Use of Social Software in E-Business: A Cross-Sectional, Cross-Country Study

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ABSTRACT

Social Software (SoS) is a term commonly used to describe a group of web based services that have capability to connect, disseminate information, network or blog. The popular SoS has created environments to attract millions of users and a favorable environment for businesses to exploit the benefit of having access to the users by adopting it as a business support tool. Studies indicate that SoS is being used by businesses for engaging with the general public, enhancing customer interaction and crisis communication. This paper analyses the status quo of the SoS use of enterprises from six countries and various industries in the context of e-business. The reported findings show that the surveyed enterprises mostly use the established SoS like Facebook and Twitter to engage with the customer but that there are also significant differences in SoS usage by country, industry and enterprise ranking.

KEYWORDS

Empirical study, Social Software, E-Business, Social Software Adaption.

INTRODUCTION

Technological developments have created new channels for both sales and service (Christodoulides, Michaelidou and Siamagka, 2012). E-business can be defined as the application of information technologies in support of the essential activities of business, such as the exchange of products and services between businesses, groups and individuals (Beynon-Davies, 2004). With these developments, it has become important to understand how e-business systems affect customer reactions (Rust and Kannan, 2002) as well as national economies (McKinsey&Co, 2010).

Social Software (SoS) allow firms to engage in timely and direct end-consumer contact at relatively low cost and higher levels of efficiency than can be achieved with more traditional communication tools. SoS enables a higher social presence of an enterprise and therefore a higher influence on customer's behavior (Kaplan and Haenlein, 2010). Thus, SoS is relevant for large multinational firms, small and medium sized companies as well as nonprofit and governmental agencies.

Efficient use of SoS is a challenging task and may require new ways of thinking, but the potential gains are far from being negligible. SoS is increasingly influencing shopping behavior and is thus an important aspect in sales and customer care for the enterprises (Kaplan and Haenlein, 2010). The term SoS is used here according to (Bryant, 2006) and (Boulos and Wheeler, 2007) and is closely related to the notion of Social Media which (Kaplan and Haenlein, 2010) defined as the top of the agenda for business firms. Hereby, SoS refers to a software type that supports group interaction and data sharing using computer-mediated communication. Examples for SoS are: Wikis, Blogs, Social Networks, Social Bookmarking, etc. (Bryant, 2006; Boulos and Wheeler, 2007). Being rooted in internet technology, e-business serves as mediator between the product and the customer, relying on the internet as the communication media. Additionally, companies involved in E-Business are potentially internet savvy and it can be expected that they are among the early adopters of new communication means like SoS for commercial purposes. Moreover, (Kaplan and Haenlein, 2010) claim that decision makers try to identify ways in which firms can make profitable use of such applications.

Thus, the focus of this research is on the question of how companies combine the two aspects: e-business and SoS use. The findings are based on the analysis of the online presence of 2379 enterprises from six European and non-European countries and 27 industries, focusing on their use of SoS and involvement in online B2C communication. Companies can use the provided insights as an orientation for current and future development in the areas of e-business and SoS use. Researchers can derive insights for further research questions as well as further aspects for longitudinal studies.

We start with the review of related work in the field of SoS usage as business application and continue with the presentation of research questions. Then the research method is described. Research results are presented and followed by their discussion and outlook on further research.

RELATED WORK

Social Media (SM) usage is an active research topic in the private as well as corporate context. Several empirical studies have been conducted to investigate the influence of Social Media on sales (B2C) and marketing activities e.g., (de Vries, Gensler and Leeflang, 2012; Sachs-Hombach, 2005; Soares, Pihno and Nobre, 2012; Stephen and Galak, 2012; Zhang, Dubinsky and Tan, 2013). Furthermore, research activities include the examination of microblogging in corporate context e.g., (Culnan, McHugh and Zubillaga, 2010; Riemer and Richter, 2010). Multiple studies on the use of Social Media in different industries were conducted by e.g., (Barnes 2010; Senadheera, Warren and Leitch, 2011) as well as by (Gefen and Straub, 2004), who linked social presence of an enterprise to consumer trust in B2C e-business context.

