INCORPORATE SOCIAL NETWORK SERVICES IN E-GOVERNMENT SOLUTIONS. THE CASE OF MACEDONIA

Koste Budinoski
Faculty of Electrical Engineering and Information Technologies
Rugjer Boskovik, bb, 1000 Skopje, Republic of Macedonia
kostabudinoski@gmail.com

Vladimir Trajkovik
Faculty of Electrical Engineering and Information Technologies
Rugjer Boskovik, bb, 1000 Skopje, Republic of Macedonia
trvlado@feit.ukim.edu.mk

─**Abstract** ─

This paper presents the state of e-Government sophistication in R. Macedonia. The survey is done using the 20 basic public e- services. A survey result showed that further progress will need to be made on two – way interaction. Social networks are seen as convenient mean for introducing two – way interaction, social capital, transparency, anti-corruption, democracy, law enforcement, and mainly trust and citizen inclusion and empowerment. We explored the potential impacts of social media in e-Government and introduced a new 6th stage of sophistication into the maturity model called 'Citizen Inclusion'. This stage refers to citizen inclusion and empowerment into e-Government using social network services and provides citizens with ability to feed-back on how government operates.

Keywords: *E-Government*, *Benchmarking*, S*ocial Networks*
JEL Classification: O30.

1. INTRODUCTION

E-Government services should increase the efficiency and transparency of public sector. The developed-government services in R. Macedonia are aimed at facilitating the communication between the government institutions and the business community (G2B); however, there are several services that are focusing on the interaction between the state administration and the citizens (G2C) or the interaction within specific government institutions (G2G). In this paper we have

measured all 20 public services defined by the European Commission and monitored by Capgemini for EU (Capgemini, 2009; Capgemini, 2010) together with their online sophistication score for the period 2007 up to 2010 in Republic of Macedonia. The resulting data showed an average score of 45%, which places Macedonia at the bottom of the 3th level of sophistication.

Social networks have attracted millions of users worldwide, and introduce new methods for communication between users. They increase the opportunity for users to engage in community participation.

The paper explores many different ways in how government can use social networks. Social networks are seen as a convenient mean for introducing two – way interaction, i.e. help revitalize dialogue between citizens and governments and promote transparency, anti-corruption, law enforcement and democratic society. Social networks can be powerful tools for citizen inclusion in government processes and trust towards e-Government services. The paper found that approximately 19% of Macedonian government organizations have some presence on social network sites.

There are three major aims addressed in this paper:

- What is level of sophistication of the 20 basic services in Republic of Macedonia using 5th stage model defined by the European Commission and monitored by Capgemini for EU?

- How social media may improve the e-Government?

- What is the level of Macedonian government usage of three social media sites: Twitter, Facebook and YouTube?

An objective of this paper is to provide an overview of key benefits that governments can achieve from using social networks. We offer an extended model by including a new stage called 'Citizen Inclusion'. This stage is particularly important to positively transform the relationship between government and citizens.

This paper is divided into 6 sections including this introductory remark. First, in section 2 research model is explained followed by a discussion of the resulting

data. Next, in section 3, we explore the potential impacts of using social media in e-Government. In section 4 we introduced six stage maturity model followed by a discussion of the resulting data on section 5. Finally, the section 6 provides conclusion.

2. RESEARCH MODEL

According to the Conceptual framework for benchmarking the digital Europe created by European Union Commission, the 20 basic services can be benchmarked using following three indicators:

E1: Online availability and interactivity of the 20 basic public services for citizens and enterprises

E2: Percentage of individuals using the internet for interacting with public authorities by level of sophistication

E3: Percentage of enterprises using the internet for interacting with public authorities broken down by level of sophistication

The model reflects how businesses and citizens can interact with public authorities. Governments service delivery processes are described according to the following stages: 1) information, 2) one-way interaction, 3) two-way interaction, 4) transaction, and finally 5) targetisation. It is one of the tools that enable to demonstrate progress against set targets. Till 2007 each elementary service is graded on a scale from 0 to 4. In 2007 European Union Commission introduced new 5th stage which refers to the personalization of services.

The third and the fourth level, two-way interaction and transaction, have become a standard for many countries: electronic forms are available for most services; transactional - also called full electronic case handling – where the user applies for and receives the service online, without any additional paper work, is increasingly becoming mainstream. The fifth level, targetisation, provides an indication of the extent by which front and back offices are integrated, data is reused and services are delivered proactively. The fourth and fifth levels are jointly referred to as 'full online availability'.

