UDC 658.155:004.773.6/.7(497.7)

CRITICAL SUCCESS FACTORS ON COMPANY'S BUSINESS PERFORMANCES THROUGH WEB-BASED SOCIAL NETWORKS

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Abstract

Since their introduction, social media sites (SMSs) such as Facebook, LinkedIn and Twitter have attracted millions of users, many of whom have integrated these sites in their daily practices. As of this writing, there are hundreds of SMSs, with various technological affordances, supporting a wide range of interests and practices. Social media are gaining popularity and are increasingly used in regular operations of many companies, including start–ups, small, medium-sized, and large organizations. The purpose of this paper is to explore the different critical success factors related to use of web based social networks that can improve business performance of companies in the Republic of Macedonia. This research will focus on the extent of impact that web based social networks have on organizational capabilities and business performance.
From the research it could be found that successful deployment of set of external and internal critical success factors can lead to the improvement of business performance (financial and nonfinancial) of the companies. According to the results, the successful use of web-based social networks can improve (1) CRM integration, (2) open communication within a company and (3) ICT integration.

Key words: *business performance, critical success factors, social media, social networks, e-business models*

1. Introduction

The world in which we are living and the balance between companies and consumers are constantly changing. Companies need to implement new information and communication technologies (ICT) to meet the needs of consumers. Web-based social networks are included in the lifestyle of many people in the world. This fact enables the companies to have another channel to communicate with their customers through

these networks. Social networks like web - based services incorporate various technologies (blog, forum, and social games).

In today's digital environment web-based social networks are important in the everyday operations of the companies. Because of its unique ability to share information between users, the web-based networking slowly but surely transformed into a powerful tool with which companies can communicate with their audience. As a result, companies increasingly seek to create fun and informative pages on social networks and to maintain their presence. Their presence directly affects their business performance.

Emerging technologies gain popularity as enabling tools for cooperation among businesses in business networks (Ansari et al., 2011; Belleghem, 2013) whereas the applications market is flourishing (Eduardo, 2013). Companies that take advantage of the latest social media technologies seem to outperform their competitors and report benefits like lower costs and improved efficiencies (Agnihotri et al., 2012). In this context it is important to understand the specific impact that social media have on business performance(Fischer and Reuber, 2011). The identification of a direct connection between the two will support the shift towards Enterprise 2.0 – a new business environment in which the companies will maximize the benefits they can obtain by integrating social media suites into their daily operations.

The subject of research in this paper is the analysis of e-business models that include the impact of various critical success factors (CSFs) for successful web-based social network by organizations. This analysis involves a group of CSFs that directly or indirectly affect the success of enterprises. These groups of independent factors are: the use of ICT in organizations, organizational structure and architecture of business processes, strategy, affecting dependent variables such as increased sales and brand awareness through web-based social networking.

Empirical research includes exploratory and conclusive research with three parts. The first part is to create a conceptual model with set of CSFs for successful use of web-based social networks; the second includes testing the relationship between various internal and external dimensions of successful use of web-based social networks and the third part, what is a subject of this paper include testing of the relationship between set of CSFs and their influence on business performance.

Exploratory research used quantitative methods such as analysis of secondary data and interview techniques with experts. The primary data used statistical methods: structural equation modeling and confirmatory factor analysis and exploratory factor analysis.

E-business models for social networks and Inmpruvment of business performance

In this section we define social media as a part of Web 2.0 technologies (A), refer to the resource-based view of the firm and factors for successful use of social media and their impact on organizations (B)

Defining social media

The term Web 2.0 was coined in 2001 by O'Reilly (2009) in a conference brainstorming session to reflect the transition from the manager generated content era to the user-generated era. O'Reilly identifies seven differences between Web 1.0 and Web 2.0: the web as a platform; the harnessing of collective intelligence; the data as the next Intel Inside; the end of the software release cycle; the lightweight programming models; the software above the level of a single device; the rich users' experience (O'Reilly, 2009). The term was widely adopted and definitions have been formulated for Web 2.0, all emphasizing collaboration and enhanced communication, as well as user involvement. Harris and Rea (Harris and Rea, 2009) define Web 2.0 as "a perceived second generation of Web development and design that facilitates communications and secures information sharing, interoperability, and collaboration on the Web".

Bell and Loane (Bell and Loane, 2010) define Web 2.0 as "a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet – a more mature, distinctive medium characterized by participation, openness and network effects".

