

4-14-2014

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Recommended Citation

He, Xiaoyun, "IS SOCIAL MEDIA A FAD? A STUDY OF THE ADOPTION AND USE OF SOCIAL MEDIA IN SMES" (2014).
SAIS 2014 Proceedings. 13.
<http://aisel.aisnet.org/sais2014/13>

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IS SOCIAL MEDIA A FAD? A STUDY OF THE ADOPTION AND USE OF SOCIAL MEDIA IN SMEs

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ABSTRACT

While Small and Medium Enterprises (SMEs) often face constraints of financial and IT resources, the recent emerging online social media could be a cost effective tool that allows SMEs to create two-way communications and connect with their customers. Yet, few studies have directed attention to the strategic use of online social media by SMEs. In this paper, we take the initial step to empirically examine the adoption and use of Facebook in SMEs. The results derived from our data analysis suggest that the adopting SMEs only start to see the positive effect on their sales revenue growth after a couple of years of persistent use of their Facebook platforms. Also, the engagement and interactions measured by posting activities from both a firm and its Facebook users have predictive effect on the building of an online community in terms of size.

Keywords

SMEs, online social media, firm performance, customer engagement

INTRODUCTION

Small and Medium Enterprises (SMEs) are significant creators of employment and contributors to national economies. In the U.S., SMEs employ half of all private sector employees and create more than half of the nonfarm private GDP (Basefsky and Sweeney, 2006). In addition, SMEs are said to be responsible for driving innovation and competition in many economic sectors. For example, SMEs invent more than half the nation's technological innovation. Further, this kind of statistics could be repeated in country after country around the world. It is known that many SMEs lack the financial resources and technical skills needed to systemically and strategically utilize new technologies for enhancing their competitiveness (Iacovou, Benbasat, and Dexter, 1995). In this aspect, the recently emerged easy-to-use and inexpensive online social media platforms hold the great promise for representing an important technological development that impacts the competitiveness of SMEs.

Recent years have witnessed the phenomenal growth of online social media. For example, as of September 2013, the online social networking site Facebook has over 1.19 billion monthly active users and the number is still fast growing (<http://newsroom.fb.com/Key-Facts>). Individuals and businesses can create a Facebook page without a fee. As a global, open, interactive, and real time platform, social media are shifting the paradigm of information flow and consumer interactions. While SMEs often face the challenges of overcoming the constraints in financial and human capitals, online social media potentially offer a cost effective way that allows companies to create two-way communications and connect with their customers, market their products and services, and build their brands. If managed in an appropriate and effective way, online social media could be a cost-effective technology facilitator for small businesses to build large customer bases and national brands.

While there are some recent studies exploring the uses of online social media by large businesses and organizations (Culnan, McHugh, and Zubillaga, 2010; Gallagher and Ransbotham, 2010), few have directed the attention to its adoption and use by SMEs. Further, the specific characteristics of SMEs mentioned earlier may demand different perspectives and strategies of using social media to their advantage than those for large corporations. Given that social media is an emerging phenomenon, the understanding of strategic leverage of social media is still in preliminary and anecdotal stage. Many essential questions remain unanswered – for example, does having an online social media presence really create value for SMEs in terms of improving firm performance and engaging with their customers? What factors may affect the potential value creation or benefits? From the perspective of SMEs, should the main objective of using the social media platform be to connect and interact with their customers, and thus ultimately building up customer base and long-term oriented customer relationship? Should SMEs also try to promote its products on its Facebook page? If so, how extensively should it be while without being off-putting to their customers? Thus far, there lack empirical and systematic studies on examining these questions.

In this study, we take the initial step to empirically examine the adoption and use of online social media in SMEs. Specifically, our research seeks to answer the following fundamental questions: Does the adoption and use of social media have tangible impact on firm performance such as sales revenue? Does it bring intangible benefits such as building an engaging customer community on the adopted online social platform? To address these questions, we particularly focus on the adoption and use of Facebook by SMEs. We examine the degree of post-adoption engagement and interactions over time from both a firm and the participants of its online community on the Facebook platform in terms of their online posting activities. In particular, we study the predictive effects of posting activities on the size of online community built over time.

