GOVERNANCE ON THE INTERNET. MEASURING THE PERFORMANCES OF E-GOVERNANCE IN BUCHAREST MUNICIPALITIES

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Abstract

This paper analyzes the electronic governance and how it's functioning in Romania. Being part of a larger institutional reform process, the electronic governance represents a new approach of the relation between Government and the citizen, with the purpose of increasing the participative dimension of the politic action, and as a way to provide more efficient services by the public agencies. E-governance uses information technologies (especially the Internet) in the public sector, in order to improve the activity of bureaucratic institutions and encourage citizen participation. This paper analyzes the concept of electronic governance and with a focus on the obvious differences between the ideal model and the way in which these policies are actually implemented in Romania. The analysis was made for the 6 town-halls in Bucharest, but can offer a good sample of how e-governance is made in Romania. The instrument used for measurements is the comprehensive Rutgers e-governance performance index, covered in detail in the article. The areas taken into consideration were the public services offered by the institutions, the usage degree by the citizens and the civic participation dimension, understood as a bi-directional communication between the institutions and the citizen. The final part of the paper is dedicated to explaining the results, with recommendations for the Romanian public institutions. The research has its limits, but the results can draw attention over an institutional process that can represent a huge positive change in the way that governance is usually understood to be made in Romania and a very important improvement in the relation between state and society.

Keywords: *e-governance, risk, security, electronic services, citizen participation*

Introduction

The goal of this paper is to assess the current state of e-governance on a local level in Romania, mainly the six district municipalities of Bucharest.

Electronic governance means providing citizen with online public services in order to improve the quality of those services. These services can vary from posting useful information on the internet, to paying taxes online and online decisional process with consultations between government and citizens. (Sharma, 2006). Additional definitions can be found on (www.worldbank.org) (AOEMA report) and (www.unpan.org) (AOEMA report).

The electronic governance's main goal is improving the effectiveness of the governance by using information technologies, especially the internet. These technologies would help improving the services offered by public institutions, as well as inducing greater citizen participation to the decision process. But electronic governance means more than building a web site. (Pardo, 2000). It's not only about using informatics technologies, but transforming the way through which the governance process is carried, from the services offered to the degree of usage of these services by the citizens. To reach its objectives, e-governance implies efforts from the authorities and citizens with an open mind.

It's not very clear weather we should use the term e-governance or e-government (see Kettl, 2002, and Riley, 2003 for the difference between government and governance) but there seem to be a consensus regarding the benefits of e-governance in generating major political changes (Norris, 1999) such as reducing bureaucracy (Moon and Bretschneider, 2002) and, why not, improving democracy (Pardo, 2000).

This study consists in a web-site examination of the six Bucharest municipalities by applying the Rutgers E-Governance Performance Index. (Holzer 2009). The results are consistent with the studies of Holzer (2009) and Stoica & Ilas (2009).

A taxonomy of electronic governance services

There are three target groups that need taking into consideration when we speak of electronic governance: the Government, the citizen and the business class. These relate with three dimensions or relations on which we can build an analysis model of e-governance (Backus, 2001). The first dimension is built on the relation *Government to Citizen* (G2C) and contains the activities through which the Government offers online access to information and services to the citizen. In other words, citizen can ask questions on the public institutions websites and receive answers, can download forms, pay taxes and fines, renew their driver's licenses, make appointments, etc. The institutions can also disseminate information, offer online support and so on.

The second dimension of e-governance is that of *Government to Business* (G2B). It mainly focuses on private companies that are selling products or services to the public institutions and it translates through publicly-private partnerships in which private companies implement informatics solutions inside institutions, or the public institutions externalize some informatics services through private companies.

The third dimension of e-governance, that Backus presents, refers to the *Government to Government* relation (G2G). This dimension points towards those activities that take place between various institutions/agencies and implies using the information technologies to improve those institutions activities.

There is a fourth dimension too (Palvia & Sharma, 2007). It refers to the relation between the Government and the electorate (E-democracy). It involves online campaigns, electronic vote and online political engagement (actively participating to political debates on the internet).

