## THE IMPACT OF SOCIAL MEDIA ON WORKPLACE FRIENDSHIP AND WORK EXPERIENCE

by

H. Dotan\*

S. Gordon\*\*

S. Parise\*\*\*

E. Volpe\*\*\*\*

Working Paper No 13/2012

November 2012

#### Research No. 04920100

- \* Faculty of Management, The Leon Recanati Graduate School of Business Administration, Tel Aviv University, Tel Aviv, Israel.
- \*\* Technology Information and Operations Management Division, Babson College, MA, USA
- \*\*\* Technology Information and Operations Management Division, Babson College, MA, USA
- \*\*\*\* School of Business, Roger Williams University, Bristol, RI, USA

This paper was partially financed by the Henry Crown Institute of Business Research in Israel.

The Institute's working papers are intended for preliminary circulation of tentative research results. Comments are welcome and should be addressed directly to the authors.

The opinions and conclusions of the authors of this study do not necessarily state or reflect those of The Faculty of Management, Tel Aviv University, or the Henry Crown Institute of Business Research in Israel.

# The Impact of Social Media on Workplace Friendship and Work Experience

### **ABSTRACT**

This research examines whether organizational support of social media affects employees' satisfaction with work, their commitment to and engagement with their organization, and their knowledge of the organization and its members. It is motivated by three interconnected hypotheses. First, organizational support for social media increases its use within the organization. Second, the use of social media within the organization increases the number and depth of office friendships. Finally,the number and quality of office relationships has an effect on employee satisfaction, commitment and engagement, and knowledge. We conclude that organizational support of social media has a positive effect on the human resource variables of interest.

#### INTRODUCTION AND BACKGROUND

It is hard to understate the force that social media has become in the lives of people around the world. In 2012, Facebook alone reportedly has almost a billion monthly users, with more than half a billion coming back every day (Carson, 2012) and the average user spending 7.5 hour/month on Facebook pages (Bloomberg, 2012). Twitter users have set up over 465 million accounts and tweet on average 175 million times a day (Mediabistro.com, 2012). Nearly 1 in every 5 minutes spent online is now spenton social networking sites (ComScore, 2011).

A general consensus has emerged within industry and academia that social media can improve business productivity. Social media can help companies enhance their processes of innovation through techniques such as crowd sourcing (Howe, 20008; Leimeister et al., 2009; Shenk&Guittard, 2011) and gamification (Birke, F. et al., 2011; Michaelides, D., 2011). Social media has also been shown to improve the innovation process by facilitating collaboration (Cattutoa et al., 2009, Lai and Turban, 2008),the search for expertise (Brzozowski, M., 2009; Parise and Guinan, 2011), and knowledge transfer (Bingham et al., 2010; Kane et al., 2010). In the realm of marketing, social media helps companies attract customers, improve customer service, and enhance their branding efforts (Kabani and Brogen, 2012; Kerpen, 2011).

Surprisingly, despite social media's heavy employment of terms such as "friend," "like," and "follow," the proposition that the use of social media leads to the creation or strengthening of real world friendships has not been well explored. This is particularly true in the context of the workplace.Quercia et al. (2012) have found that extroversion is a predictor for the number of both real-world friends and Facebook friends, but they are unable to draw the inference that real-world friendships lead to Facebook friendships or vice versa. Most likely, the relationship is spurious, although anecdotal evidence suggests that real-world friendship affects social media friendship, but that the reverse is not true. Research has found that strong social media ties can be distinguished from weak ones based on such factors as the amount of pairwise activity between two social media "friends" (Gilbert and Karahalios, 2009). But usually the activity network has a high churn rate and strong ties tend to decay rapidly over time

(Viswanath et al. 2009) suggesting that these ties are functional rather than an indication of a lasting real-world friendship.

Nevertheless, because the ties created by social media are social ties, it is reasonable to suppose that they have the potential to create new friendships and deepen existing ones. Following this reasoning and assuming that social media will be used increasingly in industry, it is wise to ask whether social media use will increase the number and depth of workplace friendships among coworkers. If so, we might expect that it will also increase workers' overall sense of happiness and well-being, as friendship is known to positively affect happiness (Demir et al., 2012; Demir and Weitekamp, 2007). So, it is reasonable to ask if that sense of happiness will extend to happiness with their work and their organization. To make this research meaningful and actionable, we will also want to ask if increasing organizational support for social media increases the use of social media, so as to achieve the desired effects.

