knowledge for the firm.

Women developed closely-knit networks & longer-term relationships. In addition to learning that more women adopted the social networking and KM tools to share and communicate knowledge than men, we found that generally the women's blogs were longer in length (i.e., # of words used per entry) and contained more in-depth details (i.e., # of topics or angles of opinion) to the question or topic being discussed. The data indicates that once women began using the social networking and KM tools, they established long-term relationships with the people within their networks. Generally, their contacts were a larger network of experts or alliances within the community. The data also indicated that once women

established subject-matter experts in topics, they generally returned to these experts to seek additional advice on related topics. Our interviews indicated that through these in-depth online discussions with their social networks, women integrated the knowledge from their colleagues and peers with their own personal knowledge sources. Conversely, when men needed to seek out or need to acquire additional information, they put out general requests to all users on the social networking communities (hence, the 9:1 men to women ratio for original discussion topics).

Women demonstrated deeper levels of conversation. The data also indicated that women engaged in fewer number of topic discussions, but once they engaged and set up alliances in their social network, they appeared committed to the discussion because their posts (i.e., # of words in the response / comment) were longer than their male counterparts. Women generally provided more detail in blog discussions, almost three times longer posts than men. Conversely, we learned that within threaded topic discussions involved by men, they tended to engage in solicitations of quick question-and-answer exchanges. Men more frequently sought to obtain or to provide feedback from the general community at large and often went to the general community to get knowledge they sought (hence, the higher number of original blog posts as compared to women). Interestingly, the interview data highlighted the fact that men generally used the social networking and KM tools to *obtain* knowledge, but *integrated* it within their own personal knowledge sources outside of the formal social networking environments (i.e., individually or within knowledge sources located in close physical proximity of their desks). There was little evidence of men attempting to establish alliances or relationships within the general social network user base.

Finding #3: Gender differences in the topic focus of using social networking and KM tools. *Socially-related blog discussions outnumbered work-related blogs.* One of the unexpected findings of our study was that there was a significant difference between the professional work versus social blog entries and discussions. Recall that the CKO and KM team set up these social networking and KM tools to facilitate knowledge sharing and dispersion across the organization. The team allowed scientists to use the tools for both work- and socially-related discussion topics, because they assumed that if the tools facilitated employees building of a virtual community in the organization, they would be more apt to adopt the technology and to use it for formal knowledge sharing when the occasion arose. Little to no restrictions was put on the usage rules / regulations of the social networking and KM tools at DTI.

The data indicated that work-related blogs typically received anywhere between 6 – 30 posts per topic, whereas socially-related blogs received 100+ posts per topic. These facts seem to indicate that employees were more apt to use and adopt the social networking and KM tools if the topics being discussed could be tied and associated with their personal and social lives. For socially-related blogs, we mentioned that blogs commonly received 100+ blog entries per topic discussion. One data point that stood out from the data was a socially-related blog on the Los Angeles Laker's Basketball season, which received 15,000+ viewings, and 1,100+ blog posts.

Men engaged more in socially-related topic discussions and contributions. The data indicated that men were more engaged in more socially-related blogs and virtual discussions than did their women counterparts. Recall that across all original blog entries, 28 original authorships were created by men, and 3 by women. The ratio of original blog authorships between men to women was significantly different, at a 9:1 ratio. Additionally, we earlier stated that the average number of posts across the men users was 240, while women users made an average number of 26 post entries. What this may imply is that men were less prohibited at offering their opinions or seeking contribution to topic discussions from a more general audience, than women. This finding may also support the fact that women were generally more willing to engage in discussions and share their knowledge expertise with their personally-established social networks, than with the general aggregate user base.

Earlier we learned that men tended to initiate more original-authored work-related posts than the women did. However, when women initiated work-related blog discussions, they received 66% or more

responses to their discussion topics than men did. The data also shows that women engaged in blogs and chats had generally engaged in richer and deeper conversations (i.e., #of words used in the responses), than their male counterparts. This fact may imply that the social network made it easier for women to connect with others in the organization, which ultimately enabled them to commit to and engage in other's quest to engage in knowledge sharing and dissemination.

DISCUSSION

Our research has demonstrated that gender differences exist in the adoption and utilization of social networking and KM tools. Specifically, we learned that gender plays a very important role in the ability and willingness of employees to use social networking and KM tools to create and to share new knowledge throughout the organization. Earlier, we mentioned that the manner in which individuals leverage IS to create knowledge can be socially-embedded [6] and can have a profound influence for how individuals create new knowledge. For this investigation, we found that men tend to like to experiment with technologies and do not hesitate in engaging in quick and frequent knowledge exchange with the general public, in order to obtain, to utilize, and to create new knowledge. Conversely, we learned that women tended to engage their personal network of alliance for more in-depth discussions of knowledge and to create deeper meanings of the knowledge.