Within all three dimensions discussed above, Mary M. Brown (2003) argues there are three types of actions that take place.

1. Posting information on the internet – i.e. information about the institution, work schedule, services, etc.

2. Bidirectional communication between the institution and the citizen, companies or other agencies. This way, the electronic services users can post comments or ask questions online.

3. Online transactions – tax payments, fines, etc.

Backus (2001) also considers four phases through which e-governance must pass on its way to maturity, three of which correspond to the model proposed by Brown (2003)

1. In the first phase, e-government means "being present on the internet, offering the public (G2C and G2B) relevant information" (Backus, 2001). This way, argues Backus, the first step for the public institutions web pages is to have a format similar to that of brochures, their main value being that of making information accessible online.

2. In the second phase, the interactions between the public and the Government grow through various facilities. People can ask questions, can use search engines, download documents etc. The big advantage of these facilities is that they can be used anytime, not only during the work schedule of the institutions.

3. In the third phase, the complexity of used technologies grows, but so does the added value of the offered services. The citizen can now make complete transactions online, without being forced to go to the public office. He can pay taxes, fines, permits, etc.

4. The last phase is complete when all informational systems are integrated, and the citizen can benefit from all services having to use a single virtual office.

Measuring the performances of electronic governance

The e-governance is a complex process, and trying to measure its performances can be a very provoking task. An exhaustive measurement attempt is both legitimate and costly. The research methods can vary from official statistics to qualitative and panel studies. International and regional comparative studies can also be carried on.

There are though some established research and study methods that have been carried on globally or locally. Still, there isn't a relevant study for Romania yet.

On an international level, there are a number of e-governance indexes. One of them is *The Telecommunication Infrastructure Index* (Palvia &Sharma, 2007). This index measures a country's ICT capacity: PCs/100 persons, internet users/1000 persons, telephone lines/1000 persons, online population/1000 persons, mobile phones/1000 persons, TVs/1000 persons. Another popular index is the *UN E-Government Index*[1]. This index is built by analyzing the governmental web pages at a national level. It measures aspects regarding site navigation easiness, offered information and services, participation and security. Romania is ranked on the 51st place from 191.

Research methodology

The instrument that I used for evaluating the websites of Bucharest municipalities replicates the method used by Holzer, *et al* (2007, 2009) and Stoica & Ilas (2009). It's a comprehensive index that contains 98 measures on 5 distinct categories: 1. Security/privacy; 2. Usability; 3. Content; 4. Service; 5. Citizen Participation (e-democracy). Table 1 summarizes the measures used and the Appendix A contains an overview of all the indicators. The maximum possible raw score is 219 and the weighted score is 100. Even if the number of questions differs for each dimension (18-20) and so does the raw score (25, 32 48, 59, 55), they received equal weight, so the maximum weighted score will be 20 for every one of them.

[Table 1] E-Governance Performance Measures (Holzer 2009)

E-governance Category	Key Concepts	Raw Score	Weighted Score	Keywords
Security/ Privacy	18	25	20	Privacy policies, authentication, encryption, data management, cookies
Usability	20	32	20	User-friendly design, branding, length of homepage, targeted audience links or channels, and site search capabilities
Content	20	48	20	Access to current accurate information, public documents, reports, publications, and multimedia materials
Service	20	59	20	Transactional services - purchase or register, interaction between citizens, businesses and government
Citizen Participation	20	55	20	Online civic engagement/ policy deliberation, citizen based performance measurement
Total	98	219	100	

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[1] http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028607.pdf

43 items are dichotomous. These were coded with 0/1 and a few of them with 0/3. The other items were evaluated on a 3 or 4 steps scale (0, 1, 2 or 0, 1, 2, 3) where 0 indicates that for the respective site there is no information regarding the asked question; 1 the fact that information does exist; 2 the fact that the information can be downloaded (files of folders, audio or video documents); and 3 indicates the possibility of on-line transactions (payments for goods or services, applications for permits, the existence of certain data bases where information can be searched for, the possibility of using an electronic signature).