Marketing and digital strategy consulting agencies intensively analyze the area of SM applications. (SFB, 2012) documented that Facebook and LinkedIn are the most important social sites for B2B communication, while Facebook and YouTube presence is regarded as relevant by most enterprises worldwide. As the future trend for B2B communication (SFB, 2012) sees Facebook, LinkedIn, Twitter and Google+ on the same level. A similar study by (AOM, 2012) explored the usage of Social Media channels and digital marketing techniques in the context of German online-shops, which were classified into industrial categories and domains and their social visibility was explored. Social visibility was measured as the sum of Facebook likes, Tweets and Google+ related to the online shop. The results show that Facebook is a major factor in B2C communication being responsible for 95% of the social signals. In terms of social visibility differences were documented between industries; electronics shops represent the most visible industry followed by fashion shops. Pharmaceutical products as well as office suppliers are the least socially visible industries among these shops (AOM, 2012).

A survey conducted by the B2B magazine (Giamanco and Gregoire, 2012) among US-American enterprises showed that 58% of the surveyed companies are in early stages of adopting Social Media and 17% do not involve social media into their communication mix at all. (Stelzner, 2011) in his industry report on how marketers use SM, surveyed 3342 participants, B2B and B2C marketers, also mostly from the USA. The results show that 93% of the companies report to use SM as a marketing tool for already almost a year. As commonly used social marketing tool Facebook and Twitter are named the first by 92% and 84% respectively and LinkedIn and YouTube as third and fifth by 71% and 56% respectively. Social Bookmarking is used by 26% of the enterprises as a marketing tool. (Barnes and Mattson, 2010), who analyzed the e-behavior of Fortune 500 companies, focused only on a limited set of industry categories, i.e., computer, food, special retail, telCo, commercial banks, semi-conductors, motor vehicle, insurance and IT.

The reviewed research activities suggest that there are differences between industries and countries in the usage of SoS but they are mainly focused on US- and Australian enterprises. Also the e-business domain has only been considered partly by (Giamanco and Gregoire, 2012). Research questions addressed in the current paper refer to enterprises from various European and non-European countries and investigate their use of SoS. In addition, although such analysis of e-market activity was conducted in the past it was rather narrow in focus. Thus a broader data collection and analysis is required. The current study is aimed at filling this gap.

RESEARCH QUESTIONS

The use of SoS by enterprises with an online presence and involvement in e-business, is explored in this paper by two dimensions: across countries and across industries. The research questions are designed accordingly.

Differences between industries

The social presence theory by (Gefen and Straub, 2004) states that media differ in the degree of "social presence"—defined as the acoustic, visual, and physical contact that can be achieved—they allow emerging between two communication partners. Social presence is influenced by the intimacy (interpersonal vs. mediated) and immediacy (asynchronous vs. synchronous) of the medium, and can be expected to be lower for mediated than interpersonal and for asynchronous than synchronous communications. The higher the social presence, the larger the social influence that the communication partners have on each other's behavior (Kaplan and Haenlein, 2010). Presence of differences between industries in the level of social presence may imply that specific industries are better equipped than others to the most important marketing battle - the battle on the heart of the consumer. It is suggested here that the weapon in this battle is the SoS and the better the firm implements it, the higher its social presence. Hence is the first research question (RQ), which deals with differences between industries:

RQ1.1: Does the usage of SoS by enterprises differ between surveyed industries?

It is also suggested here that firms ranked higher in terms of business success measures (e.g., revenue, profits, size) are better able to invest resources in the development of effective usage of SoS. Following is our second question:

RQ1.2: Does the usage of SoS by enterprises differ between top ranked and regular companies?

Differences between countries and regions

The concept of self-presentation states that in any type of social interaction people have the desire to control the impressions other people form of them (Goffman, 1959). On the one hand, this is done with the objective of influencing others to gain rewards; on the other hand, it is driven by a wish to create an image that is consistent with one's personal identity. Impression management is known as one of the major motives driving Facebook and other social network activities of individuals (Krämer and Winter, 2008). Facebook users tend to present their identity in implicit fashion (e.g., photos) as well as explicit declarations (e.g., relationship status) (Zhao, Grasmuck and Martin, 2008). Just as individuals are involved in the creation of first impression, so are organizations who try to form impression and influence their public image (Price, Gioia and Corley, 2008). Different cultures may approach the creation of image differently (Lorenzo, Oblinger and Dziuban, 2006), and firms from different countries can thus be assumed to be differently motivated to implement SoS as marketing tools. Hence are the cross-cultural or cross-country focused questions, which deal with differences between countries and regions:

RQ 2.1: Does the usage of SoS by enterprises differ between surveyed countries?

