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Recommended Citation

Kokkinaki, A. I.; Mylonas, S.; Thrassou, A.; Economon, L.; Kountouris, I.; and Panayiotou, P., "Local E-Government in Cyprus: A Comparison of Perceptions Between Citizens and Decision Makers" (2008). *ICIS 2008 Proceedings*. 48.

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LOCAL E-GOVERNMENT IN CYPRUS: A COMPARISON OF PERCEPTIONS BETWEEN CITIZENS AND DECISION MAKERS

L' e-gouvernement local à Chypre : une comparaison des perceptions entre citoyens et décideurs.

Completed Research Paper

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Abstract

This paper identifies attitudes and perceptions on e-government among two key populations: citizens of the Republic of Cyprus and local government decision makers. The research methodology is based on both secondary and primary data collection, with the latter including a questionnaire survey of the public and another of major local governments' officials who were directly involved in the decision making of the services provided through local e-government initiatives. The results of the surveys are analysed and cross-related. The research has reached three principal clusters of conclusions. The first relates to a number of discrepancies found when comparing the public's perceptions, needs and potentialities on e-government and the corresponding perceptions of the municipality decision makers. The second cluster relates to the wider potentialities of local e-government in Cyprus. The third cluster provides directions and towards a successful local e-government implementation in Cyprus.

Keywords: Electronic Government, Local Government, Cyprus

Résumé

Ce projet de recherche vise à étudier la théorie et la pratique du gouvernement électronique et à explorer les perceptions actuelles et les attitudes des citoyens envers le gouvernement électronique à Chypre. Nous tirons des conclusions explicites et prescrivons des actions pratiques, contribuant ainsi à élargir le corpus de connaissance à travers la possibilité d'associer ces résultats à des pratiques d'autres pays.

Introduction

E-government initiatives face unique challenges with respect to efficient and effective implementations, primarily related to services that require interaction with the public or dissemination of information. In an attempt to examine how e-government initiatives are evaluated in many countries, it has been observed that there is a growing tension between the panoramic view of new and better government services and a number of implementation problems. In order to clarify this, it was deemed important to take a more detailed look into the phase in which the policy programs regarding e-government have been formulated; and to search for rules, vision, and sources of inspiration that guide the behaviour and interactions of individuals, groups, and organizations in and around public administration. This is especially important because the bulk of inspiration of many e-government initiatives in the industrialized world can be found in policy documents and consulting reports, rather than in theoretical concepts. This research focuses on the element of 'people' and accepts that in the epicentre of a successful e-government application is the ability and willingness of citizens to utilize it. This research initially reviews and examines the theory and practice of e-government in developed regions of the world. Subsequently it investigates peoples' current perceptions and attitudes towards e-government from the dual standpoint of the public and the local government employees. The research finally draws explicit conclusions and prescribes actions and applications towards improvement.

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The research aims to study the theory and practice of e-government and to investigate citizens' current perceptions and attitudes towards e-government in Cyprus; thus drawing explicit conclusions and prescribing actions. Towards this aim, five objectives have been set. These include:

1. To review existing theory on the subject of e-government;
2. To investigate e-government practices in internationally developed regions of the world;
3. To research the attitudes and perceptions of local government officials towards local e-government in Cyprus;
4. To research the attitudes and perceptions of the public in Cyprus towards local e-government and its utilization of IT in general and
5. To compare the results of the above towards the identification of discrepancies and the drawing of prescriptive conclusions on the subject of local e-government in Cyprus.

The value of the research relates primarily to its knowledge contribution to the wider field of local e-government, and more specifically in relation to the case of Cyprus. The research offers further academic value through the potential association of the findings with other (especially small) countries' practices. Finally, it offers additional practical value through its explicit prescriptive approach in relation to local e-government applications; an approach that transcends mere theory adoption to incorporate experiential knowledge and universal practices.

The remaining of this paper is structured as follows. Section 2 presents the research design and case context of the paper. Section 3 reviews existing theory on the subject of e-government and investigates e-government practices in selected countries. In this respect section 3 addresses objectives 1 and 2. Section 4 presents the attitudes and

perceptions of decision makers towards local e-government in Cyprus, that is, it addresses objective 3. Section 5 presents the results of a survey conducted in Cyprus in order to investigate the attitudes and perceptions of the public regarding local e-government. In this respect it addresses objective 4. The last section of this paper includes conclusive remarks and recommendations and addresses the final objective of this research.