The rest of the paper is organized as follows. We present the theoretical background in second section. The third section introduces the data sample and methodology. The results and discussion are then provided. In the fifth section, we draw the conclusion of the paper.

THEORIES

This section provides the theoretical background on the idea of new IT fashion and organizational engagement with social media.

Social Media: a Fad or Value Creation?

As a new Web 2.0 platform, social media is emerged as one of the recent IT innovations. Be it ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), or recent Web 2.0, many of the IT innovations are subject to wide swings in popularity, progressiveness through hyper cycles filled with inflated expectations, and spread across organizations via “jumping on the bandwagon” (Linden and Fenn, 2003). However, the early enthusiasm and adoption of an IT innovation does not necessarily bring in expected business value. Rather, it may just become a transitory fashion phenomenon (Newell, Swan, and Robertson, 1998; Wang, 2010). With the hype around the emergent social media, it is not clear yet whether or not it will fulfill the widely sensed promise and eventually be assimilated into organizational practice.

To address the central question on the adoption and diffusion of IT innovations - why organizations adopt IT innovations, one stream of prior research has taken on the economic-rationalistic perspective. That is, organizational performance, often measured in financial or economic terms, matters. It argues that organizations search and adopt IT innovations expecting to improve organizational efficiency and effectiveness, thus improving performance (Cyert and March, 1992; Melville, Kraemer, and Gurbaxani, 2004). This theory especially applies to the early diffusion phase of an IT innovation. In other words, when an IT innovation is nascent, early adoption may be driven by rational choice, which is based upon its local calculation of the new IT’s projected benefits manifested through financial value creation. It is suggested that organizational engagement with IT after adoption has an impact on both organizational legitimacy and performance (Wang 2010). So far, few studies have investigated the impact of organizational engagement with social media. Such engagement needs to be examined, however, given that social media is here to stay with its potential of business value creation (Culnan, McHugh, and Zubillaga, 2010; Gallagher and Ransbotham, 2010).

Engagement with Social Media

Listening to and learning from customers has long been recognized as important for organizations to increase customer satisfaction and eventually create value (Goodman, Fichman, Lerch and Snyder, 1995). The measurement and management of customer value creation has traditionally focused on purchase behavior, i.e., increasing customers’ spending with a company over time (e.g., Bolton, 1998; Kumar, 2007; Reinartz, Krafft, and Hoyer, 2004). Nevertheless, it has come to realization that long-term and sustainable competitive advantage is tightly associated with a firm’s ability to attract, retain, and nurture its customer base (Gruca and Rego, 2005). Nurturing and sustaining customer base may demand the firm to look beyond transactional purchase behavior alone. Subsequently, both managers and scholars have begun to focus on building personal two-way relationships with customers that foster participation and interactions. Such interactions between a firm and a customer are referred to as “Customer Engagement” (EIU 2007; Verhoef, Reinartz, and Krafft, 2010).

The recent emergence of online social media is fundamentally shifting the landscape of interactions between firms and customers. In particular, new social media channels have provided customers with more options and power to participate in market conversations that may reach millions of people instantly. This offers tremendous opportunities as well as poses potential risks to organizations (Gallagher and Ransbotham, 2010). With social media as a new IT tool, firms can use it to send out brand messages, distribute time-sensitive information, and promptly respond to customers’ comments/inquires. Despite setting up some of online social media accounts and pages such as Facebook is free of charge, engaging and building customer-firm conversations and relationships may demand considerable efforts and appropriate strategies on the organizations side (Hennig-Thurau et. al, 2010). Especially where performance is concerned, it is argued that what firms actually do with their IT adoptions matters (Pfeffer and Sutton, 2000).

