DIGITAL MANAGEMENT IN LARGER MUNICIPALITIES IN BOSNIA AND HERZEGOVINA

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ABSTRACT

Numerous studies and research conducted in the world's developed countries have unambiguously confirmed that the development and implementation of electronic management and other electronic services have a direct impact on economic, social and political development. The global study "Digital Governance in Municipalities Worldwide Survey" (2014) explored digital management in larger municipalities around the world. The research assessed the performance of official municipal websites in the area of privacy and security, usefulness, content, service and civic and social engagement.

This longitudinal study, conducted since 2003, is a constant effort to evaluate the electronic management in the municipality and to identify the best world practices. In Bosnia and Herzegovina, the larger municipalities have been selected for the research, that is, those with more than 30,000 inhabitants. Where there is no lower administrative unit than the city (for example, Banja Luka), or where the city performs administrative affairs of the municipality, the website of the city was surveyed. The scoring system of the web sites in the work was taken from the mentioned study. The main goal is to provide an insight into the state of electronic management in the major municipalities in Bosnia and Herzegovina.

1. INTRODUCTION

E-management has been intensively developing over the past twenty years and, since it is in most cases based on the Internet, it has been following its development all the time. Although in the first phase the e-management referred only to providing the necessary information electronically, today's services are much wider and more sophisticated and encompass a large number of services (Kalinić & Ranković, 2014).

E-management is the way governments use technology to provide citizens with easier and faster access to information and services. Quality of services provided by the public administration is achieved by the e-management and it enables citizens to take part in the work of democratic institutions more easily. By using these technologies, management becomes more efficient, more reliable and cheaper in its work (Spasojević, 2015). By using these technologies in its work, the administration becomes more efficient, more reliable and cheaper (Spasojević, 2015). Necessary conditions for a high-quality and efficient implementation of the concept of e-management include the establishment of a special coordination body, as a place where knowledge, expertise, finance and information resources, political will and authority are combined, and which play the central role in management and the control of digitization process in the public sector (Žitnik, 2016).

Important aspects of ICT for implementing administrative efficiency relate to cost reduction and staff reductions, staff efficiency, performance and management, and information exchange. Inter-sectoral exchange of information is a key element in achieving organizational efficiency, cost savings, policy effectiveness, accountability and openness (Viale Pereira, Cunha, Lampoltshammer, Parycek & Testa, 2017).

New internet platforms have been identified as the evolution of communication links between political representatives and citizens, enabling citizens to participate effectively in decision-making processes (Wijnhoven, Ehrenhard & Kuhn, 2015). Among these platforms, Web 2.0 and social media play an important role in creating a new generation of e-participation, innovation in organizational processes and decision-making processes, and transformation of relations between the government and other actors (Porwol, Ojo & Breslin, 2016). In modern e-management systems, the web portal is manifested through interaction on dynamic and personalized web places the users can access with the help of new technologies (Tepšić, 2015). Citizens tend to engage themselves more when they notice that their governments are really open to interaction and integrate their decision-making views, but also when they have access to useful, relevant and complete government information (Bonsón, Royo & Ratkai, 2015; Mellouli, S., Luna-Reyes, LF & Zhang, J., 2014).

Stamati, Papadopoulos and Anagnostopoulos (2015) believe that the inclusion of social media in the public sector has positive effects on openness and accountability, as well as on new management strategies for public consultation and interaction in public policy-making. In order to achieve top quality of the electronic public service, it is necessary to understand that all users, including business entities, perceive and evaluate the quality of the current offer of electronic management. E-management oriented to the citizens is considered a new way of using ICT to enhance citizen involvement in political discussions and decision-making, influencing significant changes in the public policy and administration (Chatfield, Reddick & Brajawidigada, 2015).

