Evaluating Local E-Government: A Comparative Study of Greek Prefecture Websites

Prodromos Yannas and Georgios Lappas
Technological Educational Institution of Western Macedonia
Greece

1. Introduction

This chapter explores the use of the internet by Greek local government. Prefectures may use the internet for delivering services to citizens efficiently. A four-stage evaluation scheme is developed to investigate the quality and sophistication of prefecture websites. The study adopts a comparative focus enabling us to analyze prefecture websites before and after the 2006 local elections and to draw conclusions on the sophistication and the upgrading of websites regarding information provision, interactivity, transactions, and citizen-oriented services.

Compared to politics at a national scale, politics at the local level is much closer to the concerns and lives of citizens. Issues are more linked to the everyday lives of citizens (ie., environment, sanitation, traffic congestion, local development projects, etc) and the use of information and communication technologies (ICTs) transforms the interface of local politicians and officials with citizens by rendering local administration more efficient and local politicians more accountable to citizens' concerns and demands. Local government in Greece is comprised of two levels. The first level consists of municipalities (cities and smaller village communities) and the second deals with prefectures. In performing their local administration duties, elected mayors and prefects are assisted by elected representatives that make up the municipal and prefectural councils as well as the staff comprising the local bureaucracy.

Following the 'Capodistrias Reform Program' and the enactment of Law 2539/1998 aimed at municipal amalgamations, there exist currently in Greece 51 prefectures, 900 municipalities and 133 village communities. In the case of prefectures, the prefecture of Attica is further split into four prefecture units of Athens, Piraeus, Western Attica and Eastern Attica. Greek policy makers have been talking for some time for a further major reduction of the total number of prefectures from 54 to 16-18.

E-government has made very few inroads in Greek local government. There are at least three major reasons for the slow-pace embracement of the ICTs by local government in Greece. First, internet penetration in Greece throughout the first decade of 2000 is maintained at low levels, whereas in 2002 households with internet access were close 18% (Flash Eurobarometer, 2002) the figure rose only by 4% to 22% in 2008 (Special Eurobarometer, 2008). The Greek figures lag considerably behind the 2002 average of 43%

(Flash Eurobarometer, 2002) for the 15 EU-member-states as well as the 2008 average of 49% for the 27 EU member-states (Special Eurobarometer, 2008). Additional support for the low internet penetration in Greece is provided by United Nations (UN) data. In UN reports related to E-government rankings Greece falls from 35th place in 2005 (UNPAN, 2005) to 44th place in 2008 (UNPAN, 2008) on the global e-government readiness index.

This low level of internet penetration maybe related to the expensive rates internet providers charge for connecting households to the world wide web. Second, Greek prefectures are not autonomous from central government and they are financially dependent on transfers from the Greek state. It is estimated that local governments of the United Kingdom, the Netherlands and Greece are the most dependent and those of France, Denmark and Sweden the least dependent on financial transfers from central governments (Lalenis, 2003). The economic dependence is coupled by the partisan dependence of local leaders on political parties for electoral nomination and continuous support. Third, people residing in local communities all over Greece, with the exception of the metropolitan cities in greater Athens and Thessaloniki areas, prefer to engage in face-to-face communication with their elected representatives rather than interact over the internet.

This last observation is corroborated by previous studies of Greek e-political campaigning at both the national and local levels which demonstrate that a) according to Pippa Norris' classification of campaigns into pre-modern, modern and post-modern (Norris 2000: 137-179) campaign communication in the Greek periphery resembles characteristics of pre-modern campaigns with an emphasis on interpersonal communication whereas political campaigns in Athens and Thessaloniki exhibit definite modern traits (Doulkeri and Panagiotou, 2005); b) interpersonal candidate-voters relationships figure prominently in local press coverage of electoral contests (Demertzis and Armenakis, 2002: 220); and c) the web is more widespread, probably due to population size and time constraints, as a political marketing tool among politicians in metropolitan areas than those in the periphery of Greece (Yannas and Lappas, 2005: 39-40).

In this chapter a four stage scheme for evaluating local government websites is proposed and an attempt is made to assess the performance of Greek prefecture websites against this scheme. Prefecture websites are evaluated in two different periods separated by the 2006 local elections. Local elections can be considered as a watershed event, offering us a comparative lens for discerning continuities and patterns in the performance of Greek prefecture websites.