DATA AND METHODS

This section describes data collection and the research design.

Data

We obtained a list of SMEs in the United States from a third-party research firm. The list consists of 4,634 SMEs across a wide range of industries. The firm size (the number of employees) of these SMEs follows the established business size standards established by the Small Business Administration on an industry-by-industry basis. For the purpose of this study, we selected the ones from the list that meet the following criteria. First, the following information of a firm is either available on the list or we are able to find them from other sources via different means: the number of employees and annual sales revenues for years of 2005-2011. Second, we only include the firms that have had their business Facebook pages setup for at least 3 years and at least one post (either by the firm itself or its customers) occurred per month, as of January 2012. Third, our initial data analysis showed that the dates when the firms setup their Facebook pages on the list are quite spread out. To ensure the validity of the comparative method discussed in next section and also take into consideration that the popularity and features of Facebook are subject to continuous change over time, we limit our selection to those firms that their Facebook page setup occurred between October 2008 and March 2009. This gives us 6-month variation with respect to the central reference point of page setup, i.e., January 1st, 2009. Subsequently, this process yields 117 sample firms.

We employed a program coded in Java to collect posting data from the Facebook pages of the sample firms. For each firm, the program parses its Facebook pages to count the weekly number of posts by the firm, the weekly number of posts by the individual users, and the weekly number of interactive posts between the firm and the individual users. A post is considered as interactive (such post is defined as seeding post) if one of the following conditions holds - there is at least one follow up post from the firm to respond to the post that is first from an individual user; or there is at least one follow up post from an individual user to respond to the post that is first from the firm. Therefore, there may be multiple posts from either the firm or individuals users following up a seeding post, but we only count a seeding post once as an interactive post. In addition, the weekly number of unique individual users who have posted during that week, which we refer to as weekly community size, is also counted. The uniqueness of an individual user is based on the corresponding unique user identifier.

Methods

First, to study whether the adoption and use of Facebook tangibly affects a firm's revenue performance, we use a difference-in-differences methodology by considering Facebook page setup as the event ("treatment"). Specifically, we compare the difference in average sales revenue growth (ASG) before and after the treatment for firms that have Facebook presence ("treatment group") with the corresponding difference for firms that do not have Facebook presence but otherwise similar ("control group"). The treatment group consists of the 117 firms described in the previous section. In the following, we describe how the control group is constructed.

To construct a sample of SME firms that are similar to the treated firms (except that these new sample firms do not have Facebook presence), we match each treated firm with a control firm using the following procedure. For each treated firm, we consider non-treated firms in the same industry. Out of the pool of these candidates, we select the nearest neighbor on the basis of the following firm characteristics: size (the number of employees), age, sales revenue, and sales growth, both computed as average in the past three years preceding the reference point specified earlier. The nearest neighbor is the firm with the lowest Mahalanobis distance to the treated firm over the above four characteristics. Such matching process ensures that the firms in the control group are as similar as possible to the firms in the treatment group *ex ante*. Therefore, they provide counterfactual evidence as to what sales revenue growth would have been for the treatment firms when absent from Facebook presence.

For each treated firm and each matched control firm, we calculate the difference between the firm's average sales revenue growth (ASG) over the period of T years following the Facebook page setup and the firm's ASG over the period of T years preceding the Facebook page setup ($T = 1, 2, 3$). The difference is denoted by ΔASG_i , where i indexes the firm. Having calculated ΔASG_i for the treated and matched control firms, we can estimate the effect of the adoption and use of Facebook on firm's sales performance by running regression analysis. In the analysis, Facebook setup is a treatment dummy variable that equals one for treated firms and zero for control firms. The control variables are the four firm characteristics used to construct the matched control firms as described earlier.

