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BUSINESS ELECTRONIC SOCIAL NETWORKING: DOES ORGANIZATION SIZE OR INDUSTRY SECTOR MATTER?

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ABSTRACT

Electronic social networking continues to be widely accepted in the business world. In an effort to better understand its utilization, this study was undertaken to comprehensively examine its usage at the largest firms, the Fortune 500. Findings indicate that there are five primary and four lesser utilized social networking technologies. Of importance is that results suggest organization size is a factor with respect to electronic social network implementation. In addition, industry sector appears to play a role in social networking deployment.

Keywords: Electronic Social Networking, Facebook, Twitter, Fortune 500, Industry Sector

INTRODUCTION

The primary social networking technologies are enormously popular. In the U.S. during December of 2013, there were 168 million unique visitors to Facebook, 167 million visitors to YouTube, 43 million visitors to Twitter, and 34 million visitors to LinkedIn [11,14,13,12]. Moreover, in January of 2014, there were 150 billion Facebook friend connections, 4.5 billion average daily Facebook likes, 58 million average tweets per day, and 1.3 million blogs, 40,000 of which were business blogs [21,22,23].

These technologies are highly utilized, regardless of age in life. Individuals ages 18 to 24 years old, for example, have an average of 510 Facebook friends while those ages 55 to 64 years have 113 [1]. In fact, the Pew Research Center found that 60% of American adults ages 50 through 64 and 43% of those over 65 years of age use social networking an average of nearly 2.5 hours per day [25]. ComScore further estimates that social networking accounts for 20% of the outside of work online activity time [17]. Moreover, the U.S. Public Interest Research Group found that online and mobile technology has fundamentally changed American life [16]. Digital socializing, for example, may be a contributing factor to why millennials, those ages 16 to 34, drove 23% less on a per-person basis in 2009 than in 2001.

Social media is also changing the business world. It is one of the top five information technology hiring trends for 2014 [3]. Social media is not only being utilized to recruit talent, it is being used to assess, develop, and retain talent. Organizations are thus using social and behavioral data to better understand what is important to employees, what motivates them, and why they remain at the organization. In addition, McKinsey Global Institute (MGI) found that twice as much potential value lies in using social tools to enhance communications, knowledge sharing, collaboration within and across enterprises, and improved workforce effectiveness. MGI predicts that by fully implementing social technologies, companies have an opportunity to raise the productivity of interaction workers (high-skill knowledge workers, including managers and professionals) by 20 to 25 percent [8,19].

External social networking appears to be important for several reasons. A 2013 survey of non-IT professionals, for instance, found that the primary drivers are market-driven branding/promotion efforts (56% of respondents), support-driven desire to better address customer issues (18% of respondents), and sales-driven desire to increase sales (12% of respondents). As a result, companies are using sentiment analysis to gauge the mood on social networks. In 2013, 38% of companies indicated monitoring social networks to examine comments, positive and negative, about the company, products, and competitors [18,20].

Given the popularity and growing importance of social networking, this research was conducted to examine several

questions. What are the currently implemented social networking technologies? Does implementation vary by firm size? Is industry sector a factor with regard to utilization? Results are important in helping business firms to better understand social network technology utilization and to assist in identifying potential competitive opportunities.

PREVIOUS RESEARCH

Previous research has examined factors such as trial, adoption, use, and trust. In addition, implementation has been studied at both colleges and businesses.

In terms of trial, adoption, and use, researchers proposed and qualitatively analyzed the Content Acceptance Model to better understand how content impacts behavior [2]. Specifically, in the model, introduction by acquaintances and advertising in mass media influence individual's trial. Ease of use and cost are influential in adoption. Continued usage is a result of the value of entertainment, information, and communication.

Relative to trust, researchers examined the impact of trust, both at the individual and network level, on the strength of association between members of LinkedIn. The findings indicated that dyadic tie strength is influenced by the individual's disposition to trust and by the trust belief between the respondent and the respondent's last connection made in LinkedIn [9]. Trust in LinkedIn, or at the network level, did not influence the relationship. Another study of 382 social networking website users found that not only can trust influence system use intentions directly but also indirectly through the promotion of social investment in a relationship with a system and its users [23].