In the next section, we expand upon these research questions, develop a research model, and offer support from prior research for hypothesized relationships. Then we describe the methodology we have followed to test the hypotheses. We then present the results of our analysis and discuss their implications. We finish with conclusions, caveats, and suggestions for additional research.

### RESEARCH QUESTIONS AND MODEL

The overall research question is whether organizational support for social media will have a positive impact on worker satisfaction, involvement and organizational knowledge (knowing about one's organizational context). We hypothesize that such a result will be achieved through a chain of causality, as shown in Figure 1.

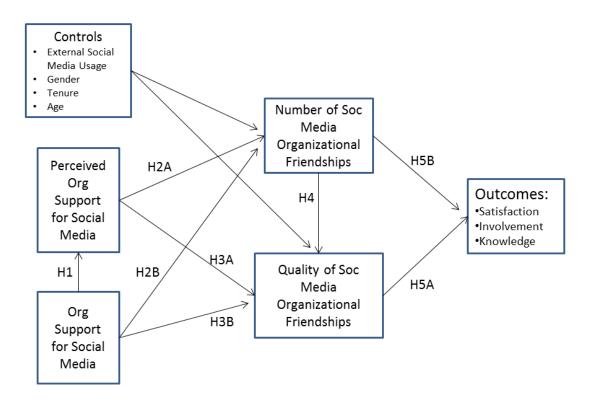


Figure 1: Research Model

H1: Employees perceive organizational support for social media. It is not always true that employees perceive the support that they actually receive. However, since perception of support is often more important than actual support in use and adoption of technology (Igbaria et al., 1997; Taylor and Todd, 1995), we wanted to separate the perceived support construct from the actual support construct. H1 makes explicit the relationship between these two constructs.

H2: The number of social media organizational friendships (that is, the number of an employee's social media friends inside the organization) depends on the perceived organizational support for social media (2A) and the actual support (2B). Perceived support is important because it can create a social norm that sets expectations for the user to use social media at work (Venkatesh at al., 2003; Thompson et al., 1991). Conversely, in the absence of perceived support, an employee might feel that using social media within the workplace is frowned upon. Actual support is important because it affects ease of use. Theory suggests that ease of use is a key element in the decision to use any technology in the workplace (Davis, 1989; Venkatesh et al., 2003). We have identified a number of factors as controls because they

could affect the use of social media in the workplace and therefore the number of social media workplace friends. External use of social media affects a user's perception of self-efficacy (Compeau& Higgins, 1995) and ease of use (Moore &Benbasat, 1991; Venkatesh et al., 2003). Age and gender are typical control variables in IT research, and data indicate that they are important determinants of social media use outside the organization (Brenner, 2012). Finally, we have included tenure because we expect that the longer one is employed by an organization, the more friends one would have inside that organization and the deeper the relationships would be.

H3: The quality or depth of social media friendships depends on the perceived organizational support for social media (3A) and the actual support (3B). Support for this hypothesis and its control variables is identical to that for hypotheses 2A and 2B.

H4: The greater the number of social media friendships, the greater the depth of those friendships. There is no academic support for this hypothesis. Our thinking was that the number of friendships would be indicative of social media use, and that would affect the depth of friendships, as explained in support for Hypotheses 3 and 4. However, the relationship between number and depth in this case is probably spurious, and it is unclear whether number or depth, if either, should be dominant and causal in such a relationship.

H5: Satisfaction and involvement with the organization and knowledge of the organization depends on the quality (5A) and number (5B) of social media friendships. These are really six different hypotheses, even though they are shown as just two in Figure 1, as they pertain to three different dependent variables – satisfaction, involvement and knowledge. They are based research that shows workplace friendship has a beneficial effect on job satisfaction (Winstead et al., 2005), organizational involvement and commitment (Morrison, 2004) and organizational knowledge (Morrison, 2002).

### **METHODOLOGY**

#### Overview

We collected qualitative and quantitative data by survey. The analyses reported here use only quantitative data. We employed amixed cross-sectional, quasi-longitudinal approach to verifying the relationships of the research model and estimating its parameters. The longitudinal component came into play in measuring the outcome variables. Rather than simply comparing outcomes across observations, the survey instrument asked respondents to compare outcomes before and after the use of social media in the workplace. Thus, for the outcome variables, not only are the data self-reported, but they also rely on respondents' memories of what are basically subjective circumstances. Nevertheless, we felt that this approach was superior to a pure cross-section analysis because it keeps constant for each respondent other factors that could easily affect satisfaction and involvement, such as salary and working conditions. We also measured the quality of social-media friends' relationships as a change from before to after the use of social media. As with the outcome variables, the objective was to minimize the impact of other factors that could affect workplace friendships, such as reporting relationships and physical proximity.