Secondly, to examine the effects of the post-adoption use of their business Facebook platform by the SMEs, we turn to a time series technique called vector-autoregressive model with exogenous covariates (VARX) (Dekimpe and Hanssens, 1999). VARX has several advantages over other time series models. VARX is suitable for our study for several reasons. First, it allows us to examine the immediate, short-term as well as the long-term, cumulative effects of postings on building an

engaging community. Second, it accounts for biases such as endogeneity, serial correlation, and reverse causality. The endogenous treatment in VARX model implies that it captures both carry-over effects (explained by the past of a variable itself) and cross effects (explained by the past of each other). Third, it allows us to account for direct and indirect feedback effects, i.e., it can model complex chained effect in a complete cycle – feedback loop. In particular, we use VARX to examine the effects of weekly number of posts by a firm, the weekly number of posts by the individual users, and the weekly number of interactive posts on the weekly community size.

RESULTS

First, using the comparative method described in the previous section, we obtained the main results presented in Table 1. In all regressions, the dependent variable is the change in average sales revenue growth (ASG) over the period of *T* years following the Facebook page setup and the firm’s ASG over the period of *T* years preceding the Facebook page setup (*T* = 1, 2, 3). We include all control variables when testing the model. For each of the three *T* values, the table reports the coefficient on the adoption and use of Facebook dummy and its standard error in parentheses. As can be seen from the results, when *T* = 1, the adoption and use of Facebook dummy is not significant. However, when *T* = 2, it is weakly significant; when *T* = 3, it is shown to be moderately significant. In other words, after the firms have adopted and used their business Facebook platform for one year, we do not see its significant effect on improving sales revenue growth. However, it is after three years that the effect becomes significant at 5% level.

Dependent Variable	ΔASG (T = 1)	ΔASG (T = 2)	ΔASG (T = 3)
Adoption and Use of Facebook	0.041 (0.037)	0.053* (0.049)	0.062** (0.056)
All Control Variables	Yes	Yes	Yes
R-squared	0.389	0.410	0.422

All tests two-tailed. *p < 0. 10; **p < 0.05; ***p < 0.01.

Table 1. Does the Adoption and Use of Facebook Lead to Better Sales Performance?

Second, the process of estimating VARX model starts with the unit-root tests. These unit-root tests examine if the variables entering the system evolve continually or are stationary. If a variable is stationary, then its effect dissipates eventually, despite that an unexpected change in endogenous variables in VARX can induce fluctuations over time. The variance of stationary variables is finite and time-invariant. We conduct the augmented Dickey-Fuller (ADF) tests to check stationary so as to ensure that our results are robust to alternative formulations of the null hypothesis (Dekimpe and Hanssens, 1999). The ADF tests of all four variables across the firms are less than the critical value and so it cannot reject the null hypothesis of a unit root with a 95% confidence level. Then, the short term and long term dynamics between the three types of posts and community size are estimated through simulations of the Generalized Impulse Response Function (GIRF) (Dekimpe and Hanssens, 1999; Pesaran and Shin, 1998). The results from the GIRF tests reflect the immediate and cumulative impulsive response elasticities. They suggest that the posts are a significant indicator of community size in the long run. Due to the space limitation, we do not present the detailed results of the tests here.

Next, we conduct Granger Causality tests (Granger, 1969) to test for the existence of temporal causality between each measure of posting activities and community size for individual firm. The posts by a firm is said to “Granger cause” the online community size if the lags of postings predict the community size even after controlling for lags of community size. Our results show that all three measures of postings significantly “Granger cause” online community size. The reverse feedback from the community size to the posting measures is also significant. These results illustrate that the engagement measured by posting activities from both sides of a firm and its customers play an important role in building a sizable online community, which then positively reinforces the engagement. That is, it goes in an affirmative cycle between the three types of postings activities and the building of an engaging online community.