2. METHODOLOGY

National Center for Public Performance has been researching digital management in large municipalities around the world through the studies "The Digital Governance in Municipalities Worldwide Survey". The studies were conducted in 2003, 2005, 2007, 2009, 2011, 2012, 2013, 2014, 2015 and 2016. Their instrument for research of the e-management is the most comprehensive index in practice for e-management research today, with 104 measures and five different categorical areas of e-management research. For each of the five components of e-management, 18 to 26 measures are applied. In this paper, a questionnaire developed for the purposes of this study is used and the results will be highlighted for comparison with the results of the digital management analysis in the major municipalities in Bosnia and Herzegovina. The focus of research are the official websites of municipalities/cities that provide information on administration and *online* services.

The scoring system of the websites is taken from the mentioned study. The research includes components such as:
- Privacy and safety;
- Usefulness;
- Content;
- Services and
- Civic and social engagement.

3. RESEARCH RESULTS

The work focuses on the problems of digitization in local self-governments, all in the function of increasing the rationality, efficiency and effectiveness of the public administration. Digital management is an area that records excessive growth rates, much more than the general GDP growth and the growth of industry and services. In Bosnia and Herzegovina, major municipalities have been

selected for research, i.e. those with more than 30,000 inhabitants. Where there is no lower administrative unit than the city (for example, Banja Luka) or where the city performs administrative affairs of municipality, the website of the city is surveyed. Thirty nine municipalities/cities were surveyed: Banja Luka, Bijeljina, Bosanska Krupa, Brčko, Bugojno, Centar (Sarajevo), Cazin, Derventa, Doboj, Gradiška, Gračanica, Gradačac, Ilidža, Jajce, Kakanj, Kalesija, Laktaši, Luka-vac, Ljubuški, Mostar, Novo Sarajevo, Novi Grad (Sarajevo), Prijedor, Prnjavor, Sanski Most, Srebrenik, Stari Grad (Sarajevo), Teslić, Tešanj, Tomislavgrad, Travnik, Tuzla, Velika Kladuša, Visoko, Zavidovići, Zenica, Zvornik, Žepče and Živinice.

The survey was conducted by reviewing the websites of selected municipalities during the month of May 2018.
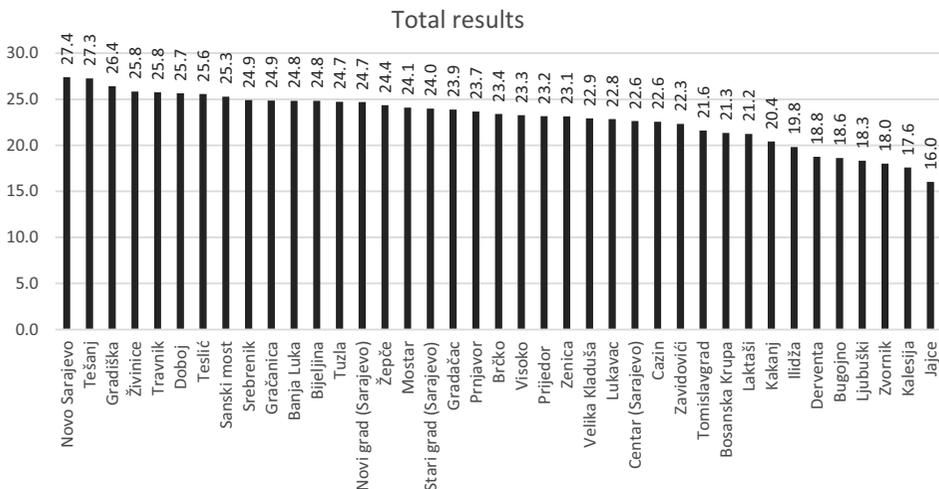
Graph 1: Total results. Source: Author's analysis

Each of the five components participates equally in the overall result, which means that the results of the components are weighted to give each of them an equal contribution to the overall result. Each component is a set of variables with values, depending on whether the criterion is fulfilled. According to the instructions from the questionnaire, the appropriate points were awarded. Later, the points are converted into results which contribute to the results of the components, and indirectly to the overall result.