From a collegiate perspective, a 2012 review of the 647 AACSB accredited schools of business found that these institutions utilize a variety of social networking technologies [6]. The most commonly used technologies include Facebook (65% of schools), Twitter (57% of schools), YouTube (42% of schools), and LinkedIn (32% of schools). The least utilized technologies include blogs (24% of schools), Flickr (17% of schools), and other technologies (16% of schools). Large institutions, as a percentage of institutions, dominate in implementation in six of the seven social networking technologies. The individual technology implementations are nearly double those from the 2011 study of AACSB accredited schools of business that found 38% of schools using Facebook, 30% of schools using Twitter, 21% of schools using YouTube, 20% of schools using LinkedIn, 9.2% of schools using Flickr, 7% of schools using other technologies, and 5% of schools using blogs [5]. The 2011 study also found that enrollment size is a determinant in social network usage. A larger percentage of small schools implemented YouTube and Flickr relative to other size schools while a larger percentage of medium schools implemented other technologies. However, a larger percentage of large schools implemented four of the seven technologies (Facebook, Twitter, LinkedIn, and blogs).

Business studies have examined microblogging. A review of the web pages of the 2009 Fortune 50 firms found that the majority, 54%, of firms had a Twitter account [7]. Moreover, 37% of these firms had multiple accounts. Although usage varied by industry sector, 85% of the companies utilized Twitter for news distribution. Twitter was used to a much lesser extent for marketing/promotions, customer service, and human resources. Another 2009 study examined microblogging at the Fortune 200 firms [4]. Results indicated that Twitter was utilized by 65% of the firms and 15% had more than one Twitter account. This was in comparison to only 42% of firms using Facebook and 21% of firms using blogs.

While previous research studies have explored various facets of social networking, this study was conducted to build upon the 2009 preliminary studies of business and to further expand the sample to include the entire Fortune 500 and to comprehensively examine the web-based social networking technologies that these firms employ.

RESEARCH DESIGN

This study utilized the CNN Money website to obtain the Fortune 500 company directory, corresponding company web address, and each firm's industry sector [10]. A three-step process was used to determine social networking implementation for each organization in September of 2013 (Figure 1). First, each company home page was examined to determine which social networking technologies, if any, are utilized. A preliminary analysis found the presence of nine primary technologies and nine lesser used technologies (identified as "other"). The primary technologies include blogs, Facebook, Flickr, Google+, Instagram, LinkedIn, Pinterest, Twitter, and YouTube. Next, if any of the nine technologies were not found on the home page, the home page's search engine was utilized to search for the given technology. Finally, if the technology was not found during the first two searches, the technology's website, such as Facebook.com, was utilized to search for the company. Utilization was then examined to determine the prevalence of each technology, usage of multiple technologies relative to company size, and usage by industry sector. In addition, social networking utilization was examined to determine if there were correlations between the use of specific technologies and industry sector.

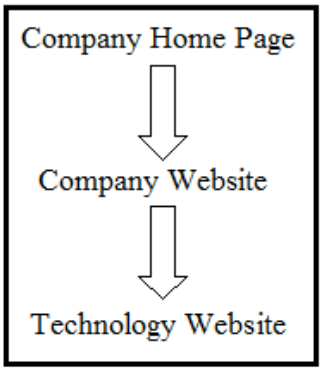

Figure 1. Research Methodology

RESULTS

A review of the Fortune 500 firms found that these firms use a wide variety of social networking technologies. Chart 1 provides an analysis of technology usage. The most common technology is LinkedIn, with 97% of the firms implementing the technology. The other most common products are Twitter (76% of firms), Facebook (74% of firms), YouTube (67% of firms), and blogs (53% of firms). The least commonly utilized technologies include Google+ (17% of firms), Pinterest (8% of firms), Flickr (6% of firms), "Other" (6% of firms), and Instagram (3% of firms). "Other" social networking technologies include Forum, Foursquare, iTunes, Mobile Alerts, Slideshare, Spiceworks, StockTwits, Tumblr, and Viggie. The most common "other" programs include Slideshare (8 firms), Mobile Alerts (7 firms), and Forum (6 firms). Overall, 99% of all firms utilize at least one form of social networking.

