THE 8TH EDITION OF THE INTERNATIONAL CONFERENCE
EUROPEAN INTEGRATION
REALITIES AND PERSPECTIVES

Comparative Study on Local e-Government "Romania and Turkey"

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Abstract: This paper is designed as a comparative study between Romania and Turkey on certain aspects of local electronic government elements of several localities of those 2 countries. The differences between the countries considered in this study are not neglected, starting with culture (organizational, but not only) and ending with economic aspects. In the paper we will present: the IT framework in which public administration operates (with features on each country); macroeconomic issues with direct impact on the development of e-government - where we present financial information on investments in IT sector in both countries; and the municipal web sites analysis of the countries – were we try to find, using a predefined scale, common elements and differences that arise when we look at the development of the local e-government. **Objectives:** We will find out why Internet users in Turkey visit and interact more frequently with the Local Administration Web Site than those in Romania. The intention is to build the architecture of a Web site designed to provide good interaction to citizens. **Approach:** This paper is an in-depth analysis of official web sites of town halls. We used a predefined scale taken from similar studies, but adapted to extract relevant elements. For a more accurate study we compared cities were the difference (in terms of finance and inhabitants) is not too big. **Results:** As a result we will find out why Internet users in Turkey visit and interact more frequently with the Local Administration Web Site than those in Romania. The **Value** of this article is the comparative study itself, by this, we may start developing better Web sites, dedicated to the use of citizens.

Keywords: e-gov; electronic; digital

1 Introduction

The computers and the Internet have changed significantly the way in which the citizens can have access to public services. The informational society is more and more present in all the activities of the public sector, including through complex applications of electronic governance.

Today, for interacting with the public administration a computer connected to the Internet is usually enough. Connecting from a browser to the Web page of the institution you look for is enough (generally) for obtaining and sending information to/from the public administration. Scientific literature presents 5 pillars of interaction of the PA with its environment: *(1) Displaying information on the Web pages – one-way communication, (2) Two-way communication, (3) Financial systems and Web transactions, (4) Vertical integration (inter-department) and horizontal (intra-department) of the public services available on-line* and *(5) Citizen participation to the government activity* (Pardo 2000; Baltac 2008; Vrabie 2009).

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Since the early 2000s, "information society" initiatives are observed all around the world. The Lisbon Strategy which aims to make the European Union the most competitive and dynamic knowledge-based economy in the world by 2010 is one of the efforts to adapt to this change: The eEurope 2002 Action Plan, the eEurope 2005 Action Plan, and i2010 (updated in 2005) redirected towards new targets with information, innovation and social inclusion as its core topics.

2 E-Transformation

2.1 Romania

For the municipalities in Romania electronic governance is a relatively new practice (the first national project on this theme was initiated in the year 2003 - www.e-guvernare.ro[1]) and it includes digital governance (the offering of public services through electronic means) as well as digital democracy (citizen participation at the governance activity); (Holzer & Kim, 2005).

The conceptual frame marked by those five pillars found in the Introduction chapter of this article, is necessary only for the understanding of the evolution of eGovernment. In Romania, in this moment there are 41 districts and 103 municipalities, from which only 96 (93.20%) are present on the Internet.

In Romania, only few of its municipalities (we will find in the following pages more detailed information) have a Web site sufficiently developed to allow communication as it is described in the pillars 3, 4 and 5. Practice has showed that there is no lineal evolution and this is a good reason to expect that at the next analysis the number of municipalities that use well developed Web platforms to be greater.

To the point, the elements taken into account in the analysis were: the presence of transparency elements, the management of electronic documents, useful content, methods of bidirectional communication and some general elements regarding the Web site taken into discussion (graphic interface, the easiness in navigating, the richness of information connected to the municipality etc.).

Given the above, not to load with less relevant information, we took into consideration just the first two web portals of the emblematic cities in Romania and Turkey (Bucharest and Constanta vs. Eskişehir and Bursa).

2.2 Turkey

In Turkey, transformation into an information society has gained the momentum since 2000s. Turkey has become a party to the eEurope+ Initiative, which has been designed for EU candidate countries in 2001 and started the "eTransformation Turkey Project" in 2003. Vision is on the production of science and technology, using ICT as an effective tool, value with information-based decision-making processes, success in global competition, and welfare"[2].