DISCUSSION

As social media is experiencing tremendous growth in popularity among consumers, firms may leverage it to engage in frequent and direct end-consumer contact with broad reach at relatively low cost; and achieve higher levels of efficiency and effectiveness than those that the traditional ways may not be able to (Kaplan and Haenlein, 2010). Traditionally, most SMEs rely on limited personal social network to interact with and reach potential customers through word-of-mouth. This study

sought to ascertain, in the case of SMEs, if the adoption and use of such a particular social media platform as Facebook can bring in both tangible values such as improving sales revenue growth and intangible benefits such as an engaging online community of customers. The results suggest that, over time, the engaging firms can reap both benefits. With regard to sales performance, it may take up to three years to see the improvement; the online engagement and interactions from a firm and its customers have significant positive correlations with its online community size on the social media platform.

Our findings provide important implications for both practitioners and researchers in social media. First, from a practical standpoint, our findings emphasize the importance of having a persistent presence and engagement over time on social media platform. It takes time and efforts for organizations to garner the benefits of online social media. In this regard, our results help to justify the investments in social media and other new IT initiatives in terms of resources for organizational transformation and value creation.

Second, our study provides evidence that social media allows managers to nurture customer relationships and brand buzz for higher firm value, rather than only making presumptions on the value of social media. It demonstrates an important prospect for various organizations, not just for SMEs. This is because consumers spend a substantial share of their time on websites such as Facebook, which hosts so-called “online communities”- consumers that interact online to achieve the goals of their members. These online communities complement their real world counterparts (e.g., Schau, Munitz, and Arnould, 2009) and serve as online forums for consumers to exchange thoughts and ideas. Prior studies have shown that firms are increasingly trying to use online communities to enhance their customer relationships (McAlexander, Schouten, and Koenig, 2002). Therefore, our study contributes to the literature in the firm’s management of social interactions and relationships (Godes et al., 2005).

Further, online communities can shape consumers’ brand perceptions and boost sales through Electronic Word-of-Mouth (E-WoM) (e.g., Chevalier and Mayzlin, 2006). Our study has shown that building an engaging community through strategic use of social media can positively impact the sales revenues over time. It appears that such positive impacts can be associated with the effects of E-WoM that online community generates. From a managerial perspective, the question is how a firm can strategically leverage the online community on its social media platform to generate E-WoM so as to increase sales. In this regard, our results provide initial indication that persistence and engagement from the firm side does make a difference on its sales performance.

The findings, however, should be interpreted within limitations of the empirical data and analysis. With regard to internal validity, as with any study relating organizational actions to outcomes, careful model specification reduces but does not remove the endogeneity and unobserved heterogeneity concerns (Wang 2010). With respect to external validity and generalizability, it should be noted that social media was still in its very early stage during the examination window (2008-2011). Whether its effects found in this study extend beyond this period is a question that future research may explore. Also, the sample represent U.S.-based SMEs, thus it would be interesting to test the impacts of social media in other types of organizations and in other regions/countries.

CONCLUSION

Social media, seen as fast growing, is still relatively new to many established parts of the business world, especially SMEs. It means that many small businesses are experimenting, at least to some extent, when they make initial forays into social media. The open and broad reach nature of social media provides SMEs fresh opportunities as well as poses new challenges to effectively manage their online presence and connect with their customers. Yet, knowing how to do and what to do with it is less clear. This empirical study contributes to the better understanding of how SMEs may strategically leverage their social media initiatives to gain value. Our empirical data analysis shows that simply putting up a Facebook page is not enough and it takes time and efforts to make a difference on a firm’s performance. In addition, proactive participation and persistence in delivering messages and responding to customers’ feedback play a role in building an engaging community of customers, which may in turn have positive effect on firms’ sales performance. It is not always easy for SMEs to capitalize on the new social media channels. Nevertheless, it does pay off for small businesses in the long term through persistent online presence and engaging conversations with their customers.

ACKNOWLEDGMENTS

We would like to express our gratitude to Kean University and the Office of Research & Sponsored Programs for financial support. We also thank two graduate students Jinping Guo and Rameez Qureshi for providing research assistance.

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