Web 2.0 technologies share common characteristics that distinguish them from previous generations of Web development. Firstly, Web 2.0 brings about an emphasis on collaborative learning as well as on user engagement through participation. Secondly, Web 2.0 is regarded as user friendly, as it enables immediate publication and wide distribution of user generated content. The driving force behind the new wave of applications stands in their content and data management systems, as well as in their architecture of participation that encourages user contributions.

Further the new generation of applications uses the web as a development platform. Most Web 2.0 tools are based on the Software as a Service technology (Bell and Loane, 2010).

Web 2.0 and social media have different meanings, but they are directly connected, and it can be said that social media derive from Web 2.0. Kaplan and Haenlein (Kaplan and Haenlein, 2010) define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content". In this paper we use Web 2.0 when we address the technology platform, but most of the time we will talk about applications that derive and use technological foundation of Web 2.0 that is social media.

Social media is a phrase that describes the platforms and other tools that connect people into social networks (of their choice) online. Some of the household social media names worldwide (other than Facebook) are MySpace, LinkedIn, Twitter, YouTube, Foursquare Google+ (Godin, 2008).

The individuals that make up these online networks use social media to organize themselves according to (1) their interests and (2) their preference for the way they choose to share, store and deliver information within their community (or "network") (Chaffey, 2008).

Individuals have made it clear they wish to connect with other individuals that they choose to, in the way that they choose to, and around topics and for reasons that they choose to. The individual is at the centre of the social media revolution. Companies must be present there, for sure it can be said that this is changing the way business is done.

Improvement of business performance by use of web based social networks in companies.

In the paper, the resource-based view will be pursued as a perspective on organizations to explain the impact of using web based social networks on company performance. The resource-based view states that organizations obtain a set of certain resources (like human resources or ICT infrastructure) that could be company specific. The particular combination of resources forms the basis for company's competitiveness and business performance. A distinction can be made between resources and capabilities. While resources serve as basic units of analyses, capabilities are repeatable patterns of action in the use of resources to create, produce, or offer value to a market (Barney, 1991). Note that resources (like Web 2.0 tools) may be obtained easily, but that it is not easy to develop business-wide capabilities to use the resources to enhance business performance. So, while any company can reach resources easily, capabilities embedded in business practice cannot be reached. We focus on Web 2.0 based capabilities, more on capabilities related to web based social networks, when a company is using them.

In the literature different models exist, describing different factors related to the use of web-based networks in companies. These different models are regarding the factors from different perspectives and views. Each of the models is defining a set of critical success factors that are directly connected to web based networks and responsible for improving business performance. Daniel Crain Smith (2009) defines several CSFs related to social networks that are crucial for a company when using Web 2.0 technologies such as social net-

works. These CSFs are: age of the employees, support from the top management, organizational structure and social pressure from the environment. The main disadvantage of his model is the lack of precise and clear definition of factors that are directly connected to business performance. Colin Smith's (2006) model, compared to the previous one, succeeded in distinguishing several factors that can measure successful use of social networks in a company. Smith suggests income from sales of new products as one of the most important factors that can measure successful use of social networks. Many authors mention other CSFs that are important when one company is using social networks like: human resources, organizational culture and organizational structure. Reagans and B. McEvily (2003) and Burt (Burt, 2005) are also defining a set of CSFs responsible for successful use of social networks in one company. According to this group of authors, the most important factors are the type and structure of the networks, demographics of the network and social capital of the organization. Multidimensionality of this model is making it complicated, besides the fact that there are factors, which the company cannot influence. Another model that describes different CSFs is Philip Chen's model (2010). Is his model, Chen has defined four groups with two factors that are important for successful use of social networks. These groups are: strategy, infrastructure, openness, and collaboration. Chen clearly defines and confirms that this set of CSFs is responsible for successful use of Web 2.0 technologies to improve business performance from financial and nonfinancial perspective.

