Enterprises and Institutions in Bosnia and Herzegovina and Web 2.0 Technologies

Mirela Mabić
University of Mostar – Faculty of Economics, Bosnia and Herzegovina

Abstract

Web 2.0 offers great tools for building better customer relationships, improving employees' productivity, and cutting costs. Results of different international research showed that many companies recognize the benefits of Web 2.0 technologies and use it in everyday business. But what is the situation in Bosnia and Herzegovina?!In order to investigate that, empirical research was conducted. The objective was to investigate whether Web 2.0 technologies are applied in companies and institutions in Bosnia and Herzegovina, and which ones. The paper presents the results of research among 107 companies and institutions in Bosnia and Herzegovina on the current application of Web 2.0 technologies in business. The results show that 49.5% of respondents use Web 2.0, mostly Internet telephony and Business social networks, while 31.7% of respondents who do not use it, plan to start using some of it in the next year. Although the results show that Web 2.0 technologies are not totally unknown in Bosnia and Herzegovina (at least some of it), there is much room for improvement. Further research should investigate what hinders the implementation of Web 2.0 technologies and particularly address the characteristics of the companies and institutions that may significantly affect their acceptance and implementation.

Keywords: Technology, Management, ICT, Web 2.0
JEL classification: O330

Introduction

As Web 2.0 technologies/applications, the literature today refers to Wiki systems, blogs, Web 2.0 social bookmarking applications, Web 2.0 podcasting applications, social networks, hybrid Web 2.0 applications that include mashups and personalized webs, virtual worlds, e-portfolio systems, repositories of artefacts, Web 2.0 applications for collaborative creation of artifacts, Web 2.0 communication applications. Application of these technologies is very diverse, as is their classification too. Thus the examples of application in libraries (Baro et al, 2013; Hussain, 2015; Mahmood, Richardson Jr, 2011), geographic information systems (Jošanov, 2011), electronic banking (Sakal, et al, 2011; Kuchciak, 2013) and education (Ajjan, Hartshorne, 2008; Yuen et al, 2011) as currently the most widespread field of application are the most frequently cited in the literature. As far as Web 2.0 technologies and their application in the business world are concerned, the application of Web 2.0 technologies in business has been recently considered and written about to a considerable extent irrespective of what form and type of business is involved. Generally, a more pervasive access to Web 2.0 technologies from the standpoint of business operations over the past 6-7 years has facilitated the development of new business models and strategies influencing how decisions are made in companies and affecting the ways they connect and communicate with suppliers and buyers. Thus the authors state that the implementation of the said technologies in business operations would have a significant effect on search of

data from both internal and external sources, decision making, encouraging and strengthening of collaboration, both inside (at all levels) and outside the company, expanding the scope of existing computer business applications in the company and their flexible and innovative integration and ease of administration, which ultimately makes the company successful and provides it with competitive advantages over the competition (Ureña, Herrera-Viedma, 2013; Tredinnick, 2006; Kiryakova et al, 2011; Stenmark, 2008). Large global companies but also smaller companies in different parts of the world have recognized many of the above benefits that Web 2.0 brings into business and implemented them in their daily operations very successfully encouraging others with their experience to follow suit.

With regard to organizations (companies and institutions) in Bosnia and Herzegovina, it has not been found that anyone studied the state of application of Web 2.0 technologies, and especially not the benefits that they provide to business organizations. In view of that, it would be good first to analyze whether Web 2.0 technologies are applied in business organizations in Bosnia and Herzegovina, and which ones, which will give the first glimpse of the current state that will guide further research of this subject. The objective of the research is set accordingly: to investigate whether Web 2.0 technologies are applied in companies and institutions in Bosnia and Herzegovina, and which ones.

Methodology

The empirical research was conducted in companies and institutions in Bosnia and Herzegovina during May 2015. Criteria for inclusion of companies in the research were not set; questionnaires were sent to all companies regardless of their characteristics (size, activity, structure, ...).

The study used an online questionnaire containing a series of questions related to the characteristics of respondents (gender, age, professional qualifications, ...), the characteristics of companies in which they work (size, activity, ownership and ownership structure, the degree of formalization, ...) and the application of Web 2.0 technologies in their daily business operations. The questionnaire was designed in the form of closed and open questions.

After a logical and technical analysis of the collected questionnaires, 107 of them were accepted for further analysis. The collected data were subjected to descriptive statistical analysis using the program Excel from the Microsoft Office 2007 suite and SPSS 17.0 for Windows. Results are presented through absolute (f) and relative frequencies (%).