2. E-Government Sophistication Levels

E-government aims at the administrative coordination of government units for more efficient and less costly provision of services to clients. According to the Danish Ministry of Finance, "e-government is the use of ICT to improve and make the handling of public management tasks more efficient for the benefit of citizens, companies and the public sector" (Torpe, 2003). Proponents of e-government adopt a one-way managerial discourse geared to improving government performance with citizens taking a backstage role.

Government organizations go through stages in delivering services to citizens. The stages an organization goes through usually begins from a simple informational website and reaches the climax of using the web as an important medium to offer services to citizens and internal services to various levels of employees and departments and other groups related to the

organization. The e-government dimension of an institution is usually implemented gradually. Public demand, cost reduction, familiarization with the medium or organizational strategic plans can be driving forces for going through the stages.

A number of e-Government models, ranging from three to six stages, have been proposed in the literature (Irani, et al 2006). All models start with an informational stage and having a number of different intermediate stages end to a final stage. Most models seem to have in common the four stages of (Chandler & Emanuels, 2002) amounting to information provision, interaction, transaction and integration.

The first stage referred to as information stage (Chandler & Emanuels, 2002) or publishing stage (Howard, 2001) or emerging stage (United Nations, 2002), describes the online presence of an organization enabling one-way government to-citizen communication without enabling interaction with the public.

The second stage, a step up from the first, includes the feature of interactivity in the government agency to citizen relationship (G2C).

The third stage called the transaction stage incorporates various levels of complete and secure transactions between government agents and citizens.

The final stage referred to as integration stage (Chandler & Emanuels, 2002), or horizontal integration (Layne & Lee, 2001), or otherwise known as fully integrated stage (United Nations, 2002), is related to the highest level of integration of government services from a single point, which usually requires transformation of the organization.

The integration of government services provides internal services across administrative and departmental lines and provides for the security of all personal data. The transformation of the organization also involves training employees to get familiarized with the integration of the government electronic services and hiring or assigning more employees to support the services and become familiar with computer technology. It should, however, be mentioned that there exist no clear lines demarcating the stages, rendering the task of identifying the stage at which an organization is operating rather difficult. It is expected that as the sophistication of the site and the required technology increases, there is a corresponding increase in the benefits that accrue to citizens from service provision.

3. A Proposed E-Government Evaluation Scheme

The evaluation of prefecture websites follows the four-stage model of Chandler & Emanuels (2002). Our study goes a step further by proposing an evaluation scheme to accompany the four-stage model. The evaluation scheme is composed of 11 overall sub-stages and 154 overall indices. It uses a weighted ranking scheme totaling 1000 points with each stage assigned 250 points as maximum score. Each sub-stage is evaluated according to criteria that best describe the stage category, with the accompanied scores being assigned in parenthesis (see Appendix A).

In Stage I (Information Provision Stage), the prefecture decides to go online and provides information to site visitors. The information is directed from the local government to citizens and is similar to a brochure or a leaflet. The stage is subdivided into 5 sub-stages that follow a marketing plan procedure. Beginning with the query whether the site can be easily located, the evaluation scheme proceeds to examine users' perceptions regarding the attractiveness of the site, the ease of navigation, the richness of content, and the frequency of providing new information as an inducement for revisiting the site.

In Stage II (Interaction Stage), the prefecture incorporates various forms of interaction with citizens, (i.e. email, newsletters, forums etc.). The stage is subdivided into four sub-stages indicating the type of interaction: passive government to citizen (G2C) and citizen to government interaction (C2G), as well as real time G2C and C2G interactions.

In Stage III (Transaction Stage), the prefecture offers citizens the service to perform a number of transactions online, such as requesting documents, accessing payments, downloading official documents or programs etc.

In Stage IV (Integration Stage), the prefecture undergoes through a transformation at the organizational level to maximize citizen satisfaction. The transformation is reflected in the way the web is used by officials and employees to carry out functional duties. A website will have attained the transformation stage if different levels of access are assigned to different groups of people and if menu and content categories are suited to the interests of different groups of people (employees, citizens, tourists, members of the prefecture council, other governmental officials, authorities, etc). Web site personalization to meet citizen preferences is also included at this stage. Therefore this stage is subdivided into two sub-stages: Prefecture Transformation and Site Personalization.