Chart 1. Overall Social Network Usage

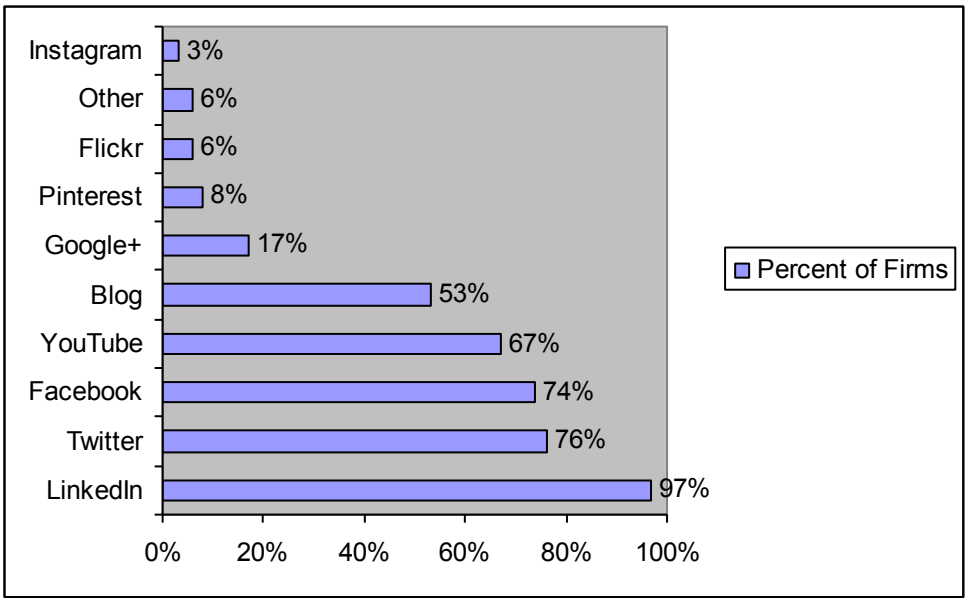

Table 1 provides a breakdown of social network usage by firm size. Twitter, for example, is implemented by 88% of the Fortune 1-100 firms, 78% of the Fortune 101-200 firms, 77% of the Fortune 201-300 firms, 75% of the Fortune 301-400 firms, and 65% of the Fortune 401-500 firms. When examining the Fortune 1-100, 100% of firms utilize LinkedIn, 88% utilize Twitter, 80% utilize Facebook, 77% utilize YouTube, and 63% utilize blogs. In terms of the Fortune 101-200, 96% of firms utilize LinkedIn, 79% utilize YouTube, 78% utilize Twitter, 73% utilize Facebook, and 58% utilize blogs. In terms of the Fortune 201-300, 97% of firms utilize LinkedIn, 77% utilize Twitter, 75% utilize Facebook, 68% utilize YouTube, and 56% utilize blogs. In terms of the Fortune 301-400, 99% of firms utilize LinkedIn, 75% utilize Twitter, 68% utilize Facebook, 57% utilize YouTube, and 47% utilize blogs. In terms of the Fortune 401-500, 97% of firms utilize LinkedIn, 74% utilize Facebook, 65% utilize Twitter, 57% utilize YouTube, and 39% utilize blogs. Overall, the Fortune 1-100 have the largest percentage of firms that implement 8 of the 9 technologies, the exception being YouTube, which has the highest usage in the Fortune 101-200 firms.