Using this model, we have monitored 20 basic public services in the period of four years. The results are given in Table 1. These services have been defined and monitored according to the suggestions explained in (Capgemini, 2009;

Capgemini, 2010). Twelve of these 20 basic services are focusing on the interaction between the state administration and the citizens, and eight of them are aimed at facilitating the communication between the government institutions and the business community. The results were collected from numerous web sites that are official government parties who provide the basic service in Republic of Macedonia.

Table 1: The 20 basic services

Citizens	Business
Income Taxes	Social Contribution for Employees
Job Search	Corporate Tax
Social Security Benefits	VAT
Personal Documents	Registration of a New Company
Car Registration	Submission of Data to the Statistical Office
Application for Building Permission	Custom Declaration
Declaration to the Police	Environment-related Permits
Public Libraries	Public Procurement
Birth and Marriage Certificates	
Enrollment in Higher Education	
Announcement of Moving	
Health-related Service	

2.1.   Analysis of results

In terms of sophistication, Macedonia stands at 45%, compared to 34% in 2007. Achieving an average score of 45%, places Macedonia at the bottom of the 3th level of 5th stage maturity model. The final overall score for the country is expressed in percentages (%), whereby 100% means that all services have reached their highest level of sophistication. Table 2 lists all 20 public services together with their online sophistication score for the period 2007 up to 2010. The first 12 services measure the online sophistication of the citizen's services, and the remaining 8 are for the business services.

Table 2: Annual Sophistication Results

	2007	2008	2009	2010
Income taxes	20%	40%	40%	40%
Job search	40%	60%	60%	80%
Social security benefits	25%	30%	30%	35%
Personal documents	60%	60%	60%	60%
Car registration	40%	40%	40%	40%
Building permission	20%	20%	30%	35%
Declaration to the police	0%	0%	0%	0%
Public libraries	60%	60%	60%	60%
Certificates	40%	40%	40%	40%
Enrollment in higher education	0%	5%	5%	5%
Announcement of moving	20%	20%	20%	20%
Health related services	0%	0%	0%	0%
Social contributions	60%	60%	60%	60%
Corporate tax	70%	70%	70%	80%
VAT	70%	70%	70%	80%
Registration of a new company	40%	40%	40%	50%
Submission of data to statistical offices	0%	0%	0%	20%
Customs declaration	20%	40%	60%	70%
Environment-related permits	30%	30%	40%	50%
Public procurement	60%	60%	70%	80%

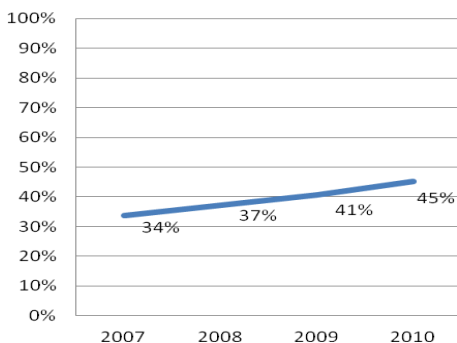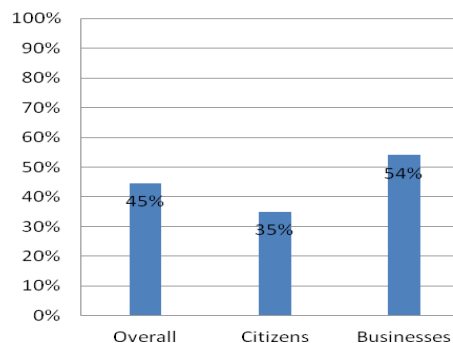**Figure – 1:** The growth of sophistication of e-services for the period 2007 to 2010

Figure – 2: Online sophistication score for citizen services and for business services for 2010

From Fig. 1 we can see that in 2010 year's benchmark, Macedonia achieves a sophistication of 45%, increased by 11% compared with 34% in 2007. Fig. 2 split an online sophistication score for citizen services and for business services. It shows that more progress is achieved in G2B services, and majority of applications were aimed at facilitating the communication between the government institutions and the business community. The sophistication score can be split into a sophistication of 35% for citizen services and 54% for business services.

Macedonia's e-Government performance has slowly growing. Many of services have the same sophistication level they had in the previous survey (Gusev, Spasov & Armenski, 2007) for the period of 2004 up to 2007. Achieving an average score of 45%, places Macedonia at the bottom of the 3th level of 5th stage maturity model. That means that further progress will need to be made on interaction with citizens and public sectors. The emergence of social networks is changing the social life of people. A shift is at this point required for governments to stay in line with their citizens.