Here is the breakdown of the 5 dimensions used for the evaluation of the municipal websites.

Security/Privacy. This section regards two main areas: the existence of a privacy policy and the security of data on user authentication. I checked if the websites had a privacy policy, if it stated the intended use of gathered data or if it identified the institution that collected the data. Equally important were the protection of personal information when the user filled in online forms, storing information on secure servers, the use of cookies or web beacons or the disclosure of personal information to third parties.

Usability. Each web page should have been easy to use and easy to understand, fulfilling conditions such as a home page, navigation bar, site map, less than two pages length (the user should not have to scroll down more than two screen lengths). In addition, I looked if the page had search capabilities and advanced search features, such as search on specific departments (e.g. public works) or sorting of the search results.

Content. This dimension contains five key areas: access to contact information (phone numbers and/or e-mail addresses), public documents (budget, minutes of public meetings, multimedia materials (e.g. video records of meetings), disability access (for blind, deaf), and time sensitive information (last actualization of the website, up to date information).

Service. This area represents the ability of municipalities to provide their citizen with online services such as paying taxes online; pay fines online; filling online forms; apply for permits; the possibility of creating an online user account; downloading forms; a FAQ section, etc.

Citizen participation (e-democracy). This is maybe the most important dimension of all. On one hand, I checked for technical means offered by the municipalities to engage citizen such as discussion forums, the possibility for users to provide comments and feedback, the existence of online polls on specific matters or citizen satisfaction surveys. On the other hand, it was important to see if there was real participation and collective action through online petitions or online discussion groups between citizens and elected officials. Other issues addressed were the provision of a newsletter or bulletin boards and if there were any performance measures of the online activity.

For a detailed list of all five dimension indicators, see Appendix A.

Results

Table 2 shows the results of the evaluation for the six municipal websites in Bucharest. I also included in the evaluation the general city-hall for comparison purposes. As seen below, the general municipality (GM) obtained the best overall score (49.83) and also the best score on each of the five dimensions, except the "Content" dimension.

From the six district municipalities, District 3 has the best score (34.93), while District 5 registers the lowest score with 19.38. The overall average score was 32.02, the General Municipality included. This average is consistent with both the data obtained by Holzer, *et al* (2007, 2009) and Stoica & Ilas (2009), who used the same measure instrument.

[Table 2] E-governance rankings for Bucharest municipalities

Rank	District	Total	Security	Usability	Content	Service	Participation
1	GM	49.83	10.37	16.88	7.3	8.2	7.08
2	D3	34.93	0	16.25	7.3	7.21	4.17
3	D2	33.19	4.44	10.63	8.89	5.9	3.33
4	D1	31.52	2.96	11.25	7.3	4.59	5.42
5	D6	27.68	0	13.13	6.98	5.9	1.67
6	D4	27.61	0	13.75	6.35	4.59	2.92
7	D5	19.38	0	12.5	2.86	3.61	0.42
-	**Average**	**32.02**	**2.53**	**13.48**	**6.71**	**5.71**	**3.57**

Legend: GM – General Municipality; D1-6 – District 1-6

Looking at the table of results, we can easily observe that the "Usability" dimension received the highest scores for every district municipality and for the General Municipality, with an overall average of 13.48 points; whereas the "Privacy/Security" dimension registers the lowest scores, with an average of 2.53.

The very low scores in "Privacy/Security" (an average of 2.53 out of 20) show that there is almost no concern for personal data protection or for confidentiality. Four out of six district municipalities didn't even have a privacy policy, nor any security features for protecting the information required for filling out forms, for example. The ones that had a privacy policy had only a few features, none of them stating if the data gathered was stored on a secured server or if there were using cookies or web beacons to monitor and track the user's activity.

On the other hand, "usability" registered the best scores, showing that the first condition met is the technical one, most sites being user friendly and easy to use. Almost all of them had a site map, a home page, consistent color scheme throughout the page or a search button. The search button however was rather limited, without providing any options for advanced search or for sorting the search results.