Case Context and Research Design

This research was conducted in Cyprus and it was funded by the Research Promotion Foundation in Cyprus. The researchers come from a local Private University, a tertiary education Institution and a government office. The topic of this study was selected because there was not any previous research on this field for Cyprus, it was an interesting research area and it had promising practical implications for the development of local e-government initiatives in Cyprus.

The Republic of Cyprus, which is a Eurasian island country situated in the eastern Mediterranean Sea, is the a member of the European Union since May 1st, 2004 and has adopted the Euro as a national currency in January 2008. According to the latest IMF estimates, its per capita GDP (adjusted for purchasing power) is, at \$46,865, the third highest in the European Union, after that of Luxembourg and Malta.

From an administrative point of view, Cyprus is divided into six districts: Lefkosia (capital), Ammochostos, Larnaka, Lemesos, Keryneia and Pafos. Each district is headed by the District Officer who is essentially the local representative of the central government. The District Officer acts as the chief coordinator and liaison officer for the activities of all Ministries. The administrative power in Cyprus is a two-tier system, but the structure is rather centralized, delegating limited power to the local authorities. There are two types of local authorities: Municipalities and Community Councils. Municipalities have more financial capabilities power and more population than the Community Councils which are also stipulated by the Cyprus Municipalities Law. Cyprus consists of thirty-three Municipalities and 486 Community Boards of which nine Municipalities and 131 Communities are in the Turkey occupied north part. Community Councils in Cyprus govern 31% of the inhabitants (Ministry of Finance, 2002) and 85% of the territory of Cyprus. Some works, especially development works, are carried out with substantial contribution by the Government.

In a series of studies conducted by the United Nations (UN 2003; UN 2004; UN 2005; UN 2008) regarding e-government readiness index, Cyprus has been steadily improving both its readiness index and its global rating; In 2003 Cyprus e-government readiness index was found to be 0.474, while in global rating Cyprus was in the 51st position. In 2004, Cyprus readiness index was found to be 0.519 and Cyprus was placed in the 49th position in a global rating, that is, it has moved up two places ahead from its global ranking in 2003. In 2005, Cyprus e-government readiness index has increased to 0.5872 and was ranked 37th, that is, 12 points ahead the previous year ranking. This was due primarily to the addition of a new Cyprus Ministry of Health site (<http://www.moh.gov.cy>). In 2008, Cyprus e-government readiness index is 0.6019 and Cyprus was ranked 35th. This is attributed to the launch of a one-stop e-government portal.

For the purposes of this research, both secondary and primary data. Secondary data, which are presented in the next section, have been utilized in a dual context: (a) towards creating a solid theoretical basis on which findings and propositions are developed, and (b) towards investigating current practices in some of the most developed regions of the world.

Primary data employ two methodological tools. First, we have developed a questionnaire to examine decision makers in local governments on e-government issues. The questionnaire was pilot-tested on fifteen (15) local e-government officials. When the questionnaire was finalized, we have conducted a questionnaire-based survey of sixty-five (65) officials from fourteen different municipalities across Cyprus. The population was stratified according to geographical district and sex. The sample was chosen according to (ISO 1999) and the reliability of the results is based on 95% confidence intervals with a maximum statistical error +-5%. The surveyed officials were directly involved in decision making regarding e-government initiatives in their municipalities. Collection of data was done using personal interviews based on a questionnaire consisting of 24 questions. The survey investigated the municipality decision makers' knowledge regarding local e-government, as well as their readiness to adopt it; both in terms of willingness and ability. The study also measured attitudes, beliefs and perceptions regarding local e-

government, as well as generic Internet-related trends among the sample. Statistical analysis was performed using the SPSS package. The questionnaire may be found at www.businessresearch.unic.ac.cy and the results of this survey are included in section 4 of this paper.