The average score of all surveyed municipalities in the world is 33.76. The average result of the surveyed municipalities in the OECD (Organisation for Economic Co-operation and Development) is significantly higher and amounts to 45.45. In less developed countries, non-OECD members, the average score is 27.5.
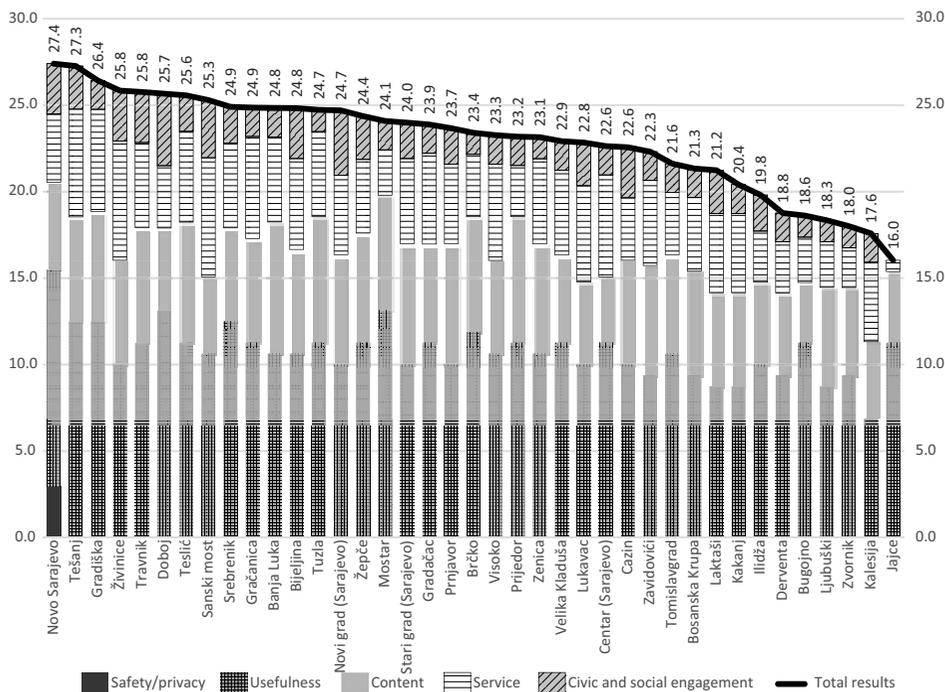
Graph 2: Total results with components. Source: Author's analysis

T**able 1:** Total results with components

E-management component	Key concepts	Pure result	Weighted result	Key words
Safety/privacy	19	27	20	Privacy policy, authorization, encryption, data management, "cookies".
Usefulness	20	32	20	Design suitable for the user, branding, main page length, links or channels for the targeted public, ability to search the site.
Content	26	63	20	Access to current accurate information, public documents, reports, publications and multimedia materials.
Service	21	61	20	Transaction services - purchase or registration, interaction among citizens, enterprises and government.
Civic and social management	18	48	20	Civic engagement online through considering the policies, applications for social media, succes measurement by citizens.
Total	104	231	100	

Source: Author's analysis

The results of survey of larger municipalities in Bosnia and Herzegovina give a total average score of 23.0. Municipalities in B&H, therefore, have a slightly

lower result than surveyed non-OECD members. The highest score by components, in major municipalities in B&H, was recorded for usefulness (10.7). On the other hand, the component with the lowest average score is safety and privacy (0.1).

Table 2: Survey results in larger municipalities in B&H per components

Total result	**23.0**
Safety/privacy	0.1
Usefulness	10.7
Content	5.8
Service	4.4
Civic and social engagement	2.0

Source: Author's analysis

3.1. Safety and Privacy

In terms of safety and privacy, no municipality recorded a significant result, i.e. almost none of them recorded the result at all. The exception is the Municipality of Novo Sarajevo, where score of 3.0 was recorded. This result is a consequence of the availability of the statement, i.e. the security and privacy policy on the website and the ability to access this statement on each of the pages where the data is taken. The average score on the global level is 4.99 and the best result was achieved by the cities of Stockholm (17.4), Berlin (14.1) and Seoul (13.3).