RQ 2.2: Does the usage of SoS by enterprises differ between surveyed geographical regions?

Industry-region interactions in the usage of SoS categories

SoS can be grouped into static presence (SP) (e.g., having a link to a social site, having a profile on a social site, provide bookmarking or sharing possibilities) or dynamic presence (DP) (such as having a microblogging account). The dominant industries are varied from country to country. Thus crossing the rationales to questions 1.1 to 2.2 leads to the fifth question:

RQ3.1: Does the usage of SoS categories differ between surveyed industries in different geographical regions?

Popularity of SoS

The last set of research questions is aimed at investigating the possibility that the popularity of specific SoS varies across geographical regions or industries. The rationale behind these questions is based on the theoretical basis for the former research questions as well as on the fact that different SoS use different languages and can be thus assumed to vary in popularity across countries. Hence are the two final research questions:

RQ4.1: What is the most popular SoS for each region?

RQ4.2: What is the most popular SoS for each industry?

RESEARCH METHODS

Research Design

Following the framework for Social Commerce research (Liang and Turban, 2012) the research theme here is the adoption status of the SoS by enterprises from six countries from three geographical regions in the year 2012, as will be elaborated later. Before the data was collected, survey and coding guidelines were elaborated and the research questions were fixed.

This research is explorative in nature and aimed at investigating and describing the usage of SoS by businesses. The research method chosen here is an empirical cross-sectional, cross-country survey. Enterprises of various sizes were sampled, classified according to the industry, and their presence in the internet was explored. In cases where the enterprises were represented by a homepage, the homepage has been investigated further for aspects related to SoS. Chi squared analysis for revealing the link between categorical variables was employed. In addition, T-Test and ANOVA analyses were employed for detecting differences between industries and geographical regions in the amount and intensity of SoS usage and MANOVA was used for testing statistical interactions.

Research Sample

2379 enterprises of various sizes and from different industry areas were analyzed towards their use of SoS and online presence. Table 1 presents the countries and regions and the number of enterprises surveyed accordingly. The choice of countries is due to the constellation of partners in an E-Commerce related EU- project. The industry categories adapted from (ISCBS, 2011) to the context of European and non-European countries, and the sample size for each particular industry can be seen in table 3.

Region	Country	Number of enterprises
Middle East	Israel	400
West Europe	Germany	400
	Netherlands	400
East Europe	Russia	400
	Lithuania	511
	Ukraine	268
Total		2379

Table 1: Overview of the research sample: per country and regions

	Variable	Description	Value
SoS usage	Presence of SoS	Link to social sites in general (at least one link to SoS)	Yes/no
	Link to specific social site	See table 5	Yes/no for each of the 20 SoS links
	Firms activity on social sites	Accounts for Facebook, Twitter, YouTube	Yes/no for each SoS
	Intensity of SoS usage	Amount of links to SoS on firm's website	Number of positive coding for each of the 23 links (0 to 23)
	Intensity of Bookmarking usage	Amount of links to Bookmarks (Misterwong, digg, delicious, stumbleupon, pinterest)	Number of positive coding for each of the 5 links (0 to 5)
	Intensity of Static presence usage	Amount of links to SP (such as Facebook, digg, Myspace, etc)	Number of positive coding for each of the 16 links (0 to 16)
	Intensity of Dynamic presence usage	Amount of links to DP (Twitter, tumblr)	Number of positive coding for each of the 2 links (0 to 2)
Company	Country	Six countries	See table 1
	Geographical region	Three regions in which the countries are grouped	See table 1
	Industry	27 industries	See table 3
	Rank	Firm ranking in an accepted local rank of enterprises success (e.g., (Dun and Bradstreet, 2012) for Israel,(WeltOnline, 2011) for Germany)	top (among top 100) / low

Table 2: Research variables

These companies were further analyzed towards the research variables that are shown in table 2. Here, we defined SoS usage as any active interaction of the firm with any SoS (links, active accounts, etc) for commercial reasons.