E-Transformation Turkey Project by (then the Prime Ministry State Planning Organization (SPO)); now Ministry of Development, Information Society Department has envisaged a number of actions in formulating the Information Society Strategy: All public institutions, NGOs and universities are related (State Planning Organization 2003). Basic steps to mention a few are: Information technologies

[1] Law no.161/2003 sets the legal basis of the National Electronic System, with the declared purpose of ensuring access to "public information and provision of public services towards physical and juridical persons.

[2]http://www.bilgitoplumu.gov.tr/Portal.aspx?value=UE9SVEFMSUQ9NSZQQUdFSUQ9MTQwJlBBR0VWRVJTSU9OPS0xJk1PREU9UFVCTElTSEVEX1ZFUlNJT04.

infrastructure and training aimed; enactment of the draft law for the Right to Access planned; determining the minimum information to be presented and the presentation principles on public websites, provision of the application as per Web Accessibility Initiative has started (www.w3.org/WAI). In the next stage, determining standards of e-services provided by Local Administrations where responsible agency was Ministry of Interior General Directorate of Local Administration and related agencies are SPO Turkey, Municipalities Union, Metropolitan Municipalities, The Union of Special Administration, The Union of Village Headmen, and NGOs (State Planning Organization 2005). The objective was "to identify the principles of interoperability required for the e-services provided by local administrations, communications between local administrations and central government as well as among local administrations".

Investment cost, project duration, complexity of action (e.g., number of agencies involved in the implementation, requirement to extend the implementation to local level, different technological infrastructures used in implementation and level of integration" (State Planning Organization 2006) have impacted the complex system of e-local governance in Turkey. The initial years (2006-2007) defined as "the period for founding infrastructure and quick win projects": the comprehensive foundation of technological infrastructure, the establishment of the legal infrastructure which needs further inputs and enactment of regulations, publication of standards and establishment of organizational structures required for the subsequent phases. Quick wins imply addressing the actions that have already been initiated and from which high benefits/ greater impacts can be obtained in the short term by accelerating them with relatively minor interventions".

For this paper's framework, a directly related project is the Local e-Democracy Program (State Planning Organization 2006): Local e-democracy applications at municipalities will be made widely available; these applications will be standardized, all Municipalities implementing these applications will be responsible for fulfilling the minimum standards. Multimedia resources will be published on municipality web sites for better communication of local policy priorities to the citizens. A feasibility study will be conducted regarding e-polls/surveys, and pilot implementation will be done in a selected provincial municipality. These measures are designed to give an integrated framework for public administration and local governments. Some municipalities are better than others in providing those project targets including Internet access centers and training programs. E-participation avoding philosophy, estabishing new services, easening access to information, problems of supporting infrastructure for being on-line 7/24, limitations on disability friendly web sites and services, motivational problems, limitations on information access, and computer literacy constrains should be handled (Balcı and Kırılmaz 2009)

Table 1. The History oh IT in Romania and Turkey and Its Dynamic

	Romania	*Turkey*
First e-gov project	2003 – e-guvernare.ro	2001 - eTransformation
% of municipalities with an active Webpage	97%	93%
Elaborated software (GIS, video, etc)	13%	15%
On-line payment	8%	2%

Source: Catalin VRABIE and Kemal M. ÖKTEM

3 Economic Issues with Direct Impact on E-Government

3.1 Romania

Romania has at this moment about 90,000 - 100.000 employees in the IT producing 10% of GDP. This element is very important statistic to note in the context of the whole country because here we can see that the agriculture produces 13% of GDP (the number of farmers is estimated at several million). According to the Manufacturers and Distributors Association of Information Technology and Communication Equipment (APDETIC), 47% of Romanian households had at least one computer in 2010 and Internet penetration rate was 35-36% in the same year (the entire IT market from here estimated at 1.9 to 2 billion dollars - excluding telecommunications segment).

About 75% of private sector investments are made in that SMEs account for 60%, while public sector has only 25%. These values are about 5% of EU average, which is very little. But obviously not all those elements have direct impact on the development of e-government (most of those investment are enterprise type) but cannot be ignored.

In Romania citizens have an average income of 3.864 euros per year. It is not surprising to learn that less than half of households have a computer in their possession. For a good e-government development of this percentage must increase (the first very important step). Items that could help in this regard are too complex and not covered by this study.

In terms of IT, local government in Romania has the necessary hardware infrastructure, but there are gaps in the application segment. Furthermore, IT departments are undersized as personal, which highlight the need for services. Budgets for current expenditure are generally satisfactory, but for large development projects, additional funds are needed.