Furthermore, we have conducted a survey to evaluate the public's perceptions, abilities, knowledge, access and intentions in relation to Cyprus local e-government. We have developed a questionnaire (in Greek) that investigated the public's general internet knowledge; the nature and frequency of Internet usage; IT infrastructure and access; internet training; knowledge, attitudes and intentions towards e-government; and negativity and resistance towards it. The questionnaire was pilot-tested on twenty five (25) interviewees. When the questionnaire was finalized, it consisted of 26 questions. The questionnaire has been translated it in English to address the issue of linguistic transparency. The sample consisted of seven hundred and fifty (750) citizens aged over 26 and the selection was based on multistage random sampling after the population was stratified accordingly. The sample is representative of the population residing within the geographical boundaries of government-controlled municipalities in Cyprus according to the latest official population census of 2001 (Cyprus Statistics Department, 2002). The necessary data was collected through personal interviews, carried out by associates after training. To secure the validity of the sample 7% of the respondents were selected for confirmation through telephone calls. The data was analysed using the statistical package SPSS. The questionnaire may be found at www.businessresearch.unic.ac.cy and the results of this survey are shown in section 5 of this paper.

Literature Review

The literature review serves the dual task of: i) reviewing existing theory on the subject of e-government and ii) investigating in parallel current e-government practices in developed regions of the world. The review recapitalizes on the international experience and outlines common concerns and deviating policies. Finally, e-government infrastructure and initiatives in Cyprus are reviewed.

Due to scope and extent of the e-government many definitions have emerged. An extensive list may be found in (Codagnone and Wimmer, 2007, p. 11-12). The European Commission (European Commission, 2003, p.7) defined eGovernment as "the use of information and communication technologies in public administration combined with organisational change and new skills in order to improve public services and democratic processes and to strengthen support to public policies".

Most US e-government initiatives (National Audit Office, 2002; National Performance Review, 2000) underline that Information and Communications Technologies can assist in the creation of customer-focused public bureaucracies (Chadwick & May, 2001). In the Access America program, it is explicitly recognized that the Internet can be used to "re-engineer" the relationship between government and citizens. A proposal to reengineer service delivery is through the creation of one stop shops, which act as a single point interface between citizens and back-end applications and which cooperate seamlessly to deliver the services required by the citizens. In principal, the idea was appealing; nonetheless, progress with respect to the creation of Web-enabled virtual agencies was slower than anticipated. As a reaction, the FirstGov portal was introduced in 2000. FirstGov offers a wide almost all-inclusive range of federal public services, and it is considered to be an easy to use e-government initiative, with an emphasis on servicing individual consumers of public services (Chadwick & May, 2001).

The European Commission has been instrumental through the Information Society Project (Bangemann Commission) in promoting policies and initiatives in e-government policies (European Commission, 1996; 1997, 2000; Grönlund, 2003). In general, policies were aimed at fostering the advantages of the Information Society with limited attention towards either service delivery in a consumer-democratic model, or to participation in a participative conception of democracy. In national policy programs, however, attention is in fact given to these aspects.

It is evident in many instances, design and implementation of e-government services have often been accomplished without consulting citizens and especially groups of people most likely to use government services, including people on low incomes, older people and people with disabilities etc (Dearden et al. 2006; Piling and Boeltzig 2007). The degree of their success varies; it has been found that several governments' websites continue to be less user-friendly and publicly accessible as they ought to be (Disability Rights Commission 2007; Foley et al. 2007; Vernon and Lynch 2003). Citizens' perceptions regarding already developed e-government systems have been examined (Carter 2007; Carter and Belanger 2005;

Warkentin et al. 2002) by employing Davis' (1989) Technology Acceptance Model (TAM), by evaluating e-government websites (Melitski et al. 2005) or by applying frameworks (Palvia and Sharma 2007; Tan et al. 2007). To this end, citizens' perceptions on e-government and whether they may be different from ones of the decision makers/owners of the system has little, if any, influence on policy making and decisions on future services. As exemplified by the case presented in the next two sections, government officials should actively involve different groups of citizens from the beginning in the design and implementation of e-government initiatives to ensure that the websites meet diverse needs (Vernon and Lynch 2003).

Cyprus Local E-government: The Decision Makers' Perceptions

This section presents the findings that satisfy objective three: 'to research the attitudes and perceptions of local government decision-makers towards local e-government and their utilization of IT in general'.

