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DO GREEK MUNICIPAL WEBSITES MEET CITIZENS' PERCEPTIONS ON ISSUE IMPORTANCE?

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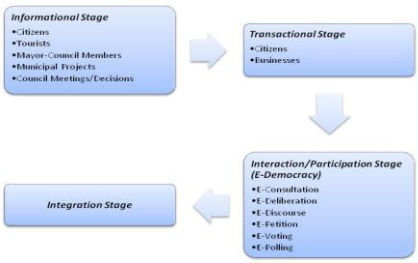
Graphical abstract



Abstract

The purpose of the present study is first to evaluate local e-government initiatives in Greece from a citizen perspective and then to test how well Greek municipalities perform on the most important e-government applications as perceived by citizens. Towards this end, a citizen survey was conducted using an instrument that contained 14 indices and assessed citizens' perceived importance of e-government as well as e-democracy features incorporated in municipal portals. Results indicate that Greek citizens are not ready to move forward with the adoption of more participatory and deliberative tools of local governments' websites. Moreover, Greek citizens want easy to complete online services while they place emphasis on the informational content of the local governments' websites. In addition they desire simple ways to communicate with their local governments such as contact or email forms and suggestion boxes. Based on the citizen survey results, a quantitative website analysis was conducted to examine the level of sophistication of Greek municipal portals in regards to the most important e-government features. Results suggest that Greek local governments can be regarded as laggards in the provision of online services to citizens and businesses as well as the inclusion of information for tourists.

Keywords: E-government; e-democracy; Greek municipalities; citizens' perceived importance; evaluation

1.0 INTRODUCTION

A typical e-government model evolves from initial stages of simple web presence and information dissemination to more transformational stages whereby citizens interact with government agencies, perform transactions and participate electronically to the activities initiated by the government [1] [2] [3]. A number of commentators argue that e-government should be extended from simple provision of online services and dissemination of information to incorporate more participatory and deliberative options for citizens online [4]. Thus, e-government should be linked with e-democracy.

However a critical question that still remains unanswered to a certain degree is whether citizens desire and are ready to adopt e-democracy? According to [5] the majority of e-government studies evaluate e-government initiatives from the supply-side by examining what e-government applications are being offered online by government agencies. [5] further notes that little work has been done from a citizen's perspective pointing to a lack of studies which investigate how citizens evaluate e-government initiatives. To fill this gap the present study proposes a model for local e-government initiatives which incorporates e-democracy features and is evaluated from a citizens' perspective.

Several researchers have proposed various models for the evaluation of e-government at the local level. Interestingly, a number of these evaluation studies have adopted an e-democracy orientation and have incorporated more participatory forms of e-government. For example, [6] evaluated local e-government initiatives around the globe using a model with five dimensions, namely usability, privacy and security, content, service, and citizen participation. Reference [7] investigating e-government portals of US counties applied an evaluation framework that focused on four broad criteria such as information distribution, transactions, two-way communication, and e-democracy. Reference [8] evaluated US municipal websites using two dimensions: e-government that focused on online services provision and e-governance that assessed the usage of e-democracy applications such as online fora, scheduled e-meetings, etc. In a similar vein, [9] assessed the maturity of local governments portals in Mexico based on five dimensions. These dimensions evaluated the existence of simple online tools for information display and services provision as well more interactive channels for citizens' interaction, participation, and collaboration with the portals of their municipalities.

Based on the preceding analysis, it becomes evident that it is not clear how success on e-government should be measured [10]. Moreover, addressing the e-government evaluation issue only from the supply side is another shortcoming that should be further exploited by researchers. Hence, the purpose of the present study is three-fold. First, to develop a local e-government evaluation model that assesses e-democracy features. Second, to evaluate in a more realistic way local e-government initiatives by examining citizens' perceived importance of e-government and e-democracy features found in municipal portals in Greece. Third, to evaluate the extent to which municipal websites in Greece are citizen-centric, thus, incorporating what citizens perceive to be the most important features of e-government services. Hence, both the demand as well as the supply-side of e-government is taken into consideration.

2.0 METHODOLOGY

To achieve the study's objectives a mixed mode method was used. First we conducted a literature review in order to identify the various e-government models that incorporated e-democracy and e-participation features. In doing so, we tried to develop an e-government model that evolved towards e-democracy. After careful consideration of the identified models we proposed our framework which was based on several models [11] [12] [13] [14] [6] [9]. Moreover, the proposed model included items that originated from an analysis of several municipal websites in Greece in order to assure that the model was adjusted to the Greek local government context.