Results and Discussion

As stated above, the sample consists of 107 persons on managerial positions in various companies and institutions in Bosnia and Herzegovina. The demographic questions answered by the respondents are: gender, age and professional qualifications. Thus, men are predominant in terms of gender, accounting for 68.2% of the sample. As far as age is concerned, the most prevalent age group is 31-45 years of age, accounting for 57.9% of the respondents. Slightly less than ¼ of the respondents (23.4%) are aged between 46 and 60, 17.8% are younger than 30, while only one respondent is older than 60 years of age. The respondents have a relatively high education - 61.7% of the respondents have a university degree, 13.1% have a two-year college degree, while only four respondents have completed only secondary school. It is interesting that more than 1/5 of the respondents have a MSc or PhD degree.

Characteristics of the companies from which the respondents come are reflected in the following:

- Time of establishment: 43.9% of the companies were established between 1990 and 2000, 24.3% were established before, and 31.8% were established after that period,
- Primary activity: 58.9% of the companies are engaged in the provision of services, 24.3% in production, while 16.8% reported being equally engaged in both.
- Number of employees: the most common companies in the sample are those with up to 50 employees (47.7%), 17.8% have more than 1,000 employees, 21.5% have between 50 and 250, and others have between 250 and 1000 employees,
- Company size: 35.5% of the respondents reported working in large, 29.0% in small, and 25.2% in medium enterprises, while 10.3% of the respondents described their companies as micro enterprises,
- Ownership and ownership structure: 57.0% of the companies are privately owned, 29.0% are owned by the state, 10.3% have mixed ownership, while 4 companies stated other answer. Domestic owners prevail in 75.7% of the companies,19.6% state that foreign owners prevail, while the proportion of ownership is relatively balanced in 4.7%,
- The degree of formalization: 69.2% of companies have partial formalization, or there is a partial freedom in resolving tasks, 17.8% of companies have full formalization, while 13.1% of the respondents state that their company has no formalization - employees have full freedom in resolving tasks.

With respect to the application of Web 2.0 technologies in the company, respondents were asked two questions. One question was related to the application of Web 2.0 technologies in the company and application in the department in which the respondent works. The assumption was that some people do not use the aforesaid technology in their departments, but other departments use them and the % of those using them in the company and those using them in their departments do not need to match.

Half of the respondents, more precisely 49.5% (f=53) reported using Web 2.0 technologies in everyday business in their organizations. A negative answer was supplied by 38.3% of respondents, while 13 of them or 12.2% provided the answer I don't know. As for the use of Web 2.0 technologies in the departments in which respondents work, the results are quite similar: 48 respondents (44.9%) reported using Web 2.0 technologies in their departments while performing all activities related to business operations, while other respondents provided a negative answer.

The respondents who reported not using the said technologies were asked to answer whether they plan to start using them in the course of the next 12 months (one year). A positive response for companies was provided by 31.7% respondents, and for departments only by 20.3% respondents. Relatively many of them provided the answer I don't know - 43.9 for companies and 67.8% for departments. The reasons for this may lie in the decision-making hierarchy, but also in standpoints of those responsible for ICT innovation, expected benefits that ICT innovation should provide and the ratio of their costs and benefits.

In order to have a better image of the organizations using Web 2.0 technologies in the company, characteristics of 53 companies whose employees have reported using them for business purposes were analyzed too. Thus, it was established that this subsample is dominated by medium old companies (founded between 1990 and 2000), almost 60% of them are engaged in the provision of services (58.5%), 64.1%

have up to 250 employees, while 24.5% have more than 1,000 employees. As far as company organization is concerned, the enterprises organized as Ltd. are predominant (54.7%). Almost 65% of them are privately owned, with the prevalence of domestic owners (69.8%), (47.2%)identify themselves as large enterprises, characterized by partial formalization in resolving daily business tasks (71.7%).

Table 1 shows which Web 2.0 technologies are used in companies, and which in the departments from which the respondents come.

Table 1
Presence of Web 2.0 technologies in the organisations and departments of the respondents

Web 2.0 technology	In organisation (n=53)	In department (n=48)
Wikis	13.2%	16.7%
RSS - Newsfeed	9.4%	10.4%
Mashup	1.9%	2.1%
Workspace	11.3%	14.6%
Internet telephony	75.5%	68.8%
Blogs for employees	20.8%	25.0%
Blogs for partners and associates	17.0%	14.6%
Instant messaging	41.5%	52.1%
Business social networks	60.3%	43.8%
Collaborative content	24.5%	16.7%
Virtual world	13.2%	10.4%
Other	9.4%	10.4%