Table 3: Results of the survey of larger municipalities in B&iH per Safety/privacy component

Municipality	Total result	Safety and privacy	Usefulness	Content	Service	Civic and social engagement
Novo Sarajevo	**27.4**	3.0	12.5	5.1	3.9	2.9
Tešanj	**27.3**	0.0	12.5	6.0	6.2	2.5
Gradiška	**26.4**	0.0	12.5	6.3	5.9	1.7
Živinice	**25.8**	0.0	10.0	6.0	6.9	2.9
Travnik	**25.8**	0.0	11.3	6.7	4.9	2.9

Source: Author's analysis

3.2. Usefulness

Usefulness is the component in which municipalities have achieved the best average result. Also, this result is in the slightest lag in comparison to the world average. The world average is 12.1 and the average of municipalities in B&H

is 10.7. The best results were achieved by municipalities/cities: Doboj, Mostar, Novo Sarajevo, Tešanj and Gradiška.

Table 4: Results of the survey of larger municipalities in B&H per Usefulness component

Municipality	Total result	Safety and privacy	Usefulness	Content	Service	Civic and social engagement
Doboj	25.7	0.0	**13.1**	4.8	3.6	4.2
Mostar	24.1	0.0	**13.1**	6.7	2.6	1.7
Novo Sarajevo	27.4	0.0	**12.5**	5.1	3.9	2.9
Tešanj	27.3	0.0	**12.5**	6.0	6.2	2.5
Gradiška	26.4	0.0	**12.5**	6.3	5.9	1.7

Source: Author's analysis

Doboj achieved a better result than the world average (13.1), mostly due to a good and orderly page format where errors did not occur. Site maps (currently unavailable), links to specific segments of the population and better search tool with suggestions are the issues that could be improved.

When we look at the results of the City of Mostar, we see that in almost the same variables, the points were not scored. A similar performance is recorded on the page of the Municipality of Novo Sarajevo. Although the result is rather good comparing to the global research average, it can be concluded that with a little effort, the user-customization can be raised to a higher level.

3.3. Content

When it comes to the content on the websites of major municipalities in Bosnia and Herzegovina, we see the result that is the second in terms of contribution to the overall rating. However, the average of 5.8 is significantly lower than 7.4, which is the average on the global level. The content component consists of the largest number of variables, as many as 26, which gives a total of 63 points.

Municipalities achieved the largest number of points in the number of documents that can be downloaded from their websites. All municipalities have recorded the maximum number of points on this variable. Also, a large number of municipalities have achieved good results in availability of reports and publications, budget information, organization information and availability of newsletters and notifications on the main page. The municipalities recorded the smallest number of points in access to information for blind and visually impaired persons, availability of emergency mechanism and outcome and system of measuring success.

Table 5: Results of the survey of larger municipalities in B&H per Content component

Municipality	Total result	Safety and privacy	Usefulness	Content	Service	Civic and social engagement
Banja Luka	24.8	0.0	10.6	**7.6**	4.9	1.7
Tuzla	24.7	0.0	11.3	**7.3**	4.9	1.3
Prijedor	23.2	0.0	11.3	**7.3**	3.0	1.7
Teslić	25.6	0.0	11.3	**7.0**	5.2	2.1
Stari grad (Sarajevo)	24.0	0.0	10.0	**7.0**	4.9	2.1

Source: Author's analysis

When it comes to the content component, the best-rated municipalities were singled out in the following way:

– Banja Luka - it is interesting that this city has distinguished itself mostly by its availability of information via *newsletters* and social networks, availability of the site in English and availability of reports from public meetings.
– Tuzla - apart from the availability of information via social networks, the site of the city, unlike others, contains contact information of employees and departments, job ads in the administration, information for employees and event calendar.

3.4. Service

The service segment on the websites of larger municipalities in B&iH records a score of 4.4. The global average of this segment of the websites is 5.78, where the OECD member countries have an average of 8.01, and the non-OECD members have an average of 4.59. The municipalities in BiH, therefore, have a slightly lower average than the average of cities in non-OECD countries. Complete service on the websites of municipalities/cities is composed of 21 variables. The best results for this component are recorded in Živinice (6.9), Sanski Most (6.9), Tešanj (6.2), Gradiška (5.9) and Gračanica (5.9).