Table 1. Social Networking Technologies By Firm Size

Type	Fortune 1-100	Fortune 101-200	Fortune 201-300	Fortune 301-400	Fortune 401-500
LinkedIn	100%	96%	97%	99%	97%
Twitter	88%	78%	77%	75%	65%
Facebook	80%	73%	75%	68%	74%
YouTube	77%	79%	68%	57%	57%
Blog	63%	58%	56%	47%	39%
Google+	24%	20%	14%	16%	14%
Pinterest	10%	8%	8%	8%	8%
Flickr	10%	9%	4%	4%	5%
Other	9%	8%	4%	7%	4%
Instagram	5%	4%	5%	0%	2%

Next, the usage of multiple social networking technologies by firm size was examined (Table 2). Results show, for instance, that with regard to the Fortune 1-100 firms, 4% use one technology, 7% use two technologies, 10% use three technologies, 19% use four technologies, 31% use five technologies, 18% use six technologies, 6% use seven technologies, 4% use eight technologies, and 0% use nine technologies. When examining quantity by firm size, only 4% of Fortune 1-100 firms, 10% of Fortune 101-200 firms, 8% of Fortune 201-300 firms, 9% of Fortune 301-400 firms, and 11% of Fortune 401-500 firms utilize one technology. On the other hand, 31% of Fortune 1-100 firms, 25% of Fortune 101-200 firms, 28% of Fortune 201-300 firms, 19% of Fortune 301-400 firms, and 21% of Fortune 401-500 firms utilize five technologies. Relative to the use of 1-3 technologies, 21% of Fortune 1-100 firms, 27% of Fortune 101-200 firms, 34% of Fortune 201-300 firms, 47% of Fortune 301-400 firms, and 43% of Fortune 401-500 firms utilize this quantity of technologies. In terms of the use of 4-9 technologies, 78% of Fortune 1-100 firms, 72% of Fortune 101-200 firms, 66% of Fortune 201-300 firms, 53% of Fortune 301-400 firms, and 57% of Fortune 401-500 firms utilize this quantity of technologies. Overall, 99% of the Fortune 1-200 firms and 100% of the Fortune 201-500 firms use at least one form of electronic social networking.

Table 2. Usage of Multiple Social Networking Technologies

Type	Fortune 1-100	Fortune 101-200	Fortune 201-300	Fortune 301-400	Fortune 401-500
Only 1 Technology	4%	10%	8%	9%	11%
Uses 2 Technologies	7%	8%	12%	16%	21%
Uses 3 Technologies	10%	9%	14%	22%	11%
Uses 4 Technologies	19%	21%	19%	17%	24%
Uses 5 Technologies	31%	25%	28%	19%	21%
Uses 6 Technologies	18%	20%	15%	13%	7%
Uses 7 Technologies	6%	4%	3%	2%	4%
Uses 8 Technologies	4%	1%	1%	0%	1%
Uses 9 Technologies	0%	1%	0%	2%	0%
Total	99%	99%	100%	100%	100%

Table 3 provides an analysis of social networking technologies by industry sector. Industry sector was specified in the CNN Money website data. Because LinkedIn, Twitter, Facebook, YouTube, and blogs were by far the most commonly implemented technologies, only these five technologies were examined. Moreover, in an effort to simplify the analysis, only industry sectors with at least 10 firms within that sector were summated. This resulted in 17 industry sectors, accounting for 61% of the firms in the Fortune 500.

With respect to industry sector, LinkedIn was utilized by 90% or more firms within every one of the 17 sectors. In terms of Twitter, general merchandisers (100% of firms), commercial banks (94% of firms), computer companies (92% of firms), and food consumer product firms (87% of firms) have the highest sector immersion. Relative to Facebook, general merchandisers (100% of firms), telecommunication companies (96% of firms), specialty retailers (93% of firms), and computer companies (92% of firms) have the highest sector immersion. With respect to YouTube, computer companies (100% of firms), general merchandisers (90% of firms), telecommunication companies (83% of firms), and commercial banks (83% of firms) have the highest sector immersion. In terms of blogs, computer companies (83% of firms), telecommunication companies (78% of firms), chemical companies (73% of firms), and petroleum refiners (73% of firms)) have the highest sector immersion. When examining which sectors have the highest overall use of the five technologies, telecommunication firms and computer companies lead the way. Specifically, 96% of telecommunication firms use LinkedIn, 83% use Twitter, 96% use Facebook, 83% use YouTube, and 78% use blogs. In terms of computer companies, 100% use LinkedIn, 92% use Twitter, 92% use Facebook, 100% use YouTube, and 83% use blogs.