We chose a sample of 50 Romanian public institutions - 21 county councils and 29 municipalities to take a short interview to the heads of IT Departments there. The study was conducted by telephone in June this year and aimed to provide analysis of existing IT infrastructure in local government. The questionnaire consisted of nine single or multiple choice questions (though the final it proved to be a discussion). The questions included the topics such as IT infrastructure, servers and applications, IT department size, the dependence grade from the institution top management in terms of IT strategy, budget expenditures last year (software vs. hardware), existing requirements and possible direction of the budget for next year.

In general, IT departments are undersized to the local government needs, both through wage policy, completely not competitive with the private sector, and a lower attractiveness when comes to professional challenges and development opportunities. Thus 28% of institutions surveyed have less than 2 employees (in IT departments), 57% have between 3 and 6 employees and 15% over 6. Obviously, there is a correlation between the number of employees of IT services and size of the institution: 16% of them having fewer than 100 PCs, and 24% over 200. The degree of computerization of these institutions seems to be quite high, the differences between the number of employees and users are minimal, moreover, the ratio of the number of users and the PC is about 1-1.

In terms of servers and applications, the situation is as follows: 22% of respondents have less than 3 servers, 47% have 4-6 servers, 20% 7-8 and only 11% more than 9 servers under administration. Since virtualization projects are not so many in the public or software applications *as a Service* are not yet so largely spread, these servers are conventional equipment, running a single application and with no attached storage system. A conclusion drawn from here is that the infrastructure level for application is

not quite as we may be expected. The questionnaires showed that, from this point of view, 28% of institutions have less than 5 applications, 55% between 5 and 10 and only 17% have over 15 functional applications. Critical applications in these institutions are related to: paying taxes, e-mail, document management, portals, GIS, project management, planning applications, building permits, accounting applications, payroll, ERP, HR, registry, authorization commercial, etc.

The amounts allocated for spending on IT has never been large in to the public sector. This is reflected in all aspects: from salaries, to technologies used or projects initiated. Insufficient budgets have been an obstacle in the development of large projects, but a pretty big hope is the European funds that these organizations can go in several sectorial programs. Yet, on the terms of current expenditures on IT Services, the department chiefs questioned declared in a percentage of 45% that they are satisfied with the budget; 37% consider it poorly; and 18% very poor. These budgets were for 12% of organizations involved in the study under 100,000 euros, 24% between 100,000 and 300,000 euros, and 20% over 300,000 euros. In 44% of cases, the IT budget allocated was not specified.

Less than half of the institutions invested in software applications last year (it must been seen as a first element of this lack of investments the financial crisis that has hit the public sector badly in Romania). The most popular were Geospatial solutions (38% of those who have invested in software) and Document Management (37%), and the ERP (34%) and CRM (24.5%). However, most public institutions surveyed did not make any investments in the application software last year.

3.2 Turkey

ICT investments in Turkey in 2010 are 25.05 billion $ which is a share of 3.40 % in the GNP. There are 174,367 employees (10-11% of the total employment) working in this sector (DPT 2011a) Internet users is 37.6% (of the age group 16-74). Public ICT investments is above 2 billion $ in 2011.

”E-transformation” should well exceed the expecting an automated computarization of public offices. Public administration as a sub-system of general socio-economic systems, is in a dynamic interaction of equilibrium with physical environment, legal system, government policies, and level economic development, etc. (Öktem and Aydın 2005). Major difficulties in implementing e-government process in Turkey stated as budget constrains (80%), legal limitations (75%), and digital divide (55%) (DPT 2007).There is still a long way to go in terms of increasing computer and Internet usage by citizens. In addition to low usage rates in the society and the differences observed in different groups, another problem we face is the fact that the Internet is not used very effectively. According to the results of the 2004 ICT usage survey on households and individuals, Internet is used for obtaining information and playing games (93.2%) or for communication (76.21%). Only 8.2% of the Internet users access the Internet specifically for training related to employment and the proportion of those who use the Internet to order or sell goods and services is only 3.5%.