Table 6: Results of the survey of larger municipalities in B&iH per Service component

Municipality	Total result	Safety and privacy	Usefulness	Content	Service	Civic and social engagement
Živinice	25.8	0.0	10.0	6.0	**6.9**	2.9
Sanski Most	25.3	0.0	10.6	4.4	**6.9**	3.3
Tešanj	27.3	0.0	12.5	6.0	**6.2**	2.5
Gradiška	26.4	0.0	12.5	6.3	**5.9**	1.7
Gračanica	24.9	0.0	11.3	6.0	**5.9**	1.7

Source: Author's analysis

The first five municipalities in B&iH have produced, by measurement, the result that is better than the global average. However, they are still below the average of municipalities/cities in the OECD countries. Website of the Municipality of Živinice got the most points due to the possibility for electronically performing the procurement, applying for permits, lodging complaints, reporting violations of rules and corruption, seeking information and monitoring the status of the submitted request.

Similar advantages are offered by the Sanski Most web site. Benefits not offered by any municipality in Bosnia and Herzegovina on their websites are: searchable databases, forums with civics questions and employee responses, access to personal data (certificates and transcripts), possibility for requests through social networks, and possibility to customize the website.

3.5. Civic and Social Engagement

When it comes to the possibilities for civic and social engagement through the websites of the larger municipalities in B&H, there is an average score of 2.0. The average result of the measured municipalities/cities in the world is 3.53, which is significantly higher than in B&H. Backlog is even greater in comparison to the OECD member countries, whose average score is 5.12. The non-OECD countries are closer to us with the score of 2.68.

The best results are recorded in the municipalities of Doboj, Novi Grad (Sarajevo), Sanski Most, Živinice and Bijeljina. Doboj and Novi Grad (Sarajevo) have a result that is slightly higher than the average of all measured municipalities/cities in the world, while the other three municipalities are above the average of the non-OECD members.

Table 7: Results of the survey of larger municipalities in B&H per Civic and social engegement component

| Municipality	Total result	Safety and privacy	Usefulness	Content	Service	Civic and social engagement
Doboj	25.7	0.0	13.1	4.8	3.6	**4.2**
Novi Grad (Sarajevo)	24.7	0.0	10.0	6.3	4.6	**3.8**
Sanski Most	25.3	0.0	10.6	4.4	6.9	**3.3**
Živinice	25.8	0.0	10.0	6.0	6.9	**2.9**
Bijeljina	24.8	0.0	10.6	6.0	5.2	**2.9**

Source: Author's analysis

Municipalities of Doboj and Novi Grad (Sarajevo) achieved their results owing to:

- Doboj – the availability of the questionnaire on satisfaction with specific topics, their results, possibility to post comments with the municipal departments through *online* form, and possibility to subscribe to the newsletter.
- Novi Grad (Sarajevo) – the availability of discussion forum/live, videos of public events, possibility to post comments with the municipal departments through *online* form, the availability of forum or direct communication with officials for consultation purposes and availability of the questionnaire on satisfaction with specific topics.

None of the municipalities scored a single point in most variables in the segment of civic and social engagement.