In terms of "Content" the websites score also very low. There are downloadable documents and forms, some municipalities offer minutes of public meetings or information about the yearly budget. There can also be found contact numbers or email addresses in some cases. However, none of the sites provides searchable databases, format for persons with disabilities (blind, deaf), mobile versions or multimedia materials. The information was usually up to date, but it consisted in news about recent achievements such as festivities or national holidays. None of the websites offered up to date announcements such as calamities or traffic deviations.

The "Service" dimension scores low points too, with an average of 5.71 out of 20. None of the websites offered the possibility to pay utilities, fines or taxes directly on the homepage. In some cases (District 1 and 4) there is an electronic payment system but is either clearly stated that is not working or it cannot be accessed. Others don't have any electronic payment system or simply offer a physical address where taxes can be paid (District 5).

The last area is "Citizen Participation" or e-democracy. With an average score of 3.57 we can barely speak of citizen participation. Only the website of the General Municipality offers a discussion forum, and the site of District 1, where citizens can post comments on the mayor's blog. There aren't any features for making e-petitions (an online petition signed by a group of citizens) or discussion groups for online decisional process.

Discussion

The overall average of 32.02 (from a possible maximum score of 100) represents a rather low score, placing Bucharest on the 42nd place in the global ranking made by Holzer (2009). Seoul occupies the first place on this ranking system, with a total score of 84.74 points, while Baku (Azerbaijan) occupies the last place (87th) with an overall ranking of 7.78 points out of 100. The first European city is Prague, with 72.84 points and the last is Chisinau with 20.31 points. Among European cities, Bucharest's score is comparable to that of Copenhagen, Riga, Amsterdam, Sofia, Zurich and Istanbul (maximum difference of 5 points up and down) (Holzer, 2009). Table 3 provides an overall ranking of e-governance for European capitals, using the same measurement instrument.

[Table 3] E-governance rankings for European cities (Holzer, 2009)

Rank	City	Total	Security	Usability	Content	Service	Participation
1	Prague	72.84	16.7	17.62	13.02	13.86	11.64
2	Madrid	55.59	11.2	14.38	13.2	13.9	2.91
3	Vienna	55.48	16	11.88	12.8	6.44	8.36
4	Paris	52.65	12	13.13	12.4	7.12	8
5	Bratislava	52.51	13.6	17.5	9.2	7.12	5.09
6	London	51.96	13.6	15	8.8	9.83	4.73
7	Zagreb	50.16	9.6	13	12.8	7.12	7.64
8	Ljubljana	49.39	8	13.13	11.6	10.85	5.82
9	Lisbon	48.82	8.8	15	10.8	9.49	4.73
10	Brussels	48.01	12	16.25	11.6	7.07	1.09
11	Vilnius	47.5	10	13.44	11	7.97	5.09
12	Helsinki	45.61	10.4	13.75	13.2	6.44	1.82
13	Dublin	45.16	12	12.5	9.6	10.51	0.56
14	Oslo	44.76	2.4	15	12.8	9.83	4.73
15	Berlin	42.9	12.8	10.63	7.6	6.78	5.09
16	Stockholm	41.79	5.6	13.13	10.8	6.44	5.82
17	Warsaw	41.66	12.4	9.2	8	9.15	2.91
18	Tallinn	41.57	0	11.88	16.4	12.2	1.09
19	Moscow	40.1	4.8	12.5	8.8	7.46	6.55
20	Copenhagen	37.78	3.2	15.63	8.8	5.42	4.73
21	Riga	36.88	5.6	12.5	10.4	4.75	3.64
22	Bucharest	34.65	2.4	15.63	8	6.44	2.18
23	Amsterdam	34.27	2.4	13.13	8.4	7.8	2.55
24	Sofia	33.13	6.8	8.75	5.8	8.14	3.64
25	Zurich	32.65	0	15	7.6	6.78	3.27
26	Istanbul	30.93	0	6.25	11.6	10.17	2.91
27	Belgrade	28.65	0.8	14.38	6	4.75	2.73