### The Sample

We used a convenience sample of MBA students at the University of Tel Aviv in one of the authors' classes on workplace relationships. Participation in the survey was optional and no penalty was assessed for failure to participate. Survey responses were anonymous. Twenty-nine useable surveys were completed. Demographic and sociographic information about the survey respondents is presented in Table 1. A copy of the survey is available from the authors.

	Descriptive Statistics
Age	(3.31 )Mean: 29.9
Gender	47% Male 53% Female
Marital Status	60% Single 40% Married
Occupational Status	28% First-line Mgmt 14% Project Management 14% Director 14% senior/technical/functional workers 7% Middle Mgmt 23% other

Table 1: Characteristics of the Respondents

### **Scale Development**

To assess actual social media support, we asked users three questions about the availability in their organization of technologies for supporting social media. Responses to these questions were summed to produce the variable used in the analysis. Perceived social media support was based on the following question answered on a 5-point Likert scale: "My company encourages us to use social media."

We used Facebook friendship as a proxy for social media friendship. We asked respondents to select one of five ranges to identify the number of workplace Facebook friends they have. To assess the depth of their social media friendship, we asked them to compare on a 5-point Likert scale (from strongly disagree to strongly agree) how three measures of their relationship changed after they began to have coworkers as Facebook friends. Their responses on these questions were summed to produce a measure of the quality of workplace friendship.

The three dependent variables were calculated by summing answers to 5-pointLikert-scale questions about how their feelings about the organization changed after they began to have coworkers as Facebook friends. The questions relating to the satisfaction construct were based on the Michigan

Organizational Assessment Questionnaire (Cammann et al.,1979). The questions relating to organizational involvement were derived from the same source and Kunungo (1982). The questions relating to organizational knowledge were developed by the authors.

For the most part, the control variables were taken directly from the survey. Tenure at the organization was computed as 12\*years + months. Appendix A lists the questions included in the computation of each of the other variables.

### **Analysis**

The sample size was too small for structural equation modeling. Instead, we used linear equations and stepwise linear equations to estimate parameters for each hypothesized relationship, accepting the hypothesis only if the resultant equation and parameters were significant. Observations with null data in any of the variables were dropped from the analysis.

#### **FINDINGS**

Hypothesis 1, perceived support for social media depends on actual support, was accepted at p < .01. The equation coefficients are shown in Table 2. The coefficient for organizational support is negative because higher values indicated lesser support. Respondents were asked whether their company provided certain technologies and their answers were coded as YES = 1 and NO = 2.

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	6.107	1.330		4.592	.000
	OrgSupport	606	.211	484	-2.873	.008

Dependent Variable: My company encourages us to use social media. (p = .008)

Table 2: Results for H1

Hypothesis 2, that the number of social media organizational friends depends on the actual and perceived support for social media was rejected. The dependent variable was coded as the midpoint of each range using 15 at the top of the scale (10 or more). The best fits were obtained when the control

variable (total number of Facebook friends) and the dependent variable (number of co-worker Facebook friends) were log-transformed before the regression. When the variables for perceived and actual support were added together, this combined support variable was related positively to the dependent variable, but only at p = .159 (see Table 3).

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	717	.501		-1.432	.173
	LogFBfriends	.651	.177	.742	3.675	.002
	Tenure	.005	.002	.457	2.346	.033
	CombinedCoSupport	.031	.021	.262	1.484	.159

Dependent Variable: LogNumCFFMidpt. (p = .004)

Table 3: Results for H2

Hypothesis 3, that the quality of social media organizational friendship depends on the actual and perceived organizational support for social media was accepted at p < .05 (see Table 4). However, the results were significant only when the actual and perceived support variables were combined. They were not statistically significant when the variables were entered separately.

		Unstandardize	ed Coefficients	Standardized Coefficients		
Мо	odel	В	Std. Error	Beta	t	Sig.
1	(Constant)	13.178	1.245		10.589	.000
	CombinedCoSupport	.688	.318	.475	2.160	.046

Dependent Variable: CFFRelationship. (p = .046)

Table 4: Results for H3

Hypothesis 4, that the quality and number of friendships was related was rejected. There appears to be absolutely no relationship between these variables.