The proposed model consisted of four stages namely: informational stage, transactional stage, interaction-participation stage, and integration stage. Specifically, informational stage captures the provision of information through one -way communication by municipal websites. This stage includes the following sub-stages: (1) information for citizens, (2) information for tourists, (3) information about mayor and members of the city council, (4) information about municipal projects, and (5) information about city council meetings.

The transactional stage refers to the way municipalities utilize ICTs to help citizens as well as businesses to complete several transactions online [11]. This stage is divided in two sub-stages: (1) Transactions for citizens, and (2) Transactions for businesses. The third stage is named interaction-participation stage and is a combination of the two stages - two-way communication and political participation - proposed by [11]. At this stage researchers wanted to capture the mechanisms and applications used by municipalities to enhance e-democracy. The sub-stages of this stage are based on several modes of e-participation found in the literature [13] [14]. E-participation modes can be used as proxies for capturing e-democracy features [15]. Hence, interaction-participation stage includes the following sub-stages: (1) e-consultation, (2) e-deliberation, (3) e-discourse, (4) e-petition, (5) e-voting, and (6) e-polling.

Finally, the fourth stage - integration stage - is similar to [2] transformation stage where local governments use their webpage to provide personalized information and services to citizens. This stage is not divided in other sub-stages and is related to applications that allow registration of users to the webpage, personalization of content, and customization of the homepage. Figure 1 illustrates the proposed model.

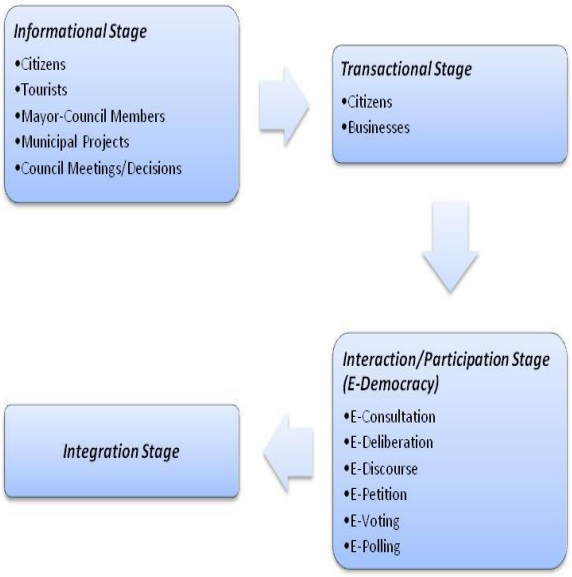


Figure 1 The Proposed Model

Next, in order to validate and evaluate the proposed model from a citizens' perspective we tested our instrument via a quantitative online survey. Our instrument consisted of 83 items that assessed citizens' perceived importance of the four e-government stages. Specifically, to evaluate citizens' perceived importance about the informational stage five indices-scales were developed: information for citizens (24 items), information for tourists (7 items), information about mayor and council members (8 items), information about municipal projects (5 items), and information about council meetings (8 items). Citizens' evaluation of the importance of the transactional stage of local e-government was assessed through two indices, namely transactions for citizens (6 items) and transactions for businesses (4 items). In a similar way, perceived importance of the interaction-participation stage was assessed using 2 scales and 3 single-items, namely: e-consultation (11 items), e-deliberation (3 items), e-discourse (1 item), e-petition (1 item), e-voting (1 item) and e-polling (1 item). In total the proposed e-government model was comprised of 14 indices.

To conduct the quantitative citizens' survey a questionnaire was developed that contained the 83 items in the form of statements with which the respondent indicates agreement and disagreement. Responses to the 83 statements were obtained using 5 point scales ranging from 1: not important at all to 5: very important. Respondents were prompted to indicate how important they perceived each of the 83 statements to be included in a municipal website. Moreover, the questionnaire included questions regarding various demographic characteristics of the sample (i.e., gender, age, occupation, and internet usage). In addition, subjects were asked to indicate whether they visited a municipal website in the past and the frequency of their visits to local government portals.

The online survey took place in April-May of 2015 using the snowballing sampling technique, whereby subjects recruit their friends, family members and acquaintances by using their social network contacts. Snowball sampling begins by using an initial pool of respondents which are regarded as "seeds". These respondents undertake the process of administering the survey by informing other subjects from their social networks about the survey and convincing them to participate.