28	Rome	26.85	6.4	8.13	7.4	2.37	2.55
29	Skopje	26.56	0	12.44	5.1	7.22	1.8
30	Kiev	25.45	4	8.75	4.8	6.44	1.45
31	Minsk	25.4	2.4	10	6	3.73	3.27
32	Athens	24.84	3.2	13.75	4.4	2.03	1.45
33	Budapest	24.76	2.4	9.38	7.6	1.02	4.36
34	Chisinau	20.31	1.6	9.38	7.2	0.68	1.45

The e governance score of Bucharest municipalities places the Romanian capital on the 22nd place among European cities, any score below 40 being considered as poor. (Stoica&Ilas, 2009). With an average of 32.2, Bucharest falls below the European average of 40.3. But the most interesting finding of this measurement is the distribution of the dimension averages which could point to a stadial evolution of e-governance.

The Bucharest municipalities score follows the following pattern: the best score is obtained by usability (13.48), followed by content (6.71) and service (5.71). Participation is fourth with 3.57 points and last comes Security with 2.53 points. While it seems normal for usability to have the best score, since it represents the first step to e-governance by first building a website, it also seemed that participation should have the lowest score, as the last step of e-governance. But the curious finding on Bucharest municipalities was that the security dimension came last. The security dimension is actually very important if all the other areas of e-governance are to work. Without the protection of personal information, neither participation, nor the providing of services can occur. The first two dimensions – usability and content represent only the first step of a two steps model: posting information on the internet and, second, interacting with the citizens. Providing services and electronic participation represent the second step of this model, personal data being needed to fill out forms, pay taxes or participate in online forums. As I was saying, usability and content are the easiest steps to reach, since it only involves the activity of the institution. For services and online participation, both people and institutions are involved. If the government provides electronic payments features, citizen will use them sooner or later, out of need or commodity. Participation comes a little later, since it requires a democratic and participative culture that can't evolve over night. But these two dimensions – services ad participation – can't occur if the personal information required isn't properly stored and protected.

To test if the distribution of the dimensions is resembles with other cities, I compared the Bucharest municipalities' averages with the European averages from Holzer's study (2009). Table 4 presents the results of the comparison.

[Table 4] E-governance dimensions distribution

Bucharest		Europe average		Top 19 (above average)		Bottom 15 (below average)	
Rank	**Score**	**Rank**	**Score**	**Rank**	**Score**	**Rank**	**Score**
Usability	13.48	Usability	12.7	Usability	13.62	Usability	11.54
Content	6.71	Content	9.51	Content	11.28	Content	7.27
Service	5.71	Service	7.27	Security	10.1	Service	5.18
Participation	3.57	Security	6.85	Service	8.92	Participation	3.57
Security	2.53	Participation	3.98	Participation	4.93	Security	2.47

Europe average – the average scores on all five dimensions for all European municipalities that had a website. Europe overall average is 40.3

Top 19 – the overall averages of the first 19 cities situated above 40 points

Bottom 15 – the overall averages of the cities situated under 40 points, Bucharest included

As it can be seen above, usability registers the best score on Europe average, as well as for the first 19 and the last 15. The same applies for content. The participation dimension comes last on the European averages score and the top 19 cities. Security comes last on Bucharest municipalities and on the bottom 15 cities. However, even if participation ranks better in the 5 dimensions distribution than in the European average and the top 19, the absolute score is still lower.

The concern for privacy and security seems to be lower on cities in early stages of e-governance development. The hypothesis I am proposing is that the higher the security score is, the higher the scores of the other dimensions will be. Looking at the table 4, the average security score for the first 19 cities is even higher than the services score. Usability remains relatively stable, but all the other absolutes scores are higher. This hypothesis would need further testing of course, but we can advance a simple explanation in this moment.

E-governance is not as simple as it looks. And it's doesn't come without risks either. We can speak about two types of risk: intrinsic risks and perceived risks. The intrinsic risks are the actual risks of e-governance. Online transactions involve always a degree of risk: the internet is not always stable; the web pages could be hacked etc. The storage of personal data is also a delicate matter. The law demands the protection of personal data and storing databases of user information online means a great responsibility from the institutions.