Hypotheses 5A, that outcomes depend on the quality of social media organizational friendships were accepted (p < .01) for all three dependent variables. Hypotheses 5B, that outcomes depend on the number of social media organizational friendships were rejected for all three dependent variables. Results

are shown in Tables 5 through 7. The number of coworker social media friendships did not enter into any of the equations in the stepwise regressions.

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	1.556	1.708		.911	.376
	CFFRelationship	.439	.149	.594	2.955	.009

Dependent Variable: Satisfaction Outcomes. (p = .009)

Table 5: Results for H5, Satisfaction

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	477	1.721		277	.785
	CFFRelationship	.717	.149	.778	4.801	.000

Dependent Variable: Involvement Outcomes. (p = .000)

Table 6: Results for H5, Involvement

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	4.844	2.599		1.864	.082
	CFFRelationship	.851	.231	.689	3.681	.002

Dependent Variable: Knowledge Outcomes. (p = .002)

Table 7: Results for H5, Knowledge

#### **DISCUSSION**

Figure 2 shows the final model. Significantly, the number of social media organizational friendships does not appear in the model. Only the quality of the friendships seems to be relevant. This result is somewhat surprising, as the breadth of one's network has been shown to be more significant than the strength of network ties for other types of outcomes, such as innovation (Hauser et al., 2007, Reuf, 2002) and the performance of execution-oriented managerial tasks (Moran, 2005). In addition, some studies looking at social network ties, as opposed to social-media friendships, have found that the number of relationships is more important than the strength of those relationships when it comes to predicting organizational knowledge (Morrison, 2002). However, other studies have found number of relationships to be relatively unimportant as compared to other measures, such as relationship diversity for example (Gray et al., 2011).

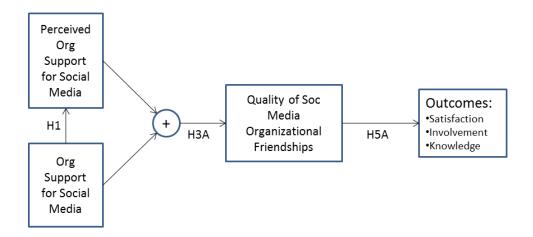


Figure 2: The accepted model

Overall, the findings of this study should be encouraging to managers. Since combining actual and perceived organizational support for social media has a positive impact on the desirable outcomes of satisfaction and involvement with the organization as well as knowledge about the organization, information technology (IT) managers should ensure that the technical support for social media is provided and general managers should ensure that social media use is encouraged. Because of concerns about security and intellectual property leakage, many companies have prohibited their employees from

using public social media sites. In these cases, IT managers should make sure that social media software is provided for internal use. General managers should set an example for their direct reports by using social media to make connections and share information with the organization's employees.

### CONCLUSIONS, CAVEATS, AND SUGGESTIONS FOR FURTHER RESEARCH

The major contribution of this research is to demonstrate that organizational support for social media use increases the quality of the social media friendships inside the organization. Furthermore, increases in the quality of social media friendships have beneficial impacts on various outcomes that are desirable from a human resources perspective. Practitioners can use this knowledge to improve worker satisfaction and commitment and increase workers' organizational knowledge. For academicians, this research provides a more complete understanding of the benefits of social media in the organization by complementing research addressing the effects of social media use for innovation and marketing.

One caveat to our conclusion is that the relationship between social media use and job satisfaction might be spurious. Extraverted people tend to have higher life satisfaction and happiness than introverts (Kahneman and Krueger, 2006) and are more likely to use social media (Correa et al., 2009). Future studies should control for extraversion in assessing the relationship between social media friendship and satisfaction.

It is noteworthy that our survey did not explicitly capture the amount of social media usagebetween coworker friends, only the number of coworkers identified as social media friends. Since the quality of coworker friendships among social media friends was significantly affected by actual and perceived support for social media, we inferred that the friendship was strengthened because of the social media connection. Future studies should measure explicitly the use of social media between coworker friends.

Finally, additional research is needed to replicate these conclusions on a larger, more varied sample. A larger sample will also make it possible to obtain a more nuanced understanding of the

relationships under study by exploring various contingencies. In this study, the sample size was too small for us to explore, for example, differences in social media use and outcomes by role in the organization (senior manager, manager, staff) or by industry.