In our case, the initial "seed" sampling units were students of a Technological Education Institute of Western Macedonia in Greece who attended two courses in strategic public relations and management of corporate image and branding. The online questionnaire was prepared by using Google Drive and uploaded on the online platforms of two aforementioned courses. Upon entering the online platform of the course students were able to click on the link and complete the survey. It should be noted that students were to receive extra credit for the course if they forwarded the online questionnaire to their social network contacts. Students were strongly advised to forward the online survey to individuals who were not students. This way we tried to minimize the bias caused by a student-only sample.

3.0 RESULTS AND DISCUSSION

In total, 395 respondents answered the online questionnaire. Regarding the characteristics of the sample, 57.5% were females and 42.5% were males. Most of them aged between 18 to 35 years old (65%) and were single (60.8%). 27.8% of the respondents had completed secondary education while 33.9% had a bachelor's degree. Only, 16.7% were students. Moreover, 27.6% were private sector employees, 16.2% were freelancers and 16.5% were unemployed. Most of the respondents were also frequent users of the Internet since 44.8% of them surfed the web about 2 or 3 hours a day while 42.5% were online for more than 4 hours a day.

71.6% of participants had visited a municipal website at least one time in the past while 26.4% had not visited a municipal website before. Of the 283 users of municipal websites, 147 (51.9%) visit municipal websites at least 1 time during a month, 105 (37.1%) 2 or 3 times a month and 31 (11%) of them are regarded as frequent users of municipal websites since they reported that they visit these websites more than 4 times a month.

3.1 Citizens' Perceived Importance of E-Government

3.1.1 Information for Citizens Index

Table 1 shows the descriptive statistics (mean, standard deviations) for the items that comprise the

information for citizens index. Based on the mean scores, respondents believe that it is very important for a municipal website to disclose information about (a) new jobs, (b) requirements needed for applications, (c) contact information with agencies and employees, (d) instructions on how to complete forms, (e) local agencies, and (f) events and priorities of the municipality. Moreover, they want accessibility options for disabled persons as well as downloadable forms for applications in a municipal website. However, they find that web TV, online radio, and registration to RSS feed and newsletters are the least important features that should be incorporated in a municipal webpage.

Table 1 Perceived importance of information for citizens index

Items	Mean Value	Standard Deviation
Information about new jobs	4.56	0.81
Disabled persons accessibility	4.47	0.86
Explanations of requirements and documentation needed for applications	4.25	0.94
Downloadable documents and forms.	4.20	0.98
Contact information (i.e., telephone numbers, addresses) of municipal agencies, departments, and employees	4.20	1.00
Instructions on how to complete forms.	4.19	0.94
Information of the municipal agencies (i.e., "help at home" programme, open care center for eldery, citizen service centers)	4.08	0.94
Information about actions, events and priorities of municipality (i.e., society, education, environment, health, culture).	4.06	0.94
General information about the municipality	3.83	1.02
Information and links of local organizations, businesses, cultural and athletic organizations, media, non-governmental agencies.	3.71	0.99
Frequently asked questions	3.67	1.07
Press releases	3.63	0.96
Downloadable publications and reports	3.61	1.07
Information about policies and regulations	3.60	1.03
Information about municipal organizations	3.60	0.98
Searchable databases	3.55	1.07
Mobile application for accessing the municipal website	3.48	1.18
Index for decisions made by municipal committees	3.42	1.01
Information about fuel prices	3.42	1.13
Information about the weather (weather predictions)	3.34	1.14
Information about elections	3.31	1.12
Registration to RSS feed, newletter, newsgroups	3.26	1.06
Online radio	3.12	1.19
Web TV	3.00	1.26

3.1.2 Information for Tourists Index

Similarly, Table 2 shows the mean scores and standard deviation for the items that comprise the information for tourists' index. Respondents indicate that it is important a municipal website to include instructions on how to reach various places (i.e., museums and attractions) and the possible public transportation options available to tourists. Moreover, they find vital for a municipal website to be translated in different languages and to have an embed Google map with the major locations of the city. It should be noted, that respondents rated all the items of the information for tourists index as important features of a website.

Table 2 Perceived importance of information for tourists index

Items	Mean Value	Standard Deviation
Instructions on how to reach various places (i.e., museums, attractions)	4.11	0.96
Public transportation options and schedules (i.e., bus routes)	4.10	1.05
Versions of the site in other languages	4.06	0.98
Google maps with major locations (i.e., pharmacies, banks, doctors)	4.05	0.94
Operating hours of museums, attractions, etc	3.98	0.99
Information, photos, videos about attractions, museums, local events, and activities	3.77	1.01
Information, photos, videos from accommodations, restaurants, entertainment venues.	3.70	1.04

3.1.3 Information about Mayor and Council Members Index

The next Table III shows the mean perceived importance of the items that comprise the information about mayor and council members' index. Moderate levels of perceived importance were found in all the items of this index. Respondents believe that it is moderately important for municipal websites to include information about council members, the current activities as well as the internal regulations of the city council.