The perceived risks refer to the risks that users are or are not willing to take when using public online services. They can consider that the information offered is not accurate or reliable, could choose not to trust the security of the online transactions or the confidentiality of their personal data. All these perceptions of risk and trust issues can and probably have an impact over the usage of online services by users. These questions need another study besides this one, but they remain legitimate and could offer possible explanations on the electronic governance's performances in Romania and worldwide.

Other explanations for the overall low usage of electronic services can be the low internet penetration, low internet usage or the fact that citizens simply don't interact that much with public institutions. For data regarding this subject see the Agency for Governmental Strategies (2007).

One last possible explanation could be the fact that citizens consider using online public services as too complicate and, corroborated with the relatively rare usage, prefer to go in person to the institution building. (Dunleavy & Margetts, 2007)

Conclusion

Looking at the data presented earlier in this paper, we can see that the six Bucharest municipalities have a rather low score as compared to other European cities, being situated in the lower half. Even though they scored well on the "usability' dimension, this only represents the beginning in the road to successful e-governance. I keep the belief that the security dimension is the key to e-governance success. The low score in security and privacy could mean a refusal to govern through electronic means. The several privacy policies that I Identified stated clearly that the institution doesn't assume any responsibility regarding the loss of personal data, nor it can guarantee for the accuracy of the presented information. Failing to provide the security dimension, the service and participation dimensions cannot and will not evolve.

This paper has its obvious limitations and the explanations that I propose need to be tested using other methods too. The analysis of municipal sites can offer insightful information, but it doesn't cover many aspects such as the citizen's point of view, or the public institutions employees.

In addition, the analysis only covers the municipal websites in Bucharest and it doesn't have the pretention to represent the state of e-governance in Romania. What it does however, is to offer a small piece of a larger picture that is e-governance in general and in Bucharest municipalities in particular.

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APPENDIX A

Privacy/ Security	
1-2. A privacy or security statement/policy	12. Secure server
3-6. Data collection	13. Use of "cookies" or "Web Beacons"
7. Option to have personal information used	14. Notification of privacy policy
8. Third party disclosures	15. Contact or e-mail address for inquiries
9. Ability to review personal data records	16. Public information through a restricted area
10. Managerial measures	17. Access to nonpublic information for employees
	18. Use of digital signatures

11. Use of encryption	
Usability	
19-20. Homepage, page length. 21. Targeted audience 22-23. Navigation Bar 24. Site map	25-27. Font Color 30-31. Forms 32-37. Search tool 38. Update of website25-27. Font Color 30-31. Forms 32-37. Search tool 38. Update of website
Content	
39. Information about the location of offices 40. Listing of external links 41. Contact information 42. Minutes of public 43. City code and regulations 44. City charter and policy priority 45. Mission statements 46. Budget information 47-48. Documents, reports, or books (publications)	49. GIS capabilities 50. Emergency management or alert mechanism 51-52. Disability access 53. Wireless technology 54. Access in more than one language 55-56. Human resources information 57. Calendar of events 58. Downloadable documents
Service	
59-61. Pay utilities, taxes, fines 62. Apply for permits 63. Online tracking system 64-65. Apply for licenses 66. E-procurement 67. Property assessments 68. Searchable databases 69. Complaints 70-71. Bulletin board about civil applications	72. FAQ 73. Request information 74. Customize the main city homepage 75. Access private information online 76. Purchase tickets 77. Webmaster response 78. Report violations of administrative laws and regulations
Citizen Participation	
79-80. Comments or feedback 81-83. Newsletter 84. Online bulletin board or chat capabilities 85-87. Online discussion forum on policy issues 88-89. Scheduled e-meetings for discussion	90-91. Online survey/ polls 92. Synchronous video 93-94. Citizen satisfaction survey 95. Online decision-making 96-98. Performance measures, standards, or benchmarks