#### REFERENCES

Bloomberg (Feb 27, 2012). "Google+ Users Are Spending Less Time on Site, ComScore Says," accessed at <a href="http://www.bloomberg.com/news/2012-02-28/google-users-spent-less-time-on-site-in-january-comscore-finds.htmlon June 12, 2012.">http://www.bloomberg.com/news/2012-02-28/google-users-spent-less-time-on-site-in-january-comscore-finds.htmlon June 12, 2012.</a>

Bingham, T., Conner, M. and Pink, D. (2010). The New Social Learning: A Guide to Transforming Organizations Through Social Media, Berrett-Koehler Publishers.

Birke, F.; Witt, M.; Robra-Bissantz, S. (2011). Applying game mechanism to ideacompetitions. In (Malik, K.; Choudhary, P., Eds.): Business organizations and collaborativeweb: Practices, strategies and patterns. IGI Global.

Brenner, J. (2012). Pew Internet: Social networking (less detail),

<a href="http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-less-detail.aspx">http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-less-detail.aspx</a>,

accessed on June 10, 2012.

Brzozowski, M. (2009). WaterCooler: exploring an organization through enterprise social media, GROUP '09: Proceedings of the ACM 2009 international conference on supporting group work, 219-228.

Cammann, C., Fichman, M., Jenkins, D. and Klesh, J. (1979). The Michigan Organizational Assessment Questionnaire. Unpublished manuscript, University of Michigan, Ann Arbor, Michigan.

Carlson, Nicholas (24 April 2012). Facebook Now Has 901 Million Monthly Users, With 526 Million Coming Back Every Day. San Francisco Times, cited in Wikipedia,

<a href="http://en.wikipedia.org/wiki/List\_of\_virtual\_communities\_with\_more\_than\_100\_million\_users,">http://en.wikipedia.org/wiki/List\_of\_virtual\_communities\_with\_more\_than\_100\_million\_users,</a> accessed on June 7, 2012

Cattutoa, C., Barrata, A., Baldassarric, A., Schehrd, G. and Loreto, V., (2009). Collective dynamics of social annotation, Proceedings of the National Academy of Sciences, Vol. 106, No. 26, 10511-10515.

Compeau.D. and Higgins, C. (1995). Computer self-efficacy: Development of a measure and initial test, MIS Ouarterly, Vol. 19, No. 2, 189-211.

Correa, T., Hinsley, A., de Zúñiga, H. (2009). Who interacts on the Web?: The intersection of users' personality and socialmedia use, Computers in Human Behavior, Vol. 26, No. 2, 247-253.

Davis, F. (1989).Perceived usefulness, perceived ease of use, and user acceptance of information technology, MIS Quarterly, Vol. 13, No. 3, 319-339.

Demir, M., Jaafarb, J., Bilyka, N. and Ariff, M. (2012). Social Skills, Friendship and Happiness: A Cross-Cultural Investigation, The Journal of Social Psychology, Vol. 152, No. 3, 379-385.

Demir, M. and Weitekamp, L. (2007). I am so Happy 'Cause Today I Found My Friend:
Friendship and Personality as Predictors of Happiness, Journal of Happiness Studies, Vol. 8, No. 2, 181211.

ComScore (Dec, 2011). It's a Social World: Top 10 Need-to-Knows About Social Networking and Where It's Headed,

http://www.comscore.com/Press Events/Presentations Whitepapers/2011/it is a social world top 10 need-to-knows\_about\_social\_networking, accessed on June 10, 2012.

Gilbert, E. and Karahalios, K. (2009). Predicting tie strength with social media, CHI '09 Proceedings of the 27th international conference on Human factors in computing systems, 211-220.

Gray, P., Parise, S., Iyer, B., Innovation impacts of using social bookmarking systems, MIS Quarterly, Vol. 35, No. 3, 629-643.

Hauser, C., Tappeiner, G. and Walde, J. (2007). The learning region: The impact of social capital and weak ties on innovation, Regional Studies, Vol. 41, No. 1, 75-88.

Howe, J. (2008). Crowdsourcing: Why the Power of the Crowd Is Driving the Future of Business, Crown Publishing Group, New York.

Igbaria, M., Zinatelli, N., Cragg, P., Cavaye, A. (1997). Personal computing acceptance factors in small firms: a structural equation model, MIS Quarterly, Vol.21, No. 3, .279-305.

Kabani, s. and Brogan, C. (2012). The Zen of Social Media Marketing: An Easier Way to Build Credibility, Generate Buzz, and Increase Revenue, BenBella Books.