Table 3 Perceived Importance of Information about Mayor and Council Members Index

Items	Mean Value	Standard Deviation
Information for council members (i.e., list of members, duties of members, CV's)	3.69	1.03
Current activities of the council	3.68	1.03
Information about internal regulations of the council	3.68	1.03
Contact information of council members (i.e., telephone numbers, office hours)	3.37	1.07
Information about the mayor (i.e., CV, studies, political career, professional career, personal information, marital status, biography)	3.27	1.01
Information about mayor's accomplishments to date	3.25	1.13
Mayor's financial statements	2.99	1.08
Contact information of mayor (telephone numbers, office hours)	2.98	1.07

3.1.4 Information about Municipal Projects Index

Respondents also rated the perceived importance of information about the municipal projects. Results are reported in Table 4. Based on the mean scores of the items, participants perceive as moderately important for a municipal portal to disclose information about the state of current projects, the projects to follow as well as the completed projects.

Table 4 Perceived Importance of Information about Municipal Projects Index

Items	Mean Value	Standard Deviation
Current state of projects	3.70	1.00
Description of next/new projects (budget, designs, cost estimates)	3.68	0.99
Description of completed projects (technical - financial details of projects)	3.66	1.02
Description of projects proposed (promised) prior to elections	3.58	1.07
Call citizens for participation in projects	3.53	1.06

3.1.5 Information about Council Meetings/Decisions Index

Table 5 shows respondents' mean scores regarding the items that comprise the information about council meetings/decisions index. Findings indicate that citizens believe it is important for a municipal website to present the decisions made by mayors or committees as well as the decisions after deliberations regarding municipal issues. However, again moderate levels of importance were found for the items that are related to council meetings and decisions.

Table 5 Perceived Importance of Information about Council Meetings/Decisions Index

Items	Mean Value	Standard Deviation
Publication of mayors/committees decisions	3.84	1.02
Publication of decisions of deliberations conducted about municipal issues	3.54	1.04
Publication of the proceedings of council meetings	3.45	1.12
Live broadcasting of council meetings/committees	3.28	1.16
Online announcement of the agenda for the upcoming council meetings	3.14	1.03
Videos of council meetings/committees	3.12	1.14
Online invitation of citizens for participation in upcoming council meetings	3.08	1.05
Audio recordings of council meetings/committees	2.96	1.11

3.1.6 Transactions for Citizens Index

Regarding the perceived importance of online services offered by municipal websites, results show that respondents believe that it is important for municipal sites to offer various transactions such as online application for licenses, permits, etc.; online issuance of certifications; online registration for a job; and online tracking system of the state of applications (Table 6).

Table 6 Perceived importance of transactions for citizens index

Items	Mean Value	Standard Deviation
Online application for licences, permits, certifications, etc	4.24	0.90
Online issuing of certifications	4.21	0.97
Online registration for a job	4.15	0.98
Online tracking system of applications	4.09	0.99
Online request of information about online services	3.92	0.96
Online payments of taxes, fines, etc	3.91	1.07

3.1.7 Transactions for Businesses Index

Table 7 shows the mean scores of the items that comprise the transactions for businesses index. Results indicate that all of the items were rated by respondents as important features of a municipal website. For example, they believe that it is quite important a municipal portal to offer online services to businesses such as online applications for issue clearance certificate, and issuance of permits. Moreover, they value as important online applications such as e-procurement and online debt payments.

Table 7 Perceived importance of transactions for businesses index

Items	Mean Value	Standard Deviation
Online application for municipal issue clearance certificate (i.e., issue clearance of proven debt)	3.98	0.99
Online application for issuance of permits (i.e., public spaces)	3.93	0.99
Online submission of proposals to municipal tenders (e-procurement system)	3.91	1.04
Online debt payments of businesses	3.89	1.04

3.1.8 E-Consultation Index

Moving to citizens' evaluation of the interaction-participation stage, Table 8 shows the mean scores of items that evaluate e-consultation index. Respondents indicate that it is important for a municipal website to offer online ways for interaction between citizens and local governments. Specifically, participants want to be able to submit online their complaints as well as their requests. Moreover, they prefer to contact with local governments via contact/email forms or suggestion/comments boxes. However, they rated as moderately important the existence of social media and online forms where they could submit comments to the city council regarding agenda items to be discussed for an upcoming city council.