From the reviewed literature, most of the authors suggest more or less the same set of the CSFs. For our purposes, we decided to use the two groups' model (or the multistage model). The first group consists of internal factors and the second group consists of external factors. Internal factors are directly connected to every day work of a company and its capability to successfully use social networks. These factors are subsequently divided into the following subgroups: functional factors, strategy factors and technical factors. In the group of functional factors are internal integration of social networks and openness in using. Strategic factors are: alignment of business and Internet marketing strategies and alignment of Internet marketing strategy and CRM (Customer Relationship Management). The third group are technical factors like IT infrastructure and organizational structure. Second subgroup of factors are external ones related to the social pressure that one organization could have from its competitors and users in their environment. These two groups of CSFs are influencing a group of independent financial and nonfinancial factors that are directly related to business performance of a company. These independent factors are income from sales, decreasing costs, and brand recognition.

Based on the literature and the different models mentioned above, a conceptual model was created, with eight CSFs. All this CSFs are directly responsible for improvement of business performance.

Figure 1.

Conceptual model of CSFs for the successful use of social media

Research

For this study, a survey instrument was used. The collected data was analyzed using Structural Equation Modeling (SEM) techniques to validate, evaluate, and analyze the relationships between the specific factors (independent variables) and business performance (dependent variable).

The sample for testing consisted of 150 Macedonian companies, which actively used web-based social networks in the past year. The descriptive statistics show that 91% of the companies in the survey were from Skopje, 20% were in trading industry, 13% in software industry, 12% in telecommunication industry and 14% in media and newspapers. According to the size 40% were small companies, 26% were medium companies, 20% were micro companies and 13% were large companies.

To test the reliability, an internal consistency of this study was analyzed and reviewed using Cronbach's alpha. Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure (Bagozzi and Yi, 2012; Hair et al., 2009). In this study, all measures were analyzed for reliability and validity using a Structural Equation Modeling (SEM) confirmatory technique. Confirmatory factor analysis (CFA) was used to construct a measurement model composed of ten constructs of this research model. The measurement model estimates each construct between latent variables (independent variables) and dependent variables using measuring items. To assess convergent validity for construct validity, composite reliability (CR) and average variance extracted (AVE) from measures were examined (Hair et al., 2009).

Cronbach's alphas assessing the internal consistency of the study's measures are in range from 0.71 to 0.91. They were above the acceptable threshold of 0.70, suggesting adequate reliability (Bagozzi and Yi, 2012).

A confirmatory factor analysis was conducted to determine the convergent and discriminant validity of the 10 constructs. As suggested by Hair (Hair et al., 2009), convergent validity was assessed by examining the factor loadings, computing the composite reliability of, and average variance extracted for the model constructs. Constructs have convergent validity when the factor loadings are statistically significant, the composite reliability exceeds the criterion of 0.70, and the average variance extracted is above 0.50. As suggested by Hair (Hair et al., 2009) and Fornell and Larcker (Fornell and Larker, 1981), discriminant validity was assessed by comparing the squared correlations (between the constructs) and the average variance extracted for a construct. Constructs have discriminant validity when the squared correlations are lower than the average variance extracted for a construct. The fit of the measurement model was assessed using the following statistics and indices: Chi-square, the ratio of the Chi-square to the degrees of freedom (df), Comparative Fit Index (CFI), and Root Mean Squared Error (RMSEA). Chi-square/df values less than 3 indicate good model fit and between 2.0 and 5.0 is acceptable level (Groenland and Stalpers, 2012). CFI values in 0.80 to 0.90 indicate a confidence level (Schreiber et al., 2006). RMSEA values less than 0.90 indicate good fit (Fornell and Larker, 1981).

The factor loadings, composite reliabilities, and average variance extracted for the model constructs are shown in Table I. From the table it can be concluded that some of the factor loading do not fit the accepted ratios. The index GFI and AGFI are not fitting the acceptance level bellow 0.90. Also RMSEA is over the recommended level of 0.90 (Bagozzi and Yi, 2012). The index CFI is below 0.8 which is also below the recommended level. Only relative index CMIN which represent Chi-square is between 1 and 3 (Hair, 2010).

Table I.

CFA TESTING WITH 10 CONSTRUCTS

χ^2	1019.429
Level of freedom	620
Level of probability	0,000
GFI	0,631
AGFI	0,56
RMSEA	0,91
CFI	0,735
CMIN	1,664

Next step in CFA is to determine the level of adequacy, by using the squared multiple standardized regressive coefficients. From the analysis, it can be concluded that 13 factors which are explaining the latent variables are below the accepted level of 0.40 (Hair, 2010). Because the CFA shows that the some of the constructs in the model do not fit the factor loadings, adjustment of the model was required.