3.6. Total Results and Results per Component
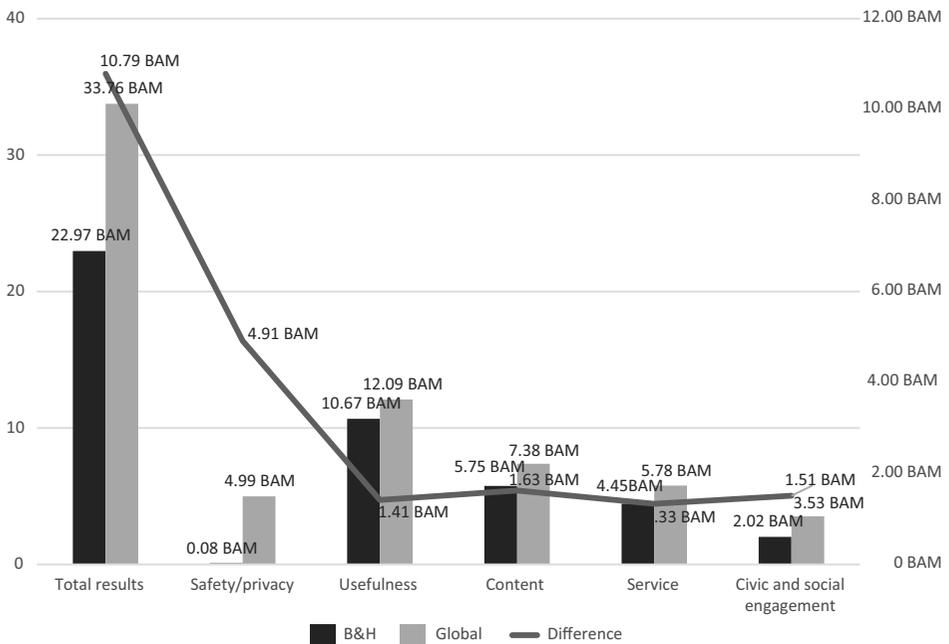
Graph 3: Total results per component B&H/globally. Source: Author's analysis

We can see in the graph all results, both the total ones (columns left) and per component for both B&H and globally. We see that the global average for all components is above the average of Bosnia and Herzegovina. However, while in

almost all components this difference is approximately equal, the biggest difference is recorded in the safety and privacy component.

4. CONCLUSION

The larger municipalities in Bosnia and Herzegovina are significantly behind the world average, more precisely by about 10 points, and they are much more behind the OECD countries, about 22 points. The municipalities/cities that stand out in the overall average are Novo Sarajevo, Tešanj, Gradiška, Živinice and Travnik, which are in the top five for the total points scored, and are significantly above the Bosnia and Herzegovina average. The websites of major municipalities/cities in Bosnia and Herzegovina did not work on the security and privacy components sufficiently and did not produce the result, so the biggest difference is visible here. The smallest difference can be seen in the service component and usefulness of the websites compared to the world level.

In order to adequately address the problem, it is necessary to build and ensure a coherent public sector communication and information infrastructure throughout the territory of Bosnia and Herzegovina which would provide a more reliable, safer and cheaper approach and information exchange, both within the public sector and in communication of the administration with external entities. Larger municipalities/towns in Bosnia and Herzegovina have to do a lot of work to reach at least the world level, not to mention the average in the OECD countries.

REFERENCE

Bonsón, E., Royo, S., & Ratkai, M. (2015). Citizens' engagement on local governments' Facebook sites. An empirical analysis: The impact of different media and content types in Western Europe. *Government Information Quarterly*, *32*(1), 52–62. Retrieved on 20.03.2019 from: https://www.sciencedirect.com/science/article/pii/S0740624X14001567

Chatfield, A.T., Reddick, C.G., & Brajawidagda, U. (2015). Government surveillance disclosures, bilateral trust and Indonesia–Australia cross-border security cooperation: Social network analysis of Twitter data. *Government Information Quarterly*, *32*(2), 118–128. Retrieved on 20.03.2019 from: https://www.sciencedirect.com/science/article/pii/S0740624X15000234

Kalinić, Z. i Ranković, V. (2014). Razvoj e-uprave na lokalnom nivou - ocena sadašnjeg stanja i mogućnosti unapređenja. U Lj. Maksimović i N. Stanišić (redaktori), *Stanje i perspektive ekonomskog razvoja grada Kragujevca* (p. 365). Kragujevac: Ekonomski fakultet, Univerzitet u Kragujevcu.