Source: Author's calculation

As is evident from table 1, in companies and organizations, as well as departments, the most prevalent is Internet telephony, which should be associated with instant messages too. It should be noted here that it was not investigated in detail what respondents meant by Internet telephony when providing that answer. Given the popularity of applications such as Viber and WhatsApp, ChatON and Hangouts, it could be assumed that this involves such a way of communication via the Internet. Business social networks are reported for companies by slightly more respondents than for departments. The above is understandable because social networks are generally suitable for marketing, promotional and collaborative activities that help achieve cooperation between higher levels of organizations. Blogs for employees are only slightly more present in departments, and are generally reported by ¼ of the respondents. What else is interesting to note is collaborative content that is reported for companies by nearly ¼ of the respondents, while other technologies are represented by less than 20% in both cases. Virtual worlds and workspaces are relatively under-represented although examples of their application are common in practice. The reason for this may also be insufficient knowledge of these technologies and acting on the principle of trendiness - we use what others around us use without much experimentation.

Considering that it is almost impossible not to be present on the Internet in one way or another these days, the question on the presence of the company on the Internet was asked as a separate question. Out of 107 respondents, 100 (93.5%) reported being present on the Internet. Of these, 41% companies have an official website with basic information, while 59% have a website providing communication with interested parties. In addition, 61% of the respondents stated that their

organization had an official profile on social networks. Based on the responses to the question asking about these particular networks, it was established that the most common is Facebook with 42.6%, followed by Twitter and LinkedIn.

The above result is not surprising because Facebook is very popular recently, especially among young population, and so organizations see it as their own, relatively generous, communication channel.

With respect to reasons of these results in general, we should first note the sample of respondents and refer to their knowledge of these technologies. It is possible that some of the technologies are used in the companies, but respondents do not recognize them under the offered names (e.g. wiki). It is also possible that the technologies are used in some company departments regardless of the rest of the organization, but the respondent was not from that department, which resulted in incorrect figures. This especially applies to IT departments because these departments are much more involved in monitoring changes and progress of ICT, not underestimating the interest and engagement of employees from other departments of the organization.

Application of Web 2.0 technologies certainly also depends on the sort of company management and how well-disposed to innovation and pioneering they are. Among other questions in the survey, the respondents were also asked the question on the spirit of their management about the implementation of Web 2.0 technologies in business. The results have shown that fully committed management boards and those well-disposed for experimentation (pioneers) are in the lead in the sample - cumulatively accounting for 58.9% of the sample, 23.4% of respondents state that their management boards are willing but concerned, 16.8% that they are sceptical, and only one respondent stated that the management of his organization had an absolutely negative attitude.

Considering that the results here are not so bad, they were crossed with the answers on the application of Web 2.0 technologies in companies and departments (Table 2) to examine management boards of the companies that use them and see if the respondents have made a good evaluation of management boards of their organizations.

Table 2
Use of Web 2.0 technologies in organizations and willingness of organizations' management boards for ICT innovation

	Web 2.0 technologies are used in the organization		
	Yes (n=53)	No (n=41)	I don't know (n=13)
Absolutely apposing	0	2.4%	0
Sceptical	11.3%	26.8%	7.7%
Willing but concerned	18.9%	26.8%	30.8%
Fully committed	43.4%	14.6%	15.4%
Pioneers (willing to experiment)	26.4%	29.3%	46.2%

Source: Author's calculation

As evident from Table 2, management boards of organizations using Web 2.0 technologies are indeed described as being willing for something of that kind. It is interesting to note that 11.3% of respondents describe management boards of their organizations as sceptical, but it is commendable that they use them nevertheless. As for the organizations in which Web 2.0 technologies are not used, respondents

deem that their management boards are inclined to innovation, which opens room for their more intensive use. The assumption is that the underlying reason why Web 2.0 technologies are not used more intensively is actually the unfamiliarity with them and fear of the unknown and of something intangible, especially in organizations staffed by a more senior population. In order to at least have a hint of why the situation is like this, respondents were able to point out the underlying reasons for the difficult acceptance of Web 2.0 technologies in business operations. Among other things, the respondents mostly identified:

- Computer illiteracy of people,
- Demanding infrastructure,
- Security issues,
- Costs, measurability of benefits and their ratio,
- Existence of a system that provides the same functionalities as Web 2.0 technologies.

What should be observed from the provided reasons is the still prevailing opinion of Web 2.0 technologies as being expensive and involving demanding infrastructure, and the situation with some technologies is actually entirely opposite. This only shows that Web 2.0 technologies are a considerable unknown, i.e. that what people use on the Internet does not get associated with these technologies, and so it is necessary primarily to work on the promotion of the said technologies, and emphasize their positive sides for daily business operations.