FINDINGS

Differences between industries

RQ1.1: Differences between industries in usage of SoS

Table 3 presents the analysis results per industry including number of reviewed enterprises (N), presence of a link to SoS, the intensity of SoS usage per industry and relative popularity of SoS.

Significant differences between industries were documented. For example, sport industry has shown to have the highest SoS usage intensity with an average of 2.92 links per website followed by non-profit and media organizations. Religion services lead in the presence of at least one SoS link beside Facebook, YouTube and Twitter (FYT) on their webpage, while higher education, communication and sport are the leading users of the FYT SoS.

Table 3 also reveals similarities among industries by showing that SoS is used in every surveyed industry and every industry uses FYT.

Industry	N	Presence of SoS (at least one link to SoS on firm's website[1])	Intensity of SoS usage (amount of links to SoS on firm's website)	Most popular SoS per industry (Facebook is the most popular for all categories)	Second in popularity (Twitter if not specified otherwise)	Third in popularity (YouTube if not specified otherwise)
		(%)	(0 to 23)	(%)	(%)	(%)
Fashion (producers and marketers of cloths, shoes, jewelleries, cosmetics)	178	39.3	2.23	59.1	46.3	28.2 (vkontakte.ru)
Private professions (free-lance workers).	55	11.9	0.64	16.4	9.1	7.1 (Google+)
Healthcare (clinics, emergency services, hospitals)	85	18.3	1.85	27.1	23.5	16.5
Drugs companies	78	15.3	1.01	16.4	12.3	9.7 (odnoklassniki .ru and vkontakte.ru)
Deals, coupons and tickets agencies	66	34.8	2.02	75.4	50.0	24.2 (vkontakte.ru)
Hi tech (producers and marketers of software & hardware)	99	29.3	2.38	61.7	54.3	36.2
Dating (for singles)	45	37.1	1.49	37.8	28.6 (Google+)	26.7 (Twitter)
Religion services and products	79	41.7	1.28	25.3	33.3 (vkontakte.ru)	28.3 (odnoklassniki .ru)
Human resources	90	36.4	1.69	47.8	27.8	18.2

[1] SoS other than Facebook, YouTube and Twitter.

services (recruitment, employment, etc.)						(vkontakte.ru)
Kids – products & services	89	38.0	1.87	38.2	27.0	25.4 (vkontakte.ru)
Higher education (universities & colleges).	100	18.0	2.36	72.0	57.0	54.0
Public institutes	71	11.4	1.89	40.8	38.0	29.6
Food makers and marketers	109	26.5	1.85	45.4	31.5	21.3
Food - restaurants and fast food	96	32.1	1.65	56.3	23.1 (vkontakte.ru)	20.0 (Twitter)
Media (written, broadcasted, digital)	142	39.0	2.58	73.2	52.1	35.2
Real estate	87	30.8	1.23	27.6	28.2 (vkontakte.ru)	25.6 (odnoklassniki.ru)
Sport (excluding selling tickets)	59	37.3	2.92	78.0	52.5	32.2
Non-profit organization	67	22.6	2.65	62.9	56.5	39.3
Finance (investment and insurance)	100	17.2	1.15	36.0	20.0	17.0
Finance II (banks)	98	15.5	1.40	44.9	40.8	31.6
Retail marketing chains	136	28.3	2.06	61.2	37.0	31.1
Digital and electronic games	56	21.6	1.25	42.9	32.1	14.3
Transportation	85	6.2	1.06	38.8	34.1	9.8
Tourism and travelling	76	14.3	1.49	64.5	31.6	23.7
Communication	95	16.1	2.30	74.7	62.1	44.2
Entertainment (movies and music)	60	30.4	2.22	71.7	46.7	26.7
Entertainment (night life, theatres, etc.)	66	19.6	1.62	58.7	42.9	22.2

Table 3: Differences between industries in SoS usage

RQ1.2: Differences between top and regular companies in usage of SoS

Independent T-Test revealed that top companies are more intensively using SoS (mean(top)=2.67, mean(low)=1.71; t=4.70. p<0.001). A deeper investigation into the various SoS used supports this finding and shows among others that top companies significantly prefer to use, or have the ability to manage, SoS profiles, such as Facebook (68% of top and only 49% of regular companies, Chi^2=40.1; p<0.001), Twitter (57% vs. 33%; Chi^2=67.3; p<0.001) and YouTube (47% vs. 21%; Chi^2=104.5; p<0.001).