Table 8 Perceived importance of e-consultation index

Items	Mean Value	Standard Deviation
Online submission of complaints	3.99	1.03
Submission of online requests	3.93	0.97
Embed "contact" form	3.79	0.99
Suggestions or comments boxes	3.76	1.02
Embed "send an email" form	3.75	0.96
Contact email of mayor	3.55	1.11
Contact emails of municipal employees, agencies	3.53	1.09
Submission of questions/comments before council meetings	3.49	1.03
Contact emails of council members	3.40	1.10
Links to social media	3.32	1.05
Agenda comments form where citizens can submit comments to the city council regarding agenda items to be discussed for an upcoming city council	3.08	1.06

3.1.9 E-Deliberation Index

Regarding the importance citizens' assign to the deliberative features of a municipal website Table 9 shows the mean scores for the three items that comprise e-deliberation index. Based on results, it can be argued that citizens do not attribute great importance to online applications that encourage deliberation around municipal issues such as discussion fora, scheduled e-meetings and video-conferences. In fact, these features were characterized as moderately important for respondents.

Table 9 Perceived importance of e-deliberation index

Items	Mean Value	Standard Deviation
Discussion fora where citizens can deliberate/debate on issues and proposed policies regarding the municipality	3.25	1.08
Scheduled e-meetings for discussion	3.09	1.08
Videoconferencing with municipal agencies/council members	3.07	1.15

3.1.10 E-Discourse, E-Petitions, E-Voting, and E-Polling Indices

Table 10 presents the descriptive statistics (mean and standard deviations) for the rest of the interaction-participation stage indices. Results suggest that respondents place a moderate importance on online features that encourage their participation with local government. Specifically, online polling, voting and online petitions were rated as moderately important features of a municipal website.

Table 10 Perceived importance of e-discourse, e-petitions, e-voting, and e-polling indices

Index	Items	Mean Value	Standard Deviation
E-Discourse	Chat capabilities where citizens can discuss with others municipal issues	3.05	1.20
E-Petitions	E-petitions	3.25	1.16
E-Voting	E-voting	3.36	1.09
E-Polling	E-polling	3.46	1.04

3.1.11 Integration Index

Regarding the integration stage, Table 11 shows the results for the three items that comprise the integration index. Findings indicate that respondents again attribute moderate levels of importance to online features that allow customization and personalization of a municipal webpage such as user registration, personalization of content, and customization of the home page.

Table 11 Perceived Importance of integration Index

Items	Mean Value	Standard Deviation
User registration to the municipal website	3.57	1.10
Allow users to personalize the content of site	3.55	1.03
Allow users to customize the city homepage	2.98	1.20

3.2 Reliability of Indices

To examine the validity of the instrument, the reliability of the indices-scales was assessed using Cronbach's alpha coefficient. Then, the indices were developed by adding up the scores of the items that comprised each scale and dividing them with the number of items. This way, researchers were able to compare the different e-government sub-stages in their perceived importance attributed by citizens.

All of the 10 multi-item indices exhibited adequate internal reliability since the values of Cronbach's alpha coefficient exceeded the 0.70 criterion (e-information for citizens: 0.926, e-information for tourists: 0.917, e-information about mayor-council members: 0.885, e-information about municipal projects: 0.888; e-information about council meetings: 0.911, e-transaction for citizens: 0.911, e-transaction for businesses: 0.889, e-consultation: 0.924, e-deliberation: 0.858, integration: 0.806). Thus, the proposed model can be regarded as reliable.

Moreover, Figure 2 shows the mean scores for each e-government index. Based on the findings respondents believe that a municipal website should enable citizens as well as businesses to complete municipal related transactions online. Moreover, they prefer tourist-friendly websites that are rich in citizens.

informational content for citizens as well. Online applications that encourage the dialogue between citizens and local governments are also other important attributes. However, more participatory features were regarded as moderately important by