4. Application of the E-Government Evaluation Scheme to Greek Local Government

To demonstrate the relevance and value of the proposed e-government evaluation scheme a quantitative content analysis of the 54 Greek Prefectures was carried out in two different periods separated by the local elections of 2006: a) the period March to October 2006, and b) the period October to December 2008. The local 2006 elections were considered an important point of reference leading us to expect that new administrations would embark upon fresh initiatives in a number of areas including improved e-government performances. Prefecture website addresses were drawn from the listings of the websites of the Greek Ministry of the Interior (www.ypes.gr) and the Association of the Greek Prefectures (www.enae.gr). The sample for the first period numbered 48 prefectures with active websites, whereas the sample of the second period consisted of all 54 prefectures. A coding form was developed specifically suited to conform to the four stages e-government scheme. Previous e-government studies (Stowers, 2002; UNPAN, 2005; Zhang, 2005) were used as a basis for developing the coding form of Appendix A.

Pre-testing of the coding scheme was undertaken in a study conducted during the period June to July 2005 (Yannas & Lappas, 2006). To assure validity of the coding scheme three trained coders reached agreement on the overall structure and content of the coding form.

Table 1 lists the top prefectures across the various stage and sub-stage categories. None of the top prefectures in 2006 maintained the leading position in a category after two years. A quick look at Table 1 demonstrates that there is a great deal of fluctuation among prefectures in capturing leadership positions. Regarding period 2006, the prefecture of Kozani appears four times in the list of top prefectures, followed by Thessaloniki, Evia and Viotia that appear three times, while several prefectures appear only one time. The four times that Kozani appeared on the top prefecture lists in 2006 coupled with the fact that it topples the list in indices of more sophisticated stages make this prefecture the most comprehensive and sophisticated of all Greek prefectures in the use of ICTs for 2006. The drop out of Kozani from leadership positions in 2008, is more likely to be attributed to

changes in leadership positions as a result of the 2006 elections. In period 2008 the prefecture of Kastoria appears three times as one of the top prefectures, followed by the prefectures of Chania, Corfu, Lasithi, Serres and Western Attika, each appearing two times as top prefectures. As there was no leadership change in administration due to 2006 election in Thessaloniki and Kastoria, it is evident that the dropping of Thessaloniki from leadership positions of 2008 and the ascendancy of Kastoria among the top prefectures in 2008 was due to policy changes.

Stages	Sub-stage	Best Prefecture 2006	Best Prefecture 2008
Stage I	Site Locating	25 Prefectures	31 Prefectures
Stage I	Attractiveness	Drama	Pellas, Fokida
Stage I	Navigability	Thessaloniki, Leykada	Kefallinia
Stage I	Content	Magnesia	Western Attica
Stage I	Update Frequency	Thessaloniki	Chania, Corfu
Stage I	*Overall Performance*	*Thessaloniki*	*Western Attica*
Stage II	Passive G2C	Thessaloniki, Viotia, Xanthi	Kastoria, Corfu
Stage II	Passive C2G	Viotia, Evia	Kastoria, Chania
Stage II	Real Time G2C	Kozani, Serres	Evia, Heraklion
Stage II	Real Time C2G	Kozani Corfu, Evia	4 Prefectures
Stage II	*Overall Performance*	*Viotia*	*Kastoria*
Stage III	*Online Transactions*	*17 Prefectures*	*Kozani, Lasithi, Serres*
Stage IV	*Overall Performance*	*Kozani, Evia*	*Lasithi*
All Stages	*Total Performance*	*Kozani*	*Serres*

Table 1. List of the top prefectures at the two periods under examination.

From an e-government perspective the average performance of Greek prefectures and the best scores are presented in Table 2. The data of the first period (before the elections of 2006) reveal that the average performance scores of Greek prefectures, as recorded in our evaluation scheme, are: 120.4 (48.2%) in information provision; 36.3 (14.5%) in interactivity; 17.7 (7.1%) in online transactions; 24.4 (9.8%) in integration stage; and finally 198.8 (19.9%) for overall. Clearly prefectures at that period performed satisfactorily only in the first stage, using the internet more as an information provision portal to citizens than a service facility. A closer look at the 84 indices that makeup the content category indicates that prefecture websites adopt a promotional-commercial character of information. Prefectures seem not to differentiate between offering "services to citizen" and "Tourist Information Provision" as both indices are close to 50%. Citizen engagement seem to be a low priority category for prefectures as the average performance scores regarding transparency in decision-making are considerably low 1.8 (9%).