Table 3. Social Network Usage by Industry Sector

Industry Sector	Number of Firms in Fortune 500	Percent Using LinkedIn	Percent Using Twitter	Percent Using Facebook	Percent Using YouTube	Percent Using Blogs
Insurance	37	100%	73%	73%	65%	46%
Specialty Retailer	27	96%	81%	93%	74%	48%
Wholesaler	26	96%	62%	69%	58%	46%
Telecommunications	23	96%	83%	96%	83%	78%
Utilities: Gas and Electric	23	96%	70%	61%	70%	52%
Healthcare	22	95%	68%	64%	55%	45%
Commercial Bank	18	100%	94%	83%	83%	22%
Chemicals	15	100%	80%	80%	73%	73%
Food Consumer Products	15	100%	87%	67%	67%	47%
Motor Vehicles & Parts	15	100%	67%	40%	73%	47%
Mining, Crude-Oil Production	14	93%	64%	64%	71%	43%
Pharmaceuticals	13	100%	77%	54%	46%	62%
Aerospace & Defense	12	100%	83%	83%	67%	50%
Computers	12	100%	92%	92%	100%	83%
Petroleum Refining	11	91%	36%	27%	36%	73%
Engineering, Construction	10	100%	50%	60%	50%	40%
General Merchandiser	10	90%	100%	100%	90%	50%
Total (61% of Firms)	303					

Finally, Spearman Rho correlations were calculated to determine if there are potential relationships between each technology and industry sector (Table 4). The Spearman Rho correlation was utilized because it is a nonparametric measure of statistical dependencies between two variables (Conover, 1999). Results found that three technologies had significant correlations with industry sector. Twitter and Facebook each had correlations significant at the .01 level and Flickr had a significant correlation at the .05 level.

Table 4. Spearman Rho Correlations Between Technology and Industry Sector

Technology	Correlation With Industry Sector
LinkedIn	-.031
Twitter	-.160**
Facebook	-.119**
YouTube	-.076
Blog	-.002
Google+	-.062
Pinterest	-.029
Flickr	-.088*
Other	-.073
Instagram	-.047

* Correlation is significant at .05 level (2-tailed).
** Correlation is significant at .01 level (2-tailed).

CONCLUSIONS, IMPLICATIONS, AND LIMITATIONS

Results indicate that the Fortune 500 firms rely primarily upon five social networking technologies. These include LinkedIn (97% of firms), Twitter (76% of firms), Facebook (74% of firms), YouTube (67% of firms), and blogs (53% of firms). Technologies such as Google+ (17% of firms), Pinterest (8% of firms), Flickr (6% of firms), and Instagram (3% of firms) are far less common.

In terms of use of social networking technologies by firm size, the Fortune 1-100 firms had the highest percentage usage rate for nearly all of the technologies included in this study. For example, while 80% of the Fortune 1-100 firms used Facebook, only 73% of the Fortune 101-200 firms, 75% of the Fortune 201-300 firms, 68% of the Fortune 301-400 firms, and 74% of the Fortune 401-500 firms did so. The only exception was that YouTube had a higher usage percent, 79% versus 77%, respectively for the Fortune 101-200 firms when compared to the Fortune 1-100 firms. Conversely, the Fortune 401-500 firms had the lowest usage, relative to the other size categories, in Twitter, YouTube, blogs, Google+, Pinterest, and "Other" use.