Differences between countries and regions

In general, approx 26% of surveyed enterprises with a homepage were documented as users of SoS. However, as expected, differences were found between countries and between regions in the level of SoS usage.

RQ 2.1: Differences between countries in usage of SoS

As can be seen in Table 4 Ukraine is leading in the percentage of enterprises using at least one SoS, but Netherlands is leading in the intensity of SoS usage as well as in managing profiles of the leading SoS (Facebook 90%, YouTube 71% and Twitter 90%).

RQ 2.2: Differences between regions in usage of SoS

It was found that East Europe is leading in the percentage of enterprises using at least one SoS, but West Europe is leading in the intensity of SoS usage (see Table 4) as well as in managing profiles of the leading SoS (Facebook 66%, YouTube 44% and Twitter 61%) (Table 5).

		Presence of SoS (at least one link to SoS on firm's website)		Intensity of SoS usage (amount of links to SoS on firm's website)		Firms having a profile on a leading SoS site		
		(%)		(0 to 23)		Facebook	YouTube	Twitter
						(%)	(%)	(%)
Country	Region	BC	BR	BC	BR	BC	BC	BC
Israel	Middle East	19.7%	19.7%	2.16	2.16	55.5%	17.7%	20.8%
Germany	West Europe	23.0%	17.7%	1.83	2.31	40.8%	16.66	32.2%
Netherlands		12.4%		2.78		90.2%	70.6%	90.2%
Russia	East Europe	54.2%	33.8%	2.41	1.69	53.4%	20.6%	51.1%
Lithuania		3.6%		0.84		48.1%	10.2%	11.9%
Ukraine		60.6%		2.16		21.6%	11.6%	17.9%
		$Chi^2=$ 457.4 P<0.001	$Chi^2=$ 68.1 P<0.001	F=28.47 P<0.001	F=13.24 P<0.001	$Chi^2=$ 360.7 P<0.001	$Chi^2=$ 582.2 P<0.001	$Chi^2=$ 770.3 P<0.001

Table 4: Differences between countries (BC) and regions (BR) in usage of SoS

Industry-region interactions in the usage of SoS categories (RQ3.1)

Significant statistical interaction was found between region and industry in the impact on the usage of Bookmarking SoS (F=5.30, p<0.001), so that in West Europe drug producers, religion services and non-profit organizations are mostly use Bookmarking, while in both other regions health care services mainly use it.

Interactions were also found for SP and DP SoS (F=2.58; F=2.61 respectively; p<0.001). In West Europe HR, sport services and non-profit organizations mostly use SP, while in East Europe SP is mostly used by media, real estate, and sport services. In the Middle East SP is mainly used by health care services. For DP the most active users in West Europe are retail chains, communication and entertainment services, while in East Europe these are media, deals and non-profit organizations. Healthcare, deals, and sport organizations are the most active in this context in the Middle East.

Popularity of SoS

In general, most popular SoS is Facebook with over 50% of the surveyed enterprises with a homepage using it, followed by Twitter (36.7%) and YouTube (24.1%).

RQ4.1: Popularity of SoS by region

The popularity of 23 SoS was surveyed. As can be seen in Table 5, similarities as well as differences were found between geographical regions in the level of usage of SoS by enterprises.

The leading SoS are the same among regions; E.g., Facebook is the most popular SoS among all enterprises in all three geographical regions. However, differences were documented in the level of usage of various SoS in different regions. The leading SoS - FYT- were mostly popular in West Europe, while language dependent SoS were highly popular in the Russian speaking countries of East Europe. Middle East, represented in this study by Israel, was characterized by the preference for a wide variety of SoS of various types (e.g., a social site, bookmarking, microblogging, etc.) and languages (English, German, Russian, etc).