After refining and adjusting the model, a confirmatory factor analysis was conducted for the second time. The factor loadings were good, but one of the 10 constructs was left out. The factor loadings are shown in a table 2.

Table II.

CFA TESTING WITH 9 CONSTRUCTS

χ^2	324,230
Level of freedom	216
Level of probability	0,000
GFI	0,774
AGFI	0,687
RMSEA	0,80
CFI	0,895
CMIN	1,501
PNFI	0,589

From the Table II. it can be concluded that all indexes for model fit are better then the previous model with 10 constructs. RMSEA is within the recommended value of 0.9, CFI is above recommended minimal value of 0.8. Also PNFI (Parsimony-Adjusted Measures), wich show the level of adjustment of the model is better then the first tested model. Also CMIN is in the recommended value between 1 and 3.

To evaluate the fit of the proposed model, the fit of the whole model was tested and assessed. The magnitude (i.e., statistical significance) and direction (i.e., positive or negative) of the individual parameters (i.e., the path coefficients) were assessed. Overall, the goodness-of-fit indices show that the proposed model has a good degree of fit with the data; the ratio of the Chi-square to the degrees of freedom was 3.80, a number smaller than 4.0 is considered very good, and between 2.0 and 5.0 is acceptable (Hair et al., 2009), the CFI 0.89 was within 0.8 to 0.9 confidence level (Bagozzi and Yi, 2012) and the RMSEA 0.08, less than 0.1, which is considered a good fit (Schreiber et al., 2006).

The path coefficients and corresponding standard errors and t-values are presented in Table III

Table III.

STANDARDIZED REGRESSION COEFFICIENTS OF SEM

			t-value	P - value
BusFin	<---	VnatInt	.070	.908
BusFin	<---	PolOtv	1.954	.008
BusFin	<---	BusIMS	.177	.775
BusFin	<---	CRMInt	1.965	.060
BusFin	<---	ITInf	.475	.088
BusFin	<---	OrgPos	1.910	.059
BusFin	<---	NedTeh	1.935	.036
BusNFin	<---	NedTeh	1.935	.022
BusNFin	<---	OrgPos	-.574	.188
BusNFin	<---	ITInf	.335	.137
BusNFin	<---	CRMInt	1.633	.248
BusNFin	<---	BusIMS	.270	.587
BusNFin	<---	PolOtv	1.964	.018
BusNFin	<---	VnatInt	-.134	.779

Note:*** p-value <0,01; :** p-value <0,05; :* p-value <0,10

From the values above it can be concluded that 50% of the regression coefficients are statistically significant. Statistical significance is expected to be in the range of p-value <0.10 because of the size of the example (Hair et al., 2009). All regressive coefficients are positive except the last one (Business non-financial and internal integration), but there is no statistical significance.

Statistical significance can be found between the next regressive coefficients: culture of open communication - financial and non-financial performance; CRM integration and financial performance; IT infrastructure and financial performance; organization structure and financial performance; availability of technology - financial performance and non-financial performance. There are 5 statistical significant relations related to financial and 2 with non-financial performance. Of all relations, the strongest is CRM integration and financial performance (t-value = 1,965), and the weakest is the availability of technology - financial performance and non-financial performance (t-value = 1.935). From here it can be concluded that seven of fourteen initial hypotheses were confirmed.

Conclusion

The subject of research in this paper was the analysis of group of critical success factors that improve business performance by use of web-based social network in organizations. This analysis involves a group of independent critical success factors that directly or indirectly affect the performance of enterprises.

The results of the conducted SEM research shows that statistical significance exists between the proposed seven critical success factors and financial or non-financial performance of the companies. The results show that there is significance in the relationship with financial performance (5 links) and non-financial performance (2 links). These links are: the culture of open communication and financial performance; CRM- integration and financial performance, IT infrastructure and financial performance, organizational structure and financial performance, unavailability of technology and financial performance, unavailability of technology and non-financial performance; policy open communication and non-financial performance.

In terms of financial performance, it can be concluded that the link between CRM- integration and financial performance is the strongest. This relationship is the strongest in the overall model. Namely, if companies invest in social CRM data integration in their system, it will significantly affect and increase their sales and profits. In terms of non-financial performance the strongest link is between the policy of open communication and non-financial performance. Namely, if companies invest in open communication in their every day working, it will significantly affect and increase their brand awareness, employee satisfaction and relationship with their business partners.

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