The data of the second period (two years following the elections of 2006) reveal that the average performance scores of Greek prefectures, as recorded in our evaluation scheme, are: 130.5 (52.2%) in information provision; 39.9 (15.9%) in interactivity; 28.7 (11.5%) in online transactions; and 20.9 (8.4%) in integration stage; and finally 220 (22%) for overall. A common finding for both periods is that the majority of prefectures engage in e-government services that are limited to information provision only. The second period is much alike the previous period. However, the second period registers a marked improvement over the first on the following:

a) A clear increase in the final best score of prefectures from 2006 (383) to 2008 (506). However this has not been followed by a similar increase in the final averages as the figures

198.3 and 220 are close enough. The prefectures of Serres and Lasithi , which have attained a best score of 506 and 425 respectively have over a two year time made genuine efforts to achieve high e-government performance. Their websites have sophisticated features and both offer comprehensive e-services to citizens;

b) The increase in the average performance of prefectures from 17.7 in 2006 to 28.7 in 2008 concerning the transaction stage demonstrates the willingness of prefectures to offer quality e-services to citizens;

c) A limited progress in interactivity is documented by a look at two indices: i) the best score in the overall performance of interactivity (from 88 to 100) and ii) the small increase of the average prefecture score in the overall performance in interactivity (from 36.3 to 39.9). This finding may indicate a policy direction of prefectures to start engaging more in interactive services;

d) The rise in the score of the sub-content category "transparency in decision making" from 1.8 (9%) in 2006 to 4.6 (23%) in 2008 indicates willingness on the part of prefectures to experiment with e-democracy characteristics in their websites.

Stages	Sub-stage	No of Variables	Max Score	Best Score 2006	Best Score 2008	Average Score 2006 N=48	Average Score 2008 N=54
Stage I	Site Locating	2	30	30	30	26.0	26.6
Stage I	Attractiveness	17	28	24	22	14.3	13.9
Stage I	Navigability	10	30	30	30	17.9	20.7
Stage I	Content	84	130	94	96	49.9	55.4
Stage I	Update Frequency	8	32	28	24	11.9	13.9
Stage I	*Overall Performance*	*120*	*250*	*180*	*172*	*120*	*130.5*
Stage II	Passive G2C	7	60	48	60	27.7	27.9
Stage II	Passive C2G	7	70	40	40	6.9	10.0
Stage II	Real Time G2C	5	60	12	12	0.5	0.4
Stage II	Real Time C2G	3	60	20	20	1.3	1.5
Stage II	*Overall Performance*	*12*	*250*	*88*	*100*	*36.3*	*39.9*
Stage III	*Online Transactions*	*5*	*250*	*50*	*200*	*17.7*	*28.7*
Stage IV	*Overall Performance*	*7*	*250*	*120*	*90*	*24.4*	*20.9*
Total	All Stages	155	1000	383	506	198.3	220

Table 2. Evaluation of Greek Prefectures

Figure 1 depicts schematically the comparison between the two periods along the four stages and the overall performance. A figure of this kind may be used to accommodate longitudinal and cross-national comparisons. We could envisage in the future a figure depicting the performances of many local government entities from many countries facilitating in this way the purpose of a cross-national comparison regarding local e-government.