Kahneman, D. and Krueger, A. (2006). Developments in the measurement of subjective well-being, Journal of Economic Perspectives, Vol. 20, No. 1, 3-24.

Kane, K., Robinson-Combre, J., Berge, Z. (2010). Tapping into social networking: Collaborating enhances both knowledge management and e-learning, VINE, Vol. 40, No. 1, 62 – 70.

Kanungo, R.N. (1982). Measurement of job and work involvement, Journal of Applied Psychology 67(3): 341-348.

Kaplan, A. and Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media, Business Horizons, Vol. 53, No. 1, 59-68.

Kerpen, D. (2011). Likeable Social Media: How to Delight Your Customers, Create an Irresistible Brand, and Be Generally Amazing on Facebook (And Other Social Networks), McGraw-Hill.

Lai, L. and Turban, E. (2008) Group formation and operations in Web 2.0 environment and social networks, Group Decision and Negotiation, Vol. 17, No. 5, 387-402.

Leimeister, J.-M.; Huber, M.,Bretschneider, U., Krcmar, H. (2009). Leveraging Crowdsourcing: Theory-drivenDesign, Implementation and Evaluation of Activation-Supporting Components for ITbased Idea Competition, Journal of Management Information Systems, 26 (1): 1-44.

Mediabistro.com (Feb, 2012). "Twitter 2012: The Freshest Statistics on the King of Microblogging Services, <a href="http://www.mediabistro.com/alltwitter/files/2012/02/twitter-2012-statistics.jpg">http://www.mediabistro.com/alltwitter/files/2012/02/twitter-2012-statistics.jpg</a>, accessed on June 12, 2012.

Michaelides, D. (2011). Will Gamify Those Processes: The Art of Innovation in the Public Sector, International Journal of Innovation Science, Vol. 3, No. 3, 117-126.

Moore, G., and Benbasat, I. (1996). Integrating diffusion of innovations and theory of reasoned action models to predict utilization of informationtechnology by end-users, in Diffusionand Adoption of Information Technology, K.Kautz and J. Pries-Hege (eds.). Chapman and Hall, London, 132-146.

Moran, P. (2005). Structural vs. relational embeddedness: social capital and managerial performance, Strategic Management Journal, Vol. 26, No. 12, 1129-1151.

Morrison, E. (2002). Newcomers' relationships: The role of social network ties during socialization, Academy of Management Journal, Vol. 45, No. 6, 1149-1160.

Morrison, R. (2004). Informal relationships in the workplace: Associations with job satisfaction, organizational commitment and turnover intentions. New Zealand Journal of Psychology, Vol. 33, No. 3, 114-128.

Parise, S. and Guinan, P. (2011). Whom do I know: Building and engaging social networks using social media technology. In The New Entrepreneurial Leader: Developing Leaders Who Shape Social and Economic Opportunity by Greenberg, D., McKone-Sweet, K, and Wilson, H., Berrett-Koehler Publishers.

Quercia, D., Lambiotte, R., Stillwell, D., Kosinski, M., and Crowcroft, J. (2012). The personality of popular Facebook users. In Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work (CSCW '12), 955-964.

Reuf, M., Strong ties, weak ties and islands: Structural and cultural predictors of organizational innovation, Industrial and Corporate Change, Vol. 11, No. 3, 427–449.

Schenk, E. and Guittard, C. (2011). Towards a characterization of crowdsourcing practices, Journal of Innovation Economics, Vol. 1, No. 7, 93-107.

Taylor, S. and Todd, P. (1995). Understanding information technology usage: A test of competing models, Information Systems Research, Vol. 19, No. 2, 561-570.

Thompson. R., Higgins. C., and Howell, J. (1991). Personal computing: Toward a conceptual model of utilization, MIS Ouarterly, Vol. 15, No. 1, 124-143.

Venkatesh, V., Morris, M., Davis, G., Davis, F. (2003). User acceptance of information technology: Toward a unified view, MIS Quarterly, Vol. 27, No. 3, 425-478.

Viswanath, B., Mislove, A., Cha, M., Gummadi, K. (2009). On the evolution of user interaction in Facebook, WOSN '09 Proceedings of the 2nd ACM workshop on Online social networks, 37-42.

Winstead, B., Derlega, B., Montgomery, M., Pilkington, C. (2005). The quality of friendship at work and job satisfaction, Journal of Social and Personal Relationships, Vol. 12, No. 2, 199-215.