	Geographical region (Percentage of usage of each SoS in each region)			
SoS	West Europe	East Europe	Middle East	Chi2
Facebook	**65.7%**	47.9%	55.5%	95.6; P<0.001
YouTube	**43.9%**	15.1%	17.7%	205.6; p<0.001
Twitter	**61.4%**	29.3%	20.8%	249.2; P<0.001
Instagram	0.4%	0.3%	0.3%	N.S
Google+	8.6%	7.9%	**15.3%**	16.4; P<0.001
Tumblr	2.0%	0.4%	**7.0%**	55.6; P<0.001
Misterwong	4.4%	0.4%	**7.0%**	50.2; P<0.001
Blogger	4.1%	0.5%	**7.3%**	49.3; P<0.001
Digg	3.3%	0.4%	**7.6%**	55.4; P<0.001
Delicious	5.3%	0.4%	**7.6%**	57.6; P<0.001
Stumbleupon	2.7%	0.2%	**7.0%**	57.0; P<0.001
Myspace	2.3%	0.3%	**8.0%**	68.4; P<0.001
Pinterest	2.2%	0.8%	**6.4%**	37.2; P<0.001
StudiVz	3.5%	0.2%	**6.4%**	49.0; P<0.001
meinVZ	2.5%	0.2%	**6.4%**	50.5; P<0.001
schülerVz	0.8%	0%	0.3%	8.0; P<0.05
Xing	4.9%	0.2%	**7.0%**	57.5; P<0.001
odnoklassniki.ru	1.9%	**16.2%**	6.7%	109.7; P<0.001
vkontakte.ru	1.9%	**30.3%**	6.7%	290.6; P<0.001
my.mail.ru	0.8%	**11.8%**	6.4%	85.0; P<0.001
connect.ua	0%	0.1%	0.3%	N.S
klase.lt	0%	0%	0%	N.S
one.lt	0%	0%	0%	N.S

Table 5: Relative popularity of SoS by region

RQ4.2: Popularity of SoS by industry

As can be seen in Table 3 the most popular SoS for all industry categories is Facebook, with 16-78% of usage. Twitter (9-57%), and YouTube (5-54%) are also highly popular, with some other SoS with high usage for specific industries (e.g., Google+ for dating or vkontakte.ru for real estate). Most of the other reviewed SoS did not exceed a usage level of 6% per industry.

Differences between industries in the level of usage of SoS were extremely high, with up to 72%, 75% and 78% (for higher education, communication, and sport respectively) on one extreme and 16% (drug companies and private professionals) on the other extreme.

CONCLUSIONS

Based on the social presence theory by (Gefen and Straub, 2004), this paper explored the usage and adoption of SoS in e-business across countries based on the presence of links to SoS on the websites of enterprises in different industries. The results confirm that Facebook is the most popular SoS across industries (Barnes and Mattson, 2010) but they add to this by showing that this is also the case across countries. Furthermore, the study revealed interesting aspects concerning SoS adoption. It was found that all industries use SoS. Nevertheless, their usage significantly differs between countries and industries, in the latter even on a high level. This fact can be used to support the assumption that self-presentation differs not only among cultures but also among industrial areas.

Cross-country analysis revealed that East Europe is leading in the percentage of enterprises using at least one SoS, while West Europe is leading in the intensity of SoS usage. The analysis also showed that national SoS are in most cases less popular across industries than internationally oriented FYT. Middle East, represented in this study by Israel, was characterized by the preference for a wide variety of SoS of various types and languages, which can be attributed to the intensive immigration from various countries to this region.

The introduced measure of SoS usage intensity shows that private professions use SoS to the least extend. This fact can be used to introduce a better visibility of an industry or development of specific SoS. Also, top companies use SoS more intensively, implying that SoS is considered an important instrument in self-presentation of enterprises so the wealthier the firm the higher its efforts in SoS development. Finally, while FYT was used in all industries, most of the other reviewed SoS did not exceed a minor usage level.

Results of this study do not imply or should be interpreted as an evaluation of SoS use. Participating in SoS needs to be carefully evaluated by each enterprise, as the involvement in SoS operation and management also requires tracking and replying to customers' feedback. This work load is often underestimated by the companies and can lead to an effect opposite to the initial intention. This cross-sectional study offers a starting point for future longitudinal studies of the SoS usage in e-business with the focus on whether the popularity ranking of SoS will remain or will be altered due to new players or change in communication policy of enterprises.

ACKNOWLEDGEMENTS

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