Mellouli, S., Luna-Reyes, L. F., & Zhang, J. (2014). Smart government, citizen participation and open data. *Information Policy*, *19* (1, 2), 1–4. Retrieved on 12.02.2019 from: https://pdfs.semanticscholar.org/e2c5/8b04ebcb0c8e5a4d9f2627bb2d9e103b1183.pdf

National Center for Public Performance (2014). Digital Governance in Municipalities Worldwide The E-Governance Institute National Center for Public Performance School of Public Affairs and Administration Rutgers, the State University of New Jersey -Campus at Newark. Retrieved on 06.12.2018 from: https://www.researchgate.net/publication/281650902_Digital_Governance_in_Municipalities_Worldwide

Porwol, L., Ojo, A. & Breslin, J.G. (2016). An ontology for next generation e-Participation initiatives. *Government Information Quarterly, 33* (3), 583-594. Retrieved on 21.03.2019 from: https://www.sciencedirect.com/science/article/pii/S0740624X16300065

Spasojević, N. (2015). Specifičnost e-uprave: ekonomsko-finansijske konsekvence. *ECONOMICS, Vol. 3, No 1*. Retrieved on 05.09.2018 from: http://economicsrs.com/index.php/economicus/issue/download/4/Volume%203%20Issue%201%202015

Stamati, T., Papadopoulos, T., and Anagnostopoulos, D. (2015). Social media for openness and accountability in the public sector: cases in the Greek context. *Government Information Quarterly, 32*(1), 12-29. Retrieved on 12.03.2019 from: https://www.sciencedirect.com/science/article/pii/S0740624X14001592

Tepšić, M. (2015). Informacioni sistemi u javnoj upravi. *Pravni savjetnik: mjesečni naučni i stručni časopis, br. 1/IV*, 36-45. Viale Pereira, G., Cunha, M. A., Lampoltshammer, T. J., Parycek, P., & Testa, M. G. (2017). Increasing collaboration and participation in smart city governance: A cross-case analysis of smart city initiatives. *Information Technology for Development, 23*(3), 526–553. Retrieved on 21.03.2019 from: https://www.tandfonline.com/doi/abs/10.1080/02681102.2017.1353946

Wijnhoven. F., Ehrenhard, M., & Kuhn, J. (2015). Open government objectives and participation innovations. *Government Information Quarterly, 32*(1), 30-42. Retrieved on 15.01.2019 from: https://www.sciencedirect.com/science/article/pii/S0740624X14001555

Žitnik, B. (2016). Digitalni rascjep... na kojoj smo strani? *Open InfoTrend Prvi hrvatski časopis za informatiku u poslovanju,* broj 202. Retrieved on 06.12.2018 from: http://www.infotrend.hr/clanak/2016/7/digitalni-rascjep...-na-kojoj-smo-strani,88,1242.html

ДИГИТАЛНО УПРАВЉАЊЕ У ВЕЋИМ ОПШТИНАМА У БОСНИ И ХЕРЦЕГОВИНИ

1 Исмета Мамелеција Демир, Општина Центар Сарајево

САЖЕТАК

Многобројна истраживања и студије проведене у развијеним земљама свијета недвосмислено су потврдиле да развој и имплементација електронске управе и других електронских сервиса имају директан утицај на економски, друштвени и политички развој. Глобална студија „The Digital Governance in Municipalities Worldwide Survey" (National Center for Public Performance, 2014), истраживала је дигитално управљање у великим општинама широм свијета. Истраживање је оцијенило учинак званичних веб-страница општина у области приватности и сигурности, корисности, садржаја, услуге и грађанског и друштвеног ангажмана. Ова лонгитудална студија која се проводи од 2003. године, представља сталан напор за процјену електронске управе у општини и идентификацију најбољих свјетских пракси. У Босни и Херцеговини за истраживање су одабране веће општине, односно оне са више од 30.000 становника. Гдје не постоји нижа административна јединица од града (као на примјер Бања Лука), односно гдје град обавља административне послове општине, анкетирана је страница града. Систем бодовања веб-страница у раду је преузет из поменуте студије. Основни циљ је пружање увида у стање електронске управе у већим општинама у Босни и Херцеговини.

Кључне ријечи:
електронска управа, дигитално управљање, веб-странице, веће општине у Босни и Херцеговини.