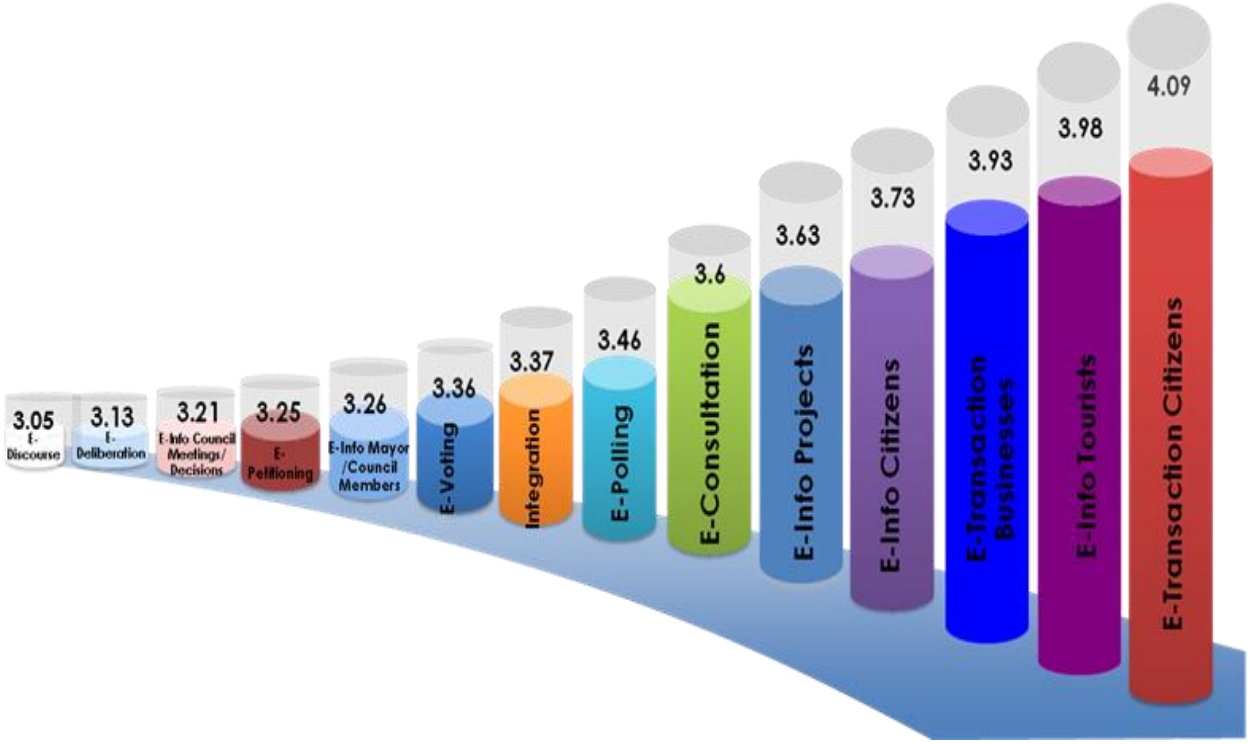


Figure 2 Mean scores of model's factors

3.3 Evaluation of E-Government Initiatives of Greek Local Municipal Governments

The above analysis revealed the most important e-government characteristics as perceived by Greek citizens. However, the extent to which Greek local municipal governments are fulfilling citizens' desires is still a critical question that needs to be addressed. Towards this end, an evaluation of local government websites in Greece was performed via a quantitative website analysis. Specifically, the websites of Greek municipalities were examined to see how well they respond to the first three most important e-government factors as indicated in the citizens' survey (i.e., transactions for citizens, information for tourists, and transactions for businesses).

The sample of the website analyses consisted of the 325 Greek municipalities. Thus, our analysis was based on the total population of the Greek municipalities. Data collection took place during June 2015. Researchers examined whether each municipality had a website. Inactive websites or websites under construction were excluded from the analysis. Of the 325 municipalities 313 (96.3%) had an active website, while 12 of them did not have a portal or had a website that was under construction. Subsequent analysis was based on the 313 local governments which had an active website.

3.3.1 Transactions for Citizens Factor

Participants of the citizens' survey indicated that the most important criteria that should be included in local governments' websites are related to the online transactions offered to citizens. Figure 3 shows the percentage of Greek municipalities that support online services for citizens via their websites. Findings suggest that a critical number of local government websites include online applications for licenses, permits and certifications (48.9%) and support online issuing of certifications (40.9). Thus, regarding online transactions, Greek municipalities performed moderately well meeting the expectations of citizens on the two most important features they consider vital to them. In addition, only a small number of municipalities offer services like online registration for a job (26.5%), online tracking system of applications (23%), online request of information about services (29.1%), and online payments of taxes and fines (20.8%). In general, Greek municipal portals performed rather poorly on the transactions for citizens' factor. Moreover, only 34 municipalities (10.86%) can be regarded as top pioneers in the provision of online transactions to citizens and incorporated all six features that comprise this factor.