We also mentioned that women, on average, tended to adopt the social networking and KM tools three to six months after their counterpart males did. The data indicated that women first needed to first determine that the technology was useful and easy to use before they adopted it. This finding on delayed adoption of technologies is consistent with the arguments provided by Venkatesh & Morris [25], when they argued that with increased experience with the system, women were more adept to adopting and using systems. This finding is also in line with the arguments of Sapienza, et al. [22] whose research indicated that women are generally more risk adverse than men. The implications behind this finding is that a woman's delayed adoption of the social networking and KM tools at DTI actually temporarily recessed the ability of the company to create new and disseminate knowledge throughout the organizations.

Our research also discussed that when men are first introduced to new technologies, they eagerly experimented with the technology in order to learn of its usefulness or functionality. We learned that the first-hand ability to play with and experiment with the tools contributed to their ability to learn about how the systems worked and for what it was useful in accomplishing. We also mentioned that men used the social networking to obtain quick access to knowledge, but integrated this knowledge outside of the social networking environment. Comparatively, women engaged their social networks to obtain diverse sources of knowledge and to integrate their own personal knowledge with that of their colleagues and peers *within* the boundaries of their social networking environments.

These findings, applied to a firm's knowledge management efforts, gender differences for adopting social networking and KM technologies has the potential to recess and to delay the ability of to generate new knowledge for the firm. Managers need to reminded that in order for technology adoptions and use to be successful, they must take into consider the varying aspects of technology adoption. In this case, gender differences.

CONCLUSIONS

While this research sought to understand whether gender differences existed while using social networking and KM tools of one company, *Defense Industry Technologies*, the case offers valuable insights for other practitioners embarking on leveraging social networking for their own company's KM efforts. Lessons learned at DTI and from this case study include:

Provide users with tools and training appropriate to their needs and on their own terms. Knowing that men and women adopt and use social networking and KM tools differently, engage and support users by providing them useful tips (e.g., user-group meetings, user documents / manuals) or activities (e.g., brown-bag lunch discussion groups to build face-to-face networks that compliment online social networks) to support knowledge sharing and learning in styles that everyone can be comfortable with.

Look holistically at KM initiatives within the organization. The portfolio of social networking and KM tools should work together systemically to provide opportunities to share, to distribute, and to generate new knowledge. Take time to review and reflect on how all tools relate to, integrate with, and impact each other. An advancement in one tool may possibly be detrimental to the usefulness of another.

Assess prior KM implementation efforts, identify gaps, and build lessons learned into new initiatives. Investigate and highlight the benefits and drawbacks of prior social networking and KM system. A lot can be learned from past victories and mistakes.

Benchmark social networking and KM tool implementation against other companies in similar industries. Create alliances in your industry. Be aware for how the alliances or competitors are using social networking and KM tools, as well as their ability to understand and take advantage of gender differences in using and adopting technologies. This exercise can also help to set expectations and to guide future efforts of technology adoption. Attend regional and national KM conferences to share key learning.

Implementing social networking and KM tools to aid in your firm's knowledge management initiatives typically does not happen overnight or without planning. While prior work has provided a high level understanding of gender differences in the adoption and use of technology, there is a need to better understand what specific aspects of gender differences exist in organizations attempting to implement social networking and KM tools. These differences can influence and affect the ability of employees to generate new knowledge and to learn from each other. A major contribution of this work is the better understanding for how men and women use social networking technologies to generate new knowledge. Generalizability is the main limitation of this study, which is typically limited by the single case study method used in this research. Our investigation used a theoretically-based approach to understand whether or not there are gender differences in the adoption and use of social networking and KM technologies, and to understand how these differences affects an employee's ability to generate new knowledge. However, knowledge is socially-embedded and are composed of both tacit and explicit knowledge from knowledge bases that are not typically fully understood [6]. While the findings at DTI led to useful insights, the findings may not be directly translatable to other organizations. More studies are needed to assess the validity and reliability of these research findings in the context of multiple organizations.

With a growing understanding of the effective utilization of social networking and KM tools, and what it takes to facilitate knowledge sharing and learning across their employees, DTI continues to develop initiatives to help them progress further. In particular, they are in dialogue with other aerospace and defense firms to benchmark their KM initiatives. There are two primary benefits for their efforts. First, they want to be able to share their best known methods and learn from the best known initiatives of other firms. Second, they want to help facilitate an open dialogue with other firms in their industries. Together the firms can collaborate, brainstorm, and discuss the common KM initiatives and tools that may work for the entire aerospace and defense industry, as well as any firm's KM environment.

REFERENCES

- [1] Ahuja, M. & Thatcher, J.B. (2005), "*Moving Beyond Intentions and Toward the Theory of Trying: Effects of Work Environment and Gender on Post-Adoption Information Technology Use,*" MIS Quarterly, 29(3), pp. 427-459.