3. SOCIAL NETWORKS

Social networks can transform the way governments provide online information and services, as well as interact with citizens and stakeholders. There are many benefits that governments can achieve from using social networks: social capital, transparency, anti-corruption, democracy, law enforcement, trust and citizen inclusion and empowerment.

Social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them (Putnam, 1993). Social capital includes the reputation that one has among their peers (Landsber, 2010) or obligations and expectations that we have of one another; the important information channels that sustain networks and informal organizations; and the social norms that bind our actions and create an expectation that others will behave in predictable ways (Landsber, 2010; Coleman, 1988).

Using social networks is reasonable for making government information available and provide means of direct contact with the government. *Transparency* is a powerful tool to improve access to government information. The vast majority of

government information need to be digital, and many users have access to it in electronic form (Jaeger and Berto, 2010; John C. Bertot et al., 2010).

E-Government has great impact in control of corruption (Anderson T. B., 2009). In terms of *anti-corruption*, social media has four major potential strengths: collaboration and participation, empowerment, and time (John C. Bertot et al., 2010). Social networks are collaborative and participatory by its nature. Social networks allows anyone ability to share information, so social networks are empowering to its users. Social media has real-time discovery by allowing anyone to easily publish information as it becomes available.

Due to social networks collaborative and participatory nature, we get engaged citizens who can participate in *democratic* decision-making processes, also known as e-democracy. E-democracy means more active citizens as well as more citizen involvement in addressing public challenges.

Using social media citizens can be involved in and strengthen policing and *law enforcement*. This is case with United Kingdom, where all kind of applications have been developed by government aim to inform citizens and involve them in – for instance – criminal investigation tasks (Huijboom & Broek, 2011).
*Trust* is the foundation of all human and institutional interaction (Duck, 1997; Kramer & Tyler, 1995). Very important step for e-government adoption is getting citizens have a high level of trust (Teo et al., 2009). Because social networks provides an effective way to connect with communities they will play an important role to gain citizen trust. Government needs to use social networks for communication and providing citizens with convenient and dependable online services. Such type of publicity will rapidly increase citizen's perceptions of government's trustworthiness.

4. INTRODUCTION TO THE SIX STAGE MATURITY MODEL

"It is not enough just to implement organizational change... to make real progress on transforming government services one should aim to positively transform the relationship between government and citizens... by making the front-office fully customer focused, and understanding the citizen as a customer with complex needs, far beyond the private sector understanding of a consumer" (CCEGOV, 2007) (Trajkovik, 2011). Top priority for e-Government is user inclusion and empowerment. Social networks can be used by government to include and

empower citizens. They allow interaction, creation and sharing of information where users are also producers. Citizens can use social networking to share ideas and to develop collaborative approaches in tackling the issues that are important to them. Social networks will provide citizens with ability to feed-back on how government operates.

Figure - 3 Sophistication stages of six stage maturity model
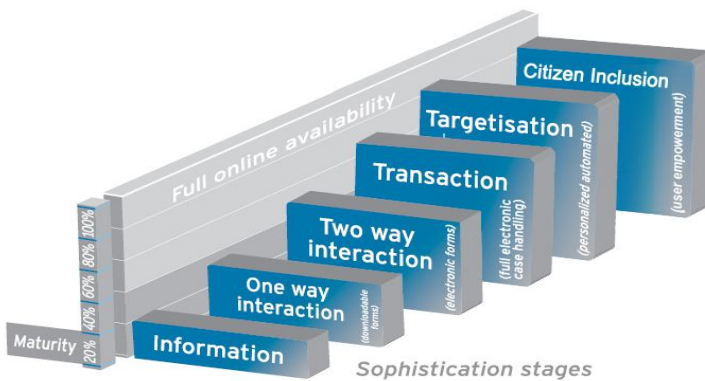
Social networks are providing information directly to citizens, which may help citizens to have a better understanding of government working. Citizen inclusion and empowerment is one of the key assessments of the e-Government. As a result we proposed a new 6th stage of sophistication into the maturity model called 'Citizen Inclusion'.

Using new introduced 6th stage of sophistication which refers to citizen inclusion and empowerment we have measured the use of social networks in e-Government in Macedonia. The research was accomplished through completing an analysis of 22 Macedonian government organizations utilisation of three social networking sites. For this research, we decided to concentrate on all ministries in Republic of Macedonia (including government) and some agencies and funds among the percentage of citizens in Republic of Macedonia who would normally use these sites. Next, several social networking sites had to be chosen. Selected sites are based on the number of Internet users and various functionalities they had, such as bulletin boards, blogs and videos. So we focused on three commonly used social network services globally, but locally in Macedonia: Twitter (micro-blogging

service), Facebook (social networking services) and YouTube (video sharing service).