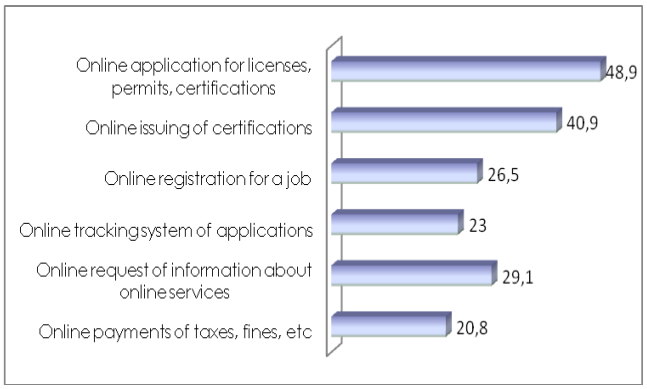


Figure 3 Percentage of greek local government websites that support transactions for citizens criteria

3.3.2 Information for Tourists Factor

Greek citizens rated information for tourists' factor as the second most important factor of e-government initiatives. Figure 4 shows how well Greek municipal governments performed on this factor.

Based on the findings, almost half of the municipalities included in their websites directions on how tourists can reach various places (56.5%),and information about public transportation options and schedules (42.5%). Moreover, one out of every two municipal websites supported different languages (53%). Greek local governments performed moderately well on the first three most important characteristics of the information for tourists' factor as rated by citizens. In addition, 41.5% of municipal websites included Google maps with major locations and 32.3% of them provided information about the operating hours of museum attractions. Interestingly, Greek local governments performed well on the two least important features of the information for tourists' factor since most of them included in their portals information and multimedia about various attractions, museums, and local events (88.2%) as well as accommodations, restaurants, etc (61.7%). On the whole, portals of Greek local governments are modestly supporting information and applications addressed to tourists. From the evaluation of websites it was found that only 49 out of the 313 Greek municipal portals (15.65%) supported all the 7 features that comprise the information for tourists' factor. A careful examination of the municipalities with the highest score indicates that the majority of them are touristic seaside places (i.e. Athens, Rodos, Sithonia, Sifnos, Syros, Spetses, Tinos, and Chios).

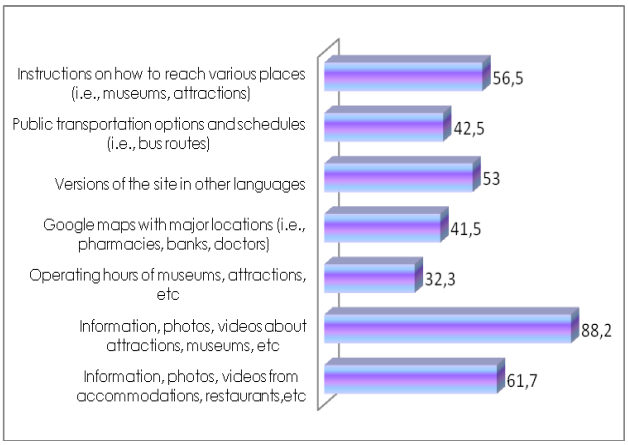


Figure 4 Percentage of greek local government websites that support information for tourists criteria

3.3.3 Transactions for Businesses Factor

Citizens that participated in the survey indicated that online transactions with businesses should be among the three top priorities of e-government activities of Greek municipalities. Figure 5 illustrates the percentage of local governments' websites that include the items that comprise the transactions for businesses factor. Results indicate that the majority of municipalities do not support online transactions for businesses. For example, only a small percentage of local governments enable business owners to apply for municipal issue clearance certificate (28.8%) and for issuance of permits (26.2%). 30% of municipalities had an e-procurement system while only 21.7% of them support an application for the online debt payment of businesses. Overall, the 313 municipalities with a website performed low on the transactions for businesses factor since only 56 out of the 313 local government websites (17.89%) included all the four attributes that comprise the transaction for businesses factor.