Conclusion

These results show that, speaking of Web 2.0 technologies, the situation in BiH companies and institutions is not too bad. Namely, as it can be seen from the results, almost half of the surveyed respondents stated that some of the Web 2.0 technologies are used in their companies. Certainly, most often this expectedly means Internet telephony, and business social networks. However, if we examine the whole range of possible technologies, this is not, after all, a praiseworthy result, but we must look on the bright side considering the development of Bosnia and Herzegovina, use of information technology, and the availability and cost of the Internet.

As for the limitations of the study, it should be emphasized that it analyzed data of the respondents who voluntarily participated in the study. In order to make some more significant conclusions and explore what factors make a significant distinction between the organizations using Web 2.0 technologies in business operations and those not using them, it is necessary to undertake a more comprehensive research that would consider characteristics of companies in more detail. Similarly, it should be noted that limitations may also be the insufficient knowledge and insufficient computer literacy of the respondents as well as the research method. It is possible that more interviews with employees of different profiles and a survey of the situation in companies would give significantly different results.

But now that the present state in terms of use of Web 2.0 technologies in BiH companies and institutions has been established in an acceptable form, it makes a basis for further research. Namely, further research should give special consideration to investigating the reasons for this situation, or investigating possible obstacles to a more intensive use of Web 2.0 technologies in business operations. In addition, special consideration should also be given to standpoints of managers on the application of Web 2.0 technologies in companies, investigating their perceptions on the benefits of Web 2.0 technologies and their standpoints on the reasons for this

situation in the intensity of use, because managers are exactly those who make the backbone of business organization.

Moreover, considering that it is likely that Web 2.0 technologies are used informally in some organizations, it would be interesting to confront the views of managers and employees on the benefits that the company has from using Web 2.0 technologies. Certainly, future research should make sure to compare the views of those in whose organizations Web 2.0 technologies are used with views of those with which they are still an unknown in order to identify a range of advantages and benefits provided by Web 2.0 technologies to an organization using them.

References

1. Ajjan, H., Hartshorne, R. (2008), "Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests", Internet and Higher Education Vol. 11, pp. 71–80
2. Baro, E. E., Ebiagbe, E. J., Zaccheaus Godfrey, V. (2013), "Web 2.0 tools usage: a comparative study of librarians in university libraries in Nigeria and South Africa", Library Hi Tech News, Vol. 30 No. 5, pp. 10-20
3. Hussain, A. (2015), "Adoption of Web 2.0 in library associations in the presence of social media", Program: electronic library and information systems, Vol. 49 No. 2, pp.151-169
4. Jošanov, B. (2011), „Web 2.0 and GIS: between synergy effects and oxymoron" Management Information Systems, Vol. 6 No. 1, pp. 003-007
5. Kiryakova, G., Yordanova, L., Angelova, N. (2011), "Web 2.0 in Business", Trakia Journal of Sciences, Vol. 9 No. 3, pp. 169-177
6. Kuchciak, I. (2013), „How Social Media will Change the Future of Banking Services", International Proceedings of Economics Development & Research, Copenhagen, Denmark, Vol. 65
7. Mahmood, K., Richardson Jr, J. V. (2011), "Adoption of Web 2.0 in US academic libraries: a survey of ARL library websites", Program, Vol. 45 No. 4, pp. 365 - 375
8. Sakal, M., Matković, P., Tumbas, P. (2011), "Web 2.0 Technologies in Internal and External Communications in the Banking Sector", 'Club of Economics in Miskolc' TMP Vol. 7 No. 2, pp. 87-97.
9. Stenmark, D. (2008), "Web 2.0 in the Business Environment: The New Intranet or a Passing Hype?", in Proceedings of the 16th European Conference on Information Systems (ECIS 2008), Galway, Ireland, Paper 35.
10. Tredinnick, L. (2006), "Web2. 0 and Business", Business Information Review Vol. 23 No.4, pp. 228-234
11. Ureña, R., Herrera-Viedma, E. (2013), "Web 2.0 Tools to Support Decision Making in Enterprise Contexts" in Torra, V., et al. Modelling Decisions for Artificial Intelligence, Springer Berlin Heidelberg, pp. 82-93
12. Yuen, S. C. Y., Yaoyuneyong, G., Yuen, P. K. (2011), "Perceptions, interest, and use: Teachers and web 2.0 tools in education", International Journal of Technology in Teaching and Learning, Vol. 7 No. 2, pp. 109-123.

About the author

Mirela Mabić is a PhD student at the Faculty of Economics, University of Mostar. At the same Faculty works as an assistant at the Department for Business Informatics. Her research interests include business information systems, the practical application of software and web technologies both in business and in education, quality of higher education and applied statistics. Author can be contacted at **mirela.mabic@sve-mo.ba**