In Turkey, the proportion of individuals who have received no education/training on information technologies (IT) is 92%. The segment trained on IT usually consists of young people who benefit from the basic computer literacy programs which are becoming more and more widespread in educational institutions in particular and those who usually need IT skills to find a job (State Planning Organization 2006: 7). in Turkey, more than half of the population (62%) have no idea about the Internet. This is applicable particularly for segments other than students, employees and those who are looking for employment; which shows that there is a need to undertake intensive efforts to raise awareness and motivation in specific segments of the society.

In Turkey Public sector investments in ICT have quadrupled since 2002. (DPT 2011). Especially in education sector there is a huge increase: Universities and the Ministry of Education have a share of 43%; then comes Department of Social Security and the Ministry of Interior.

A report by James Erickson of Forrester Research dated 2011[1] on "Turkey Public Sector Market Analysis" provides a background of the dynamics in the public sector market in Turkey. This analysis addresses market opportunities in Turkey. For better focusing on public sector IT initiatives, trends, policy issues, ICT donor activity, and a national ICT investment framework, one could overview and assesses local public sector competitors in Turkey and global competitors such as: Cisco, Google, IBM, Novell, Oracle, RedHat, VMware/EMC, SAP, and Sun Microsystems.

Only 14% of municipalities use mobile on-line account payment systems (POS) in the field (Ministry of Interior 2011). 36 of them are using e-signature and 73 mobile signature systems (integrated on: management information systems 51; geographical information systems 21, and software implementations 85). Only 5% of municipalities use vehicle following system with GPS. Only 6% has digital archives integrated with MIS or GIS. Only 3% has completed GIS and 4% is actively using that. Only 1% has video-based city info on their web sites. 46% of municipalities have complied with the requirements of e-transformation Turkey project on interoperability. Citizens prefer mostly to use real estate tax inquiries links. Only 7% has user satisfaction surveys. Only in 8%, it is possible to pay for tax, fee, and charges. Only 1% has an impact analysis of cost-benefit on ICT investments. They are facing difficulties in financing and finding expert personnel.

4 Research Study: Cities Comparative Study

The present study aims to radiograph the status of the official Web sites for two municipalities in Romania and another two from Turkey (we have chosen for both countries emblematic cities). The elements used in this research are taken from a previous study: "Digital governance in Romanian municipalities 2010" (Vrabie, 2010) and "A longitudinal assessment of municipal Web sites in Romania 2012" (Vrabie 2012), adapted afterwards to take in relevant values for both countries.

The obtaining of data was made through individually accessing of each official Web site of the municipalities. Once accessed the Web site, the elements presented in the table 1, received a value of 0 or 1 (0 = it doesn't exist; 1= it exists) for every element submitted to the research, for example: "Can you submit petitions on-line?" or: "Is there an electronic map of the municipality?"

Obtained results

Bucharest (Romania)

Transparency:	4.17	
E-Doc:	5.00	
Communication:		5.00
Useful content:	5.00	
General info:	4.33	
Final result:	**4.70**	

[1] http://www.forrester.com/rb/Research/turkey_public_sector_market_analysis_data_tables/q/id/59362/t/2.

The Romanian capital has ranked first among Romanian municipalities, obtaining the highest score.

The mayors' office in Bucharest was situated in 2007 on the 37th spot in the world on eGovernance (nevertheless better than in 2005, when it was in the 64th position), outmatching cities like Brussels (38th place), Athens (52nd place), Kuala Lumpur (64th place), Budapest (67th place) or Chisinau (69th place). In the same study, this time at the continent comparison, Bucharest occupies the 19th position in Europe, after Helsinki (1st place), Madrid, London, Vienna; but also in front of the Danish capital of Copenhagen (22th place) or other cities like: Oslo (27th place), Lisbon (28th place), Warsaw (34th place) etc[1].

Constanta (Romania)

Transparency:	4.17	
E-Doc:	4.17	
Communication:		3.33
Useful content:	3.33	
General info:	4.00	
Final result:	**3.80**	

Constanta city hall web site has ranked ninth among Romanian municipalities. Constanta is a city in Romania with a great tourist character but, unfortunately, is almost untapped on its website. There are several images accompanied by advertising links to other sites, but unfortunately that's about all. Mamaia (a Black Sea resort - rightly considered the Romanian seaside pearl) is almost invisible on the web page (it should be noted that Mamaia is a neighborhood of the Constanta city).

The possibility to change the language in order to view information on the web site is an element that helps to increase the city visibility abroad, but unfortunately the only language is English, despite the fact that many foreign tourists visiting the city are from the German speaking countries.