When examining the use of multiple social networking technologies by organization size, all five size categories had the majority of firms utilizing 4 or more technologies. Specifically, 4-9 technologies were used by 78% of Fortune 1-100 firms, 72% of Fortune 101-200 firms, 66 of Fortune 201-300 firms, 53% of Fortune 301-400 firms, and 57% of Fortune 401-500 firms.

Results also show that the use of the five primary technologies varies by industry sector. For example, 96% of gas and electric utility companies use LinkedIn, 70% use Twitter, 61% use Facebook, 70% use YouTube, and 52% use blogs. This is different than the food consumer product industry in which 100% use LinkedIn, 87% use Twitter, 67% use Facebook, 67% use YouTube, and 47% use blogs. Overall, there are no two industries with identical usage patterns. The highest percentage implementation sectors, however, are the telecommunication and computer sectors. When examining each technology, the highest percentage users are the general merchandiser sector with respect to Twitter and Facebook and the computer sector with respect to YouTube and blogs. LinkedIn was used by 100% of the firms in 9 of the sectors. Finally, Spearman Rho correlations with industry sector found that Twitter and Facebook each had correlations significant at the .01 level and Flickr had a significant correlation at the .05 level.

Implications

There are three important implications as a result of these findings:

1. One implication is with regard to organization size. The Fortune 1-100 had the highest percentage of firms utilizing 8 of the 9 technologies. On the other hand, the Fortune 401-500 had the lowest percentage of firms with respect to 6 of the 9 technologies. In addition, there are variations for each technology when examining size. Twitter, for example, ranged from 65% of the Fortune 401-500 firms to 88% of the Fortune 1-100 firms and YouTube ranged from 57% of the Fortune 301-500 firms to 79% of the Fortune 101-200 firms. These findings are consistent with the 2011 study of AACSB accredited schools of business that found large schools implemented more of the technologies than small and medium size institutions. Further evidence is also found when examining the use of multiple technologies. For instance, 78% of the Fortune 1-100 firms employ four or more of the social networking technologies while only 53% of the Fortune 301-400 firms employ the same. For the most part, as organization size decreases, the use of multiple technologies also decreases. It is possible that information technology economies of scale allow the largest organizations to more efficiently network with their stakeholders. It may also be surmised that as firm size increases, multiple social networking venues are needed to communicate with the potentially larger and more diverse pool of constituents. Overall, these results imply that it is important that smaller firms need to implement more communication technologies if they wish to successfully compete with the largest firms.

2. A second implication is with respect to industry sector. Twitter, Facebook, and Flickr each had significant statistical correlations with industry sector. In addition, the use of the five most common technologies varied by industry sector. Twitter, for example ranged from 36% of petroleum refining firms to 100% of general merchandisers and Facebook ranged from 27% to 100% of the same firms. Moreover, when examining any sector, there are wide differences. While 22% of commercial banks use blogs, 94% use Twitter and while 27% of petroleum refiners use Facebook, 73% use blogs. Results suggest that each industry sector may need different social networking tools to best converse with its existing and potential stakeholders. Of importance, results also imply that there may still be first-mover advantages for firms within a given industry sector that may choose to implement those technologies not yet implemented within that sector.

3. A third implication relates to the value in electronic social networking use. Technology companies, to a greater extent that other industry sectors, appear to recognize the importance of social networking. Of note is that the telecommunication and computer sectors have the highest overall sector immersion for each the five most used social networking technologies with 78% to 100% of firms using a given technology. This implies that while other industry sectors are lagging behind, these sectors have the greatest value growth potential if social networking is employed in the future.

The limitations of this study are primarily a function of the research methodology and analyses. First, the study was limited to the Fortune 500 firms. As a result, usage may be different with regard to medium and small businesses. Second, in an effort to simplify the analysis, only the largest industry sectors were examined, those with at least 10 companies. Consequently, 39% of the firms were not included in the industry sector analysis. Finally, industry size was segmented into five size categories. Although the categories were made to provide further understanding of social network penetration, other size categorizations could be devised to gain additional insight. Overall, however, the study provides rich insight into Fortune 500 firms and their social networking utilization.

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