5. ANALYSIS AND RESULTS

For this research, we decided to concentrate on the government organizations given in Table 3. In Table 3 fist column shows monitored government organizations. The next three columns designates whether that specific government has a presence (yes) or not (no) on Twitter, Facebook or YouTube.

Table 3: Social Networking Usage Results

	Twitter	Facebook	YouTube
Government	Yes	Yes	Yes
Ministry of Defence	No	Yes	No
Ministry of Interior	No	No	Yes
Ministry of Justice	No	Yes	No
Ministry of Foreign Affairs	No	No	No
Ministry of Labour and Social Policy	No	No	No
Ministry of Finance	No	No	No
Ministry of Education and Science	No	Yes	No
Ministry of Economy	No	No	No
Ministry of Agriculture, Forestry and Water Management	No	No	No
Ministry for Information Society and Administration	Yes	Yes	No
Ministry of Transport and Communications	No	No	No
Ministry of Health	No	Yes	No
Ministry of Culture	No	Yes	Yes
Ministry of Local Government	No	No	No
Ministry of Environment and Physical Planning	No	No	No
Employment Agency	No	No	No
Health Insurance Fund	No	No	No
Real Estate Agency	No	No	No
Pension and Disability Insurance Fund	No	No	No
Central Register	No	Yes	No
State Statistical Office	No	No	No
Total	**2 (9%)**	**8 (36.4%)**	**3 (13%)**

The accounts of social media are analyzed in the period October 21 to 27 in 2011. Results show that most government organizations do not exploit social networking sites to reach their citizens and other potential users. Two of 22 government organizations (9%) use Twitter, 36.4% has a presence on Facebook and 13% use YouTube.

5.1.   Twitter analysis

As mentioned previously, two out of 22 surveyed government organizations or 9% have a Twitter presence. User account that is followed by most other Twitter users is Twitter account of Ministry of Administration and Information Society. It is followed by 219 users. Surveyed government organizations with their official Twitter accounts, on average, are following 138 other users. Accounts are followed, on average, by 243 users. The following table set out minimum and maximum values for these two parameters

Table 4: Minimum and maximum values for the following / followed parameters for Twitter accounts

	Minimum	Maximum	Average	Total
Followed	235	252	243,5	487
Following	9	267	138	276

Regular use of this service and intensifying communication means increasing the number of accounts that follow the official government accounts of the organizations. For this purpose we examined the number of accounts that follow government Twitter accounts in the last three months. The data showed that the number of users that follow this Twitter accounts constantly increases (Fig. 4).

Figure - 4 Average number of users who follow the Twitter accounts of the government organizations
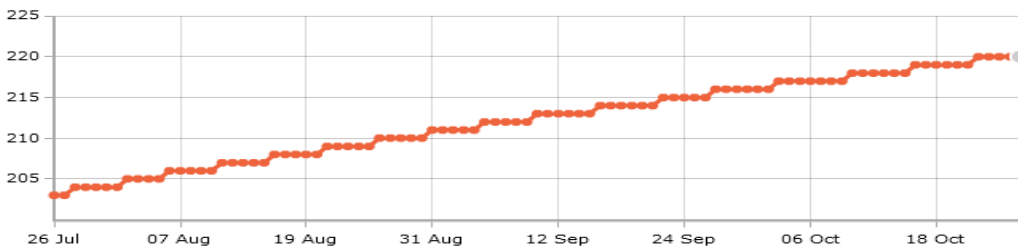
However, the interaction or direct communication is one of the most important features in the use of this service for social networking. The analysis of the accounts showed that none of their published tweets are addressed to one or more other accounts (using the option 'reply to'). Another indicator is retweets, i.e. when you re-publish something another Twitter user has written. However, none of government tweets are retweeted.

5.2.   Facebook analysis

The largest presence on social networks is seen on Facebook. Total 8 of 22 government organizations or 36.4% have a presence on Facebook. Each Facebook account has a network of users who have shown interest in the contents by pressing the "Like", "Join" or "Become a friend" button. On average accounts have 567 users. The most notable account is the Facebook account of Ministry of Culture with 2.286 users, and at least account of Ministry of Justice with 12 users. We analyzed 8 Facebook accounts that have a total of 4525 users. The following table set out minimum and maximum values for number of users.

Table 5: Number of users of Facebook accounts

	Minimum	Maximum	Average	Total
Users	12	2286	567	4527

Each Facebook account gives an option to enter basic information about the organization. The analysis showed that 5 (62.5%) of Facebook accounts containing such information.