Bursa (Turkey)

Transparency:	3.33	
E-Doc:	2.50	
Communication:		3.33
Useful content:	4.17	
General info:	3.00	
Final result:	**3.27**	

This municipality has put "CORPORATE" link in the first place. Under this link, one can find mission and vision statements. Its mission on the web is emphasizing a participative, transparent administration; employing scientific methods for better quality in providing services.

In terms of transparency, a careful analysis could reach to the strategic plan[2] (a total of 87 pages for the year 2010-2014) which includes a SWOT analysis: Regarding the weaknesses, red tape (bureaucracy) and over 70%, inefficient work process flows over 40%, inadequate relations with

[1] Digital Governance in Municipalities Worldwide (2009) - A Longitudinal Assessment of Municipal websites Throughout the World, 2009 - Marc HOLZER, Seang-Tae KIM.
[2] http://www.bursa.bel.tr/dosyalar/2010-2014_stplan.pdf.

stakeholders almost 40%, qualification problems of human resources around 35%, not being transparent and objective organization almost 30%. In general, navigation is relatively practical. And if one considers that on the first page at the bottom, there are some useful links for local citizens such as transport services on the road, rail, sea; news on the artistic performances, veggie prices, social housing; social services on problematic issues like drug abuse, etc. .

Eskişehir (Turkey)

Transparency:	3.33	
E-Doc:	2.50	
Communication:		3.33
Useful content:	2.50	
General info:	3.33	
Final result:	**3.00**	

Eskişehir municipality has put its "CORPORATE" link as the third title on its web as well[1]. Its mission has a broader sense of citizenship as a solution provider to problems of urbanization in Turkey: providing a city ambiance for better growing up of the youngsters, and better future expectations for fellow townsman.

Its performance program for the year 2010[2] presents a detailed list of investments, cost of projects, and so on. In the strategic plan for the years 2011-2015[3], there is a SWOT analysis at a general level. It states that a weakness of the municipality is inadequate income. And ironically, although the mayor himself is an ex-rector of the university, the report emphasizes the problem of low level of coordination between municipality and the university. Although it does not mention e-government initiations, we might think that it has been implied, since, as a part of its strategy, it claims to an active and swift municipality organization besides being a leading one. On the first web page, there seems to be a good looking design, relatively less shiny. Main subjects such as geography, education and transport, with list of information, not necessarily active.

5 Concluding Remarks

As referred, the initial years (2006-2007) of e-government in Turkey focused on founding infrastructure and quick win projects: (1) technological infrastructure which needs further improvements; (2) the establishment of the legal infrastructure which needs further inputs; (3) enactment of regulations which needs monitoring and betterment; (4) publication of standards which needs dissemination and acceptance; (5) establishment of organizational structures which needs finish ups; (6) quick wins which needs finalizing & cost-benefit / impact analysis in the short & long terms which needs interventions.

It should be remembered that investment in education in Turkey (especially IT) preceded the implementation of e-gov projects. Romania made the mistake first to invest in very ambitious project but proved (at large) to be a failure because the target market of users was not yet familiar with using the Internet and / or computer in the concept of e-gov idea. Although it may seem strange but here,

[1] http://www.eskisehir-bld.gov.tr/kurumsal_misyon.php.
[2] http://www.eskisehir-bld.gov.tr/dosyalar/performans-prog/2010.pdf.
[3] http://www.eskisehir-bld.gov.tr/dosyalar/stratejik_plan/stratejik_plan.pdf.

despite the fact that the graph that show the computer and the Internet use is growing, the users are not interested in working with state institutions in this form, why? Population does not see the opportunity that a computer opens to them. What to do? Well ... the state must, by developing an adequate legal framework and then by investing in education to intervene, to move things in this direction. The e-gov project developers have to add modules of training among the users. Another recommendation for IT management of public institutions of local government in Romania would be to focus on the strengths of the area that they deserve. If it's a tourist area, posting legislative items on the site (as required by law) may not be exactly necessary. A site rich in multimedia elements could attract more. For a highly industrialized city, the component business would be more interesting to exploit, etc. Mere fulfillment of legal obligations is not enough. Municipalities in Turkey (and we're sure other countries as well) have understood and adapted to these issues. This is another important reason that differentiates the two countries analyzed. Therefore, number of visits to municipalities a web site in Turkey is much higher than in Romania (when other variables remain more or less equal).

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