The findings from the first to the second period follow the national trend in internet household penetration (Flash Eurobarometer, 2002; Special Eurobarometer, 2008) and the national e-government readiness indices of UN studies (UNPAN, 2005; UNPAN, 2008). This observation did not confirm our initial expectation that changes due to elections would result within a two year time frame in improved e-government performance.
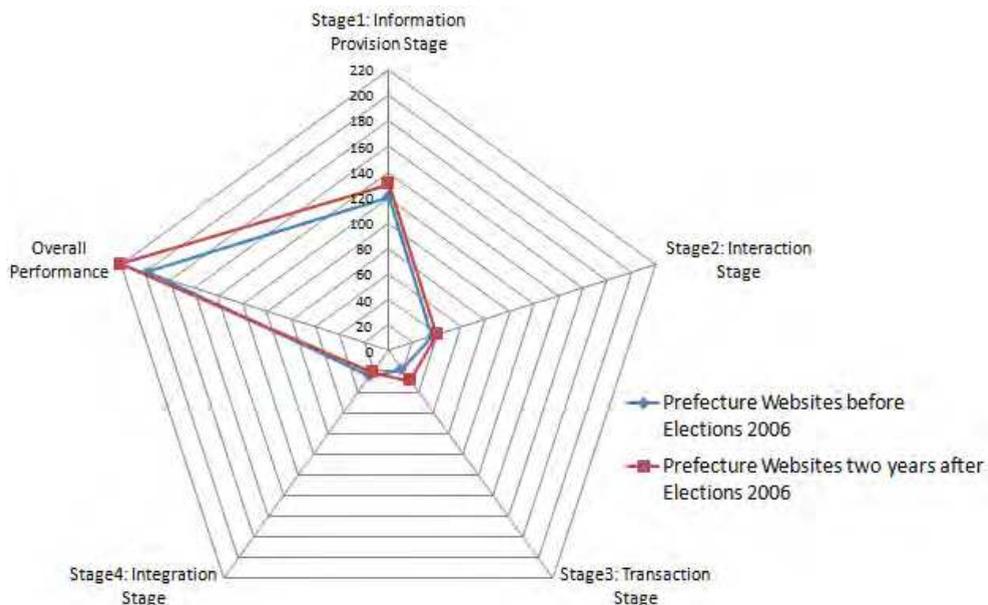
Fig. 1. Comparison of Prefecture Websites before and after 2006 elections.

5. Conclusion

This chapter is a comparative study of e-government provision by local Greek administration over two periods of time. A new evaluation scheme is proposed to identify various levels of e-government services. The novelty of the evaluation scheme lies with its comprehensiveness given that 154 indices are recorded. The findings of this work clearly demonstrate that the internet has not taken root among local government authorities. A number of prefectures are engaged with e-government features in an attempt to supply basic information to residents and tourism-relevant information to visitors. The fact that prefectures on average fulfilled only 48% of the maximum score they could potentially achieve (120 out of 250) for 2006 and 52% (130 out of 250) for 2008, indicates that most of the prefectures still have a long way to go in information provision. The picture appears to be bleaker in indices that measure stages II to IV. However, some prefectures (Serres, Lasithi) seem to be experimenting with more sophisticated e-government services.

Between the two periods under examination there is a noticeable trend among prefectures to experiment more in the transaction stage offering e-services to citizens. Surely, the fact that some prefectures are willing in the second period to experiment with more interactive and e-democracy features is an encouraging sign.

Our proposed scheme contributes toward the ongoing discussion for the development of a worldwide evaluation scheme that would measure the quality and sophistication of e-government websites. It would be interesting to compare the local Greek e-government performance with that of other countries using the same evaluation scheme. Such a

comparison would not only provide a better picture of the Greek e-government landscape in local administration but would also validate the proposed scheme cross-nationally.

6. References

Chandler, S. & Emanuels, S. (2002). Transformation Not Automation, Proceedings of 2nd European Conference on E-Government, pp. 91-102, Oxford, UK, 2002.

Demertzis, N. & Armenakis, A. (2002). The Parliamentary Elections of 1996 and 2000 in the Greek Local Press, In Political Communication in Greece, Demertzis, N. (Ed.), pp. 211-232, Papazzisis Publishers, Athens

Doulkeri, T. & Panagiotou, N. (2005). Political Advertising in Greek Municipal and Prefecture Elections of 2002: The Cases of Thessaloniki and Kastoria. Journal of Political Marketing, 4 (1), pp. 17-31.

Flash Eurobarometer (2002). Internet and the Public at Large, No 135, November 2002.

Howard, M. (2001). E-Government Across the Globe: How Will 'e' Change Government. Government Finance Review, 17 (4), pp. 6-9.