- [2] Alavi, M. and Leidner, D. (2001), "*Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues*", MIS Quarterly, Vol. 25 No. 1, pp. 107-136.
- [3] Arling, P. & Chun, M. (2010) "*Facilitating New Knowledge Creation and Obtaining KM Maturity*," Journal of Knowledge Management, 15(2), p 231-250.
- [4] Brayton, J. (1999). "*Women's Love/Hate Relationship with the Internet.*" In I. Markovic (ed.) cyberfeminism [ver 1.0]. Sagreb: Center for Cultural Studies. 193-202.
- [5] Charness G. & Gneezy, U., (2007), "*Strong Evidence for Gender Differences in Investment*", Working Paper. <http://escholarship.org/uc/item/428281s8> last accessed July 2011.
- [6] Chun, M. & Montealegre, R., (2007) "*The Problems of Embedded Information Systems and Embedded Knowledge: Implications For Systems Integration and Knowledge Management*," Journal of Information Technology Management, 8(2), 28-64.
- [7] Croson, R. & Gneezy, U. (2009), "*Gender Differences in Preferences*," Journal of Economic Literature, 47(2), pp 448-474.
- [8] Durcikova, A. and Gray, P. (2009), "*How Knowledge Validation Processes Affect Knowledge Contribution*", Journal of Management Information Systems, Vol. 25 No. 4, pp. 81-107.
- [9] Eisenhardt, K.M.: "*Building Theories from Case Study Research*", Academy of Management Review, Vol. 14, No. 4, 1989, pp 532-550.
- [10] Fortino, A. & Nayak, A. (2010), "*An Architecture for Applying Social Networking to Business*," Applications and Technology Conference (LISAT), Long Island Systems.
- [11] Gefen, D. & Straub, D.W. (1997) "*Gender Differences in the Perception and Use of E-Mail: An Extension to the Technology Acceptance Model*," MIS Quarterly, 21(4), pp 389-4000.
- [12] Hira, T.K. & Loibl, C. (2008), "*Gender Differences in Investment Behavior*", Handbook of Consumer Finance Research, p 253 -270.
- [13] Lam, A.: "*Embedded Firms, Embedded Knowledge: Problems of Collaboration and Knowledge Transfer in Global Cooperative Ventures*", Organization Studies, Vol. 18, No. 6, 1997, pp 973-996.
- [14] Lu, H.P. & Hsiao, K.L. (2009) "*Gender Differences In Reasons for Frequent Blog Posting*," Online Information Review, 33(1), pp 135-156.
- [15] Lusardi, A. & Mitchell, O.S. (2008), "*Planning and Financial Literacy: How do Women Fare?*", American Economic Review: Papers & Proceedings 98(2).
- [16] Miles, M.B., & Huberman, A.M.: Qualitative Data Analysis: A Sourcebook of New Methods, Newbury Park, CA: Sage Publications, 1984.
- [17] Nonaka, I. (1994), "*A Dynamic Theory of Organizational Knowledge Creation*", Organization Science, Vol. 5 No. 1, pp. 14-37.
- [18] Nonaka, I., Reinmöller, P., and Toyama, R. (2001), "*Integrated Information Technology Systems for Knowledge Creation*", in M. Dierkes, A.B. Antal, J. Child and I. Nonaka (Eds.), *Organizational Learning and Knowledge*, Oxford University Press, New York, 2001, pp. 827-848.
- [19] Nonaka, I. and von Krogh, G. (2009), "*Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory*", Organization Science, Vol. 20 No. 3, pp. 635-652.
- [20] Polanyi, M. 1958. *Personal Knowledge: Towards a Post-Critical Philosophy*. The University of Chicago Press. Chicago.
- [21] Polanyi, M. (1966), *The Tacit Dimension* Doubleday, New York.
- [22] Sapienza, P, Zingales, L, & Maestripieri, D. (2009), "*Gender Differences in Financial Risk Aversion and Career Choices Are Affected by Testosterone*," PNAS, 106(36), pp 15268-15273.
- [23] Spender, J.C. "*Making Knowledge the Basis of a Dynamic Theory of the Firm*." Strategic Management Journal, Volume 17, 1996, pp. 45-62.

- [24] Szulanski, G. "Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm." *Strategic Management Journal*, Volume 17, 1996, pp. 27-43.]
- [25] Venkatesh, V. & Morris, M.G. (2000), "Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior," *MIS Quarterly*, 24(1), pp 115-139.
- [26] von Krogh, G. (1998), "Care in Knowledge Creation", *California Management Review*, Vol. 40 No. 3, pp. 133-153.
- [27] Wittrock, M.C. (1990), "Generative Processes of Comprehension", *Educational Psychologist*, Vol. 24 No. 4, pp. 345-376.
- [28] Yin, R. (2002), *Case Study Research: Design and Methods*, (3 ed.) Sage, Thousand Oaks, CA.
- [29] Yu, L. (2005), "Does Knowledge Sharing Pay Off?", *MIT Sloan Management Review*, Vol. 46 No. 3, p 5.
- [30] Zollo., M. & Winter, S.G.: "Deliberate Learning and the Evolution of Dynamic Capabilities", *Organization Science*, Vol. 13, No. 3, 2002, pp 339-351.