More than half (53.5%) of municipality officials uses computers at work, 41.2% in other places, while 1.8% does not use them at all, as shown in Table 1. The overwhelming majority (93.7%) declared that they access Internet regularly as shown in Table 2. Concerning the pattern of usage, 29.2% of the officials using the Internet reported visiting work-related web sites daily, while a slightly smaller percentage (27.7%) visit web sites for the same purpose at least once a week. At the same time 35.6% stated that it visits web sites for personal reasons daily and 37.3% declared doing the same at least once a week.

	AT WORK (%)	AT HOME (%)	OTHER (%)	NOT USING IT (%)
GENDER				
Male (34)	88.2	70.6	8.8	5.9
Females (31)	100	74.2	3.2	0
AGE				
26-35 (22)	100	81.8	4.5	0
36-45 (18)	100	77.8	5.6	0
46-55 (21)	90	66.7	9.5	0
56 + (4)	50	25	0	50
EDUCATION				
Secondary Education (11)	8.1	36.4	0	18.2
College/HIT (15)	100	80	0	0
University (28)	92.9	71.4	7.1	0
Postgraduate (11)	100	100	18.2	0

	YES (%)	NO (%)
GENDER		
Male (32)	90.6	9.4
Females (31)	96.8	3.2
AGE		

26-35 (22)	50	0
36-45 (18)	90.5	5.6
46-55 (21)	94.4	9.5
56 + (4)	100	50
EDUCATION		
Secondary Education (11)	88.9	11.1
College/HIT (15)	100	0
University (28)	89.3	10.7
Postgraduate (11)	100	0

The most popular existing method of communication is the personal visit (ave.=4.52) followed by communicating via telephone and fax (ave.=4.36) and e-mail communication (ave.=2.18). Furthermore, a relatively small percentage (20.4%) of local government officials use email daily for professional purposes, while an additional 27.4% of local government officials use email at least once a week. According to the research results, the adoption of an automated system does particularly concern the municipalities' officials, since in all the examined parameters the average of answers varies from 1.91 to 2.75 (from almost 'not at all' to 'average').

When officials were asked which services ought to be provided through the Web, 'information for services offered by the municipality' gathered the highest percentage (96.2%). A close second came 'Information on Events' (92.9%). It is interesting to note that all interviewees expressed an opinion for the services they would prefer to see online and thought that the Web could support all services mentioned. The responses have changed when the medium for the provided services changes. We see a differentiation in the rank of preferences as well as the scope of applicability in relation to the provided services. For example, in relation to e-mail services 'Submission of complaints' had the highest rate (83.9%), while 6.2% of the sample disregarded the idea of supporting services via e-mail. The idea of offering services via SMSs has been disregarded even further; 61.5% of local government decision makers stated that no service should be offered via mobile phones. As it is shown in the next section, citizens do appraise services offered via e-mail. Thus, we see that decision makers' and citizens' preferences vary regarding the type of services offered as well as the channel for delivering these services.

Table 3. Decision Makers' Preferences: Percentages and Rankings

Services	On the website Percentage (Ranking)	Via E-mail	Via SMS
Completion of poll questionnaires	55.6 (10)	38.9 (9)	Not applicable
Application progress	71.8 (9)	71.8 (2)	15.4 (7)
Contact information	78.8 (8)	69.2 (5)	
E-voting	83.3 (7)	66.7 (6)	33.3 (2)
Briefing on outstanding debts	84.6 (6)	57.7 (8)	26.9 (4)
Forms/Applications for downloading and printing	87 (5)	Not applicable	Not applicable
Submission of complaints and observations	89.3 (4)	83.9 (1)	17.9 (6)
Forms/Applications for electronic completion	89.7 (3)	65.5 (7)	
Information on events	92.9 (2)	71.4 (3)	28.6 (3)
Information for services that are provided by the Municipality	96.2 (1)	71.2 (4)	23.1 (5)
Don't know	0 (11)	1.5 (11)	0 (8)
None	0 (12)	6.2 (10)	61.5 (1)

Cyprus Local E-government: Citizens' Perceptions

This section presents the findings that satisfy the objective of researching research the attitudes and perceptions of the public towards local e-government; and its utilization of IT in general. The findings are categorised and wherever necessary the interrelation of the answers are also portrayed.