5.3.   YouTube analysis

Three out of 22 government organizations or 13% have a YouTube presence. On these three channels, 69 videos are uploaded. On average the channels have uploaded 23 video clips. The channel with the most uploaded videos count 59 (85% of the total number of uploaded videos) and it is YouTube account of the Ministry of Interior. The remaining 10 video clips belong to the Ministry of Culture and the Government account. The following table set out minimum and maximum values for number of uploaded videos.

Table 6: Number of uploaded videos on YouTube channels

	Minimum	Maximum	Average	Total
Videos	2	59	33	69

Any user who has a YouTube account can subscribe to a channel and then automatically receive a notification for each new uploaded video. These 3 channels count 104 subscribers.

6. CONCLUSION

E-Government can deliver massive benefits. Implemented correctly it can enable cooperation between independent agencies and transform the way that citizens access and interact with government. In some cases, it has the potential to redefine the social contract between citizens and state.

Macedonia's e-Government performance is growing steadily but the speed of growth could be enhanced. Republic of Macedonia has made progress on most Information Society and e-Government indicators, but is still trailing in Europe, especially in citizen up take and also the supply and adoption of e-Government services. The research showed average score of 45%, which places Macedonia at the bottom of the 3th level of sophistication.

The emergence of social networks is changing the social life of people. A shift is at this point required for governments to stay in line with their citizens. There are many benefits that governments can achieve from using social networks: two – way interaction, social capital, transparency, anti-corruption, democracy, law enforcement, and mainly trust and citizen inclusion and empowerment. Social networking sites can be used to further promote government information and services, recruitment, announce events, achieve a government's mission.

Using the full potential of social networks Republic of Macedonia can drastically improve the online sophistication of services and interaction with citizens and public sectors. However, despite social media's strength, government has been slow to adopt it. The study found that approximately 19% of Macedonian government organizations have some presence on social network sites.

BIBLIOGRAPHY

Anderson, T. B. (2009), "E-government as an anti-corruption strategy", *Information Economics and Policy*, Vol. 21, pp.201-210.

Capgemini, Rand Europe, IDC, Sogeti, and DT (2009), Smarter, Faster, Better eGovernment 8th eGovernment Benchmark Measurement, EU Directorate General for Information Society and Media.

Capgemini, Rand Europe, IDC, Sogeti, and DT (2010), Method paper 2010, Preparing the 9th Benchmark Measurement, EU Directorate General for Information Society and Media.

Capgemini, Rand Europe, Sogeti IDC, and DT (2010), Digitizing Public Services in Europe: Putting ambition into action, 9th Benchmark Measurement, EU Directorate General for Information Society and Media.

CCEGOV (2007), A Handbook for Citizen-centric eGovernment, cc:eGov.

Coleman, J. (1988), "Social capital in the creation of human capital", *American Journal of Sociology*, Vol. 94, pp.S95-S120

Duck, S. (1997), The handbook of personal relationships: Theory, research and interventions, New York: Wiley

Gusev, M., Spasov, D., and Armenski, G. (2007). "Growth of eGovernment Services in Macedonia (Online Sophistication of eGovernment Services)", *Slovenian Society Informatika*, Vol. 31, pp.397-406.

Huijboom, Noor, and Tijs Van den Broek (2011), "Open data: an international comparison of strategies", *European Journal of ePractice*, Vol. 12, pp. 1-13.

Jaeger, Paul T., and John Carlo Berto. (2010), "Transparency and technological change: Ensuring equal and sustained public access to government information", *Government Information Quarterly*, Vol. 27(4), pp.371-376.

John C. Bertot, Paul T. Jaeger, Justin M. Grimes (2010), "Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies", *Government Information Quarterly*, Vol. 27, pp.264-271.

Kramer, R. M. and Taylor, T. R. (1995), Trust in organizations: Frontiers of theory and research, Thousand Oaks, CA: Sage Publications.

Landsber, D. (2010), "Government as Part of the Revolution: Using Social Media to Achieve Public Goals", *Electronic Journal of E-Government*, Vol. 8, pp.134-146..

Putnam, R. (1993), Making democracy work: Civic traditions in modern Italy, Princeton University Press, Princeton.

Teo, T. S. H., S. C. Srivastava, and L. Jiang. (2009), "Trust and electronic government success: An empirical study", *Journal of Management Information Systems*, Vol. 25, No. 3, pp.99-132..

Trajkovik, V. (2011), ICT for Local Government, Standards, principles and best practices, Skopje: NALAS.