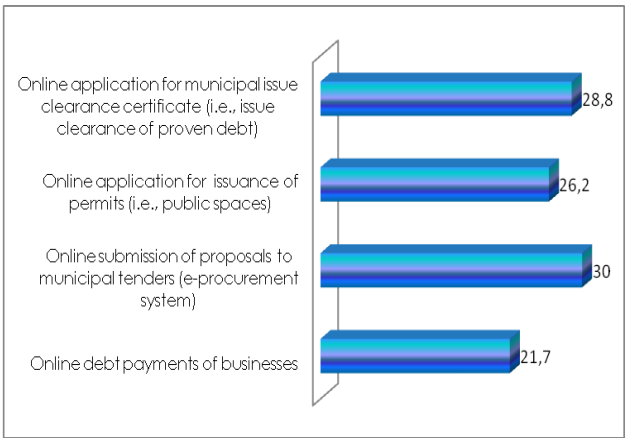


Figure 5 Percentage of greek local government websites that support transactions for businesses criteria

4.0 CONCLUSION

The present study proposed an evaluation model for e-government practices of local governments. The major contribution of the study is the fact that the e-government model was evaluated from a citizens' perspective. Towards this end a survey was conducted on Greek citizens who rated 83 e-government features based on their perceived importance. These features were then organized around 14 factors. Moreover, besides the demand side of e-government (i.e., citizens) the present study takes into account the supply-side as well. Specifically, the results of the citizens' survey served as input in order to evaluate e-government performance of Greek municipalities. The websites of Greek local governments were evaluated based on citizens' most important e-government applications.

This study found that Greek citizens value websites that circumvent the bureaucratic red tape of their offline transactions with their municipalities. Hence, they want easy to complete online services. In addition, they value websites that provide tourists with all the relevant information about their municipality. Participants also believe that a quality municipal website should support other stakeholders besides citizens such as businesses. The provision of online services for businesses was rated as the third most important e-government factor by citizens.

Respondents place emphasis on the informational content of the local governments' websites. In addition they desire simple ways to communicate with their local governments such as contact or email forms and suggestion boxes. Contrary to our expectations, Greek citizens did not value the deliberative and participatory features of websites; thus, they are not yet ready to adopt these new online tools. Part of this lack of interest could be explained from (a) the limited knowledge that Greek citizens possess about e-democracy applications and (b) the increased levels of citizens' apathy towards politics and local government issues.

To what extent e-government initiatives in Greece can be characterized as citizen-centric? How well Greek municipalities are performing on e-government based on citizens' needs and desires? The present study took a first step in addressing these questions. To this end, a quantitative website analysis was performed to check whether municipalities in Greece incorporate in their websites the three most important e-government factors that were identified by the citizens' survey.

The evaluation of Greek e-government initiatives at the local level revealed that municipalities in Greece are a halfway through in providing information for tourists, since only half them included in their portals tourist related information. On the contrary, Greek municipal websites still have a long way to go in regards to provision of services and transactions for citizens and businesses.

Arguably, local governments in Greece are regarded as laggards in the implementation of citizen-friendly e-government projects. Only, 13 out of 313 municipalities (almost 4%) can be regarded as top cities in regards to

the provision of online services to citizens and businesses and information about tourists. These 13 municipalities are the following: Petroupoli, Pineiou, Prosotsani, Pylaia-Chortiati, Pylis, Rhodes, Siteia, Skyros, Farkadona, Farsala, Chalkida and Chios.

The poor advancement in Greek local e-government is not surprising if one accounts for the inefficiencies as well as the lack of resources and personnel caused by the Greek financial crisis. Nevertheless, it is imperative for local governments in Greece to start implementing citizen-friendly e-government initiatives.

However, such implementation requires major transformations from the traditional bureaucratic models to models that consider the needs of citizens. The present study provides a valuable tool to researchers as well as e-government managers who wish to design projects that best serve citizens. This in turn will increase the return of e-government investment of municipalities by enhancing citizens' satisfaction with their local government leading to repeated visits and more traffic to municipal portals.

E--government managers can use the proposed instrument to evaluate their existing e-government system and according to the evaluation results add or eliminate certain applications. Consequently, citizen-friendly e-government initiatives can be designed.

A main weakness of the paper stems from the context specific nature of the study (i.e., Greek local governments). To overcome this limitation as well as increase the contribution and significance of the study, future research could focus on applying and evaluating the proposed model in different countries. A comparison of the evaluation results of the model in different countries could provide fruitful insights about whether: (a) the proposed model is applicable in other countries, (b) citizens' from different countries desire different e-government/e-democracy features, and (c) e-government/e-democracy adoption depends on factors such as IT maturity of countries, percentage of households with broadband access, as well as cultural factors.

Moreover, the present study evaluated Greek local municipal governments only on three factors (i.e., transactions for citizens, information for tourists, and transactions for businesses). Since, this is a work in progress researchers plan to extend the study by evaluating Greek local e-government practices across all the 14 e-government factors of the proposed model. Finally, the findings of this study may be used by e-government platform developers for delivering better services to citizens.

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