More than half of men, (54%), access the Internet, while for women the percentage is considerably lower (34%). The rates of Internet usage are inversely proportionally to age. Eight out of ten young individuals in the age of 20-24 have Internet access compared to one in ten of the individuals who are older than 70 years old. For intermediary ages there is a systematic reduction of usage percentages with increase of age. Education also constitutes an indicative factor of Internet usage. Only 6% of those who did not finish primary school have Internet access compared to 92% among those with postgraduate university degrees. The reasons why many do not use the Internet vary; 60% of the sample stated as main reasons the lack of computer and lack of interest although the latter may really be a result of other factors.

Half of those who access the Internet do it daily in comparison to one in three people with visits at least once a week. Six in ten users never buy anything through the Internet while one in four buys at least once a year. Daily use of electronic post is made by one in four people while one in three at least uses it once a week. More than eight in ten individuals are using mobile telephony. Men users exceed 90% while women 75%. Use of mobile telecommunications also decreases with age; 65% of individuals over seventy years old make use of mobile phones in comparison to 97% users of ages 20-24 years. One in four users of mobile telephone does not know how to send or receive written messages; this lack of skill is similar between men and women. Eight in ten individuals have never heard of the term 'E-Government'. The rates of unawareness are slightly higher in women than men. More than half were interested in Web-based interfaces for most of the nine services. Roughly the same percentage expressed interest in making use of e-mail services, while a greater percentage expressed interest in making use of mobile phones. 76% of the individuals asked consider printing and completing forms and applications through the Web more useful, while 40% consider Internet communications with municipality's employees more useful. All other services rate between the above. These percentages are similar for e-mail services. These numbers differ for mobile phone users.

	Very Much (%)	Much (%)	Enough (%)	Little (%)	Not at all (%)
Personal Visit	6	9	20	34	31
Tel or Fax	9	11	36	31	13
Web Page	14	24	33	17	12
E-mail	16	24	26	18	16
SMS	7	8	23	24	38

As it surfaces from Table 4, a higher percentage of interviewees prefer their communication with the municipality to be done via e-mail and websites instead of personal visits or messages via mobile phone. These differences are statistically important based on criterion χ^2 for independence. One in three people interviewed does not worry about the validity of information compared to one in ten that worries "very much". The rate of concern is particularly increased in Larnaka and Paphos compared to the other provinces. Regarding payments' security we see that 42% particularly worry (25% are not concerned, while 17% are "very much", 14% "much", 24% "quite enough" and 17% "not at all"). Furthermore, citizens were not concerned regarding the speed of correspondence. One in five is "very much" concerned about the speed of correspondence, while four in ten "not at all" or "little". The provinces of Paphos and Ammochostos present peculiarities in relation to the 'speed of correspondence'. Significant apprehension also appears to exist concerning the 'privacy of personal data' with almost 50% of the interviewees stating that they worry "much" or "very much". The citizens' survey has collected information on their preferences with regards to the various categories of services that are most likely to be offered by an e-government system. The

citizens' evaluation of the usefulness of these services offered through various channels was also measured. The municipality employees' research also measured the latter's' corresponding perceptions. The results categorised the services according to the preferences of citizens in three categories: 'certain preference', 'uncertain preference' and 'no preference'. Based on this categorisation, the various services that can be provided on line have been classified as they appear in Table 5. The third column show the corresponding classification by the municipality employees.

Table 5. Citizens' Preferences for Services to be Provided on the Web		
CATEGORY	SERVICE	DECISION MAKERS' RANKING
Clear preference	Submission of complaints and observations	4
	Information for services that are provided by the Municipality	1
	Briefing on outstanding debts	7
Unclear preference	Information on events	2
	Personal briefing on progress of one's application	10
	Forms on electronic completion	3
	Contact information	9
No preference	E-voting	8
	Completion of poll questionnaires	11
	Applications for downloading and printing	5

Based on Table 5, it is interesting to note that there are deviations in the priorities of services set by decision makers and citizens. For example, the service "Personal briefing on debts" is given a definite priority by the citizens (top 3) where officials have clearly dismissed it (bottom 3). Also the service "Information on events" seems to be rather indifferent to citizens