Irani, Z.; Al-Sebie, M. & Elliman, T. (2006). Transaction Stage of e-Government Systems: Identification of its Location & Importance, Proceedings of the 39th Hawaii International Conference on System Sciences, Hawai, USA.

Lalenis K. (2003). The Evolution of Local Administration in Greece: How Using Transplants from France became a Historical Tradition, University of Thessaly Discussion Paper Series, vol. 9(14), pp. 293-312.

Layne, K. & Lee, J. (2001). Developing Fully Functional E-government: A Four Stage Model. Government Information Quarterly, vol. 18, pp. 122-136.

Norris P (2000). A Virtuous Circle: Political Communications in Postindustrial Societies, Cambridge University Press, Cambridge.

Stowers, G.N. L.(2002). The State of Federal Websites: The Pursuit of Excellence, Arlington, The PricewaterhouseCoopers Endowment for the Business of Government, VA.

Special Eurobarometer (2008). E-Communication Household Survey, Report 293, European Union.

Torpe, L. (2003). The Internet and Local Communities, Copenhagen, Denmark: Center for Media and Democracy in the Network Society, Available at http://www.hum.ku.dk/modinet/ [accessed May 13, 2004]

United Nations (2002). Benchmarking E-Government: A Global Perspective, Available at http://pti.nw.dc.us/links/docs/ASPA_UN_egov_ survey.pdf [accessed March 14, 2006]

UNPAN (2005). UN Global E-Government Readiness Report 2005: From E-Government to E-Inclusion. United Nations, New York.

UNPAN (2008). UN E-Government Survey 2008: From E-Government to Connected Governance, United Nations, New York.

Yannas, P. & Lappas, G. (2005). Web Campaign in the 2002 Greek Municipal Elections. Journal of Political Marketing, 4 (1), pp. 33-50.

Yannas, P. & Lappas, G. (2006). E-Government and E-Democracy in Local Greek Government, Paper presented at 3rd Int. Political Marketing Conference, April 2006, Nicosia, Cyprus.

Zhang, L.(2005). Good Governance Through E-Governance? Assessing China's E-Government Strategy. Journal of E-Government, vol. 2(4), pp. 39-71.

APPENDIX A

Stage	Sub Category	Evaluation Indices
I-a Site Locating		Prefecture's name figures in the top-10 listings of Google search engine (15); Friendly, easy to figure out URL, like www.prefecture-name-or-abbreviation-name.country-initials. (15)
I-b Attractive ness		Dynamic media are portrayed in Introductory video before entering main page (2); video files (2); speech files (2); music in the site (2); animating text (2); animating graphics (2); photos (2); cliparts (2); banners (2); avoiding annoying pop-up advertisements (2); and 3d simulation (2) like a panoramic view of the area by using mouse clicks. The characteristics of design sophistication are portrayed in layout consistency (1), proper use of italics (1), proper use of bold (1), proper background (1), the use of no more than three main colors (1), proper editorial appearance (1) avoiding classes between colors, letters etc.
I-c Navigabili ty		Site maps (3); Return at home page option (3); No dead links or no "under construction pages" (3); Tags and labeling hypertexts (3); Labeling hypermedia and avoiding using hyperlinks in graphics that usually are missed by users (3); Appropriate number of lines that allows minimum page scroll (3); Search this site feature (3); Fast download (3); Recognizable new sections (3); Proper names in the various menus (3).
I-d Content	Services to Prefecture Citizens	Access to Official Documents (4) , Job Announcements (4), Staff Members (4), Contact Information for Staff Members (4), Organization Departments (4), Required Application Documents (4), Information for Citizen Service Centers (4).
I-d Content	Transpare ncy in Decision Making	Dates of the Next Council Meeting (4), Agenda of the Next Council Meeting (4), Invitation to the Council Meetings (4), Council Decisions (4), Archives of Previous Council Decisions (4)
I-d Content	Services to Tourists	Transportation to reach us (1); Transportation Schedules for reaching us (1), Sightseeing's (1), Museums (1), Operating Hours (1), How to reach various places (1); Interactive Map of Interesting Places (1); Map of the Area (1); Accommodation (1); Restaurants and Food Services(1); Entertainment (1); Local Events (1); Local Products (1); Local Transportation (1); Activities around the area (1).
I-d Content	Prefecture Achieveme nts	Description of the Action Plan (projects) used in Election Campaign (2); Completed Projects so far (2); Technical and Financial Details of Projects (2); Photos from completed

		Projects Action Plan (2); Multimedia usage for promoting projects (2); Description of next projects (2); current state of projects (2); Financial Information of New Projects (2); Call for Project Participation (2); Project Reports (2)
I-d Content	Leader Information	Leader CV (1); Details of Studies (1); Political Achievements (1); Professional Achievements (1); Achievements in Prefecture (1); Family Details (1); Personal Photo (1); Political Photos (1); Professional Photos (1); Family Photos (1); Photos of action plan (1); Photos from Local Events (1); Multimedia Usage for promoting the leader (1);
I-d Content	Members of the Council	List of names (1); Duties of Members (1); Photos of members (1); Members CV's (1); Multimedia usage for promoting members (1); Contact details of Members (1)
I-d Content	Promotion of Prefecture Area	Sightseeing Photos (1); Museum Photos(1); Local Events Photos(1); Local Products Photos (1); Multimedia usage for Sightseeing's (1); Multimedia usage for Museums (1); Multimedia usage for Local Events (1); Multimedia usage for Local Products (1); Weather Forecast (1)
I-d Content	Local Enterprises, NGO's etc	Prefecture and Municipality Organizations (1); Local Public Agencies (1); Local Professional Organizations and Associations (1); Local Cultural Organizations (1); Local Athletic Organization and Clubs (1); Local Business Enterprises (1); Local Media (1)
I-d Content	Links to Local Enterprises, NGO's etc	Link to Prefecture and Municipality Organizations (1); Link to Local Public Agencies (1); Link to Local Professional Organizations and Associations (1); Link to Local Cultural Organizations (1); Link to Local Athletic Organization and Clubs (1); Link to Local Business Enterprises (1); Link to Local Media (1)
I-d Content	Other Information etc	Calendar (1); Anniversaries (1); Change Language (1); Local Elections (1); Other(1)
I-d Update Frequency		Date Updated (4); Press Releases (4); Archives of Press Releases (4); Content Update (daily 4, weekly 2, monthly 1); News (daily 4, weekly 2, monthly 1); Newsletters (Weekly 4, Monthly 3, 3-months 2, semester 1); Site Statistics (4);
II-a Passive G2C		Contact Address (4); Telephones (4); Fax Number (4); Contact Emails(12); Contact Form (12); Registration to Newsletter (12); Registration to Newsgroup (12).
II-b Passive C2G		E-polls (10); Online Surveys (10); Send your Opinion (10); Guestbook (10); Send this site/file (10); E-cards (10); Sign for E-petitions (10).
II-c Real Time G2C		Video Conferences (12); Netmeetings(12); Online Reviews and Debates (12); Online Radio (12); Online Interactive Games (12)

II-c Real Time C2G		Discussion Forums (20); Chat Rooms (20); Bi-directional Newsgroups (20)
III Transaction Stage		Online Official Forms Completion and Submital (50); Online Access to Public Databases (50); Online Payments (50); Online Certification Requesting and Issuing (50); Download Official Documents and Programs (50)
IV-a Prefecture Integration		Different level of confidentiality access (40), Inter-department functional operations or traditional administrative operations appearing on the web (40); Group-oriented access menus (40);
IV-b Site Personalization		Allow users to personalize the content of the site (40); Subscription services for parts of the site (40); Use of cookies/logs to segment users and expose them to site versions that suit their personal style (50)

E-learning Experiences and Future

Edited by Safeeullah Soomro

This book is consisting of 24 chapters which are focusing on the basic and applied research regarding e-learning systems. Authors made efforts to provide theoretical as well as practical approaches to solve open problems through their elite research work. This book increases knowledge in the following topics such as e-learning, e-Government, Data mining in e-learning based systems, LMS systems, security in e-learning based systems, surveys regarding teachers to use e-learning systems, analysis of intelligent agents using e-learning, assessment methods for e-learning and barriers to use of effective e-learning systems in education. Basically this book is an open platform for creative discussion for future e-learning based systems which are essential to understand for the students, researchers, academic personals and industry related people to enhance their capabilities to capture new ideas and provides valuable solution to an international community.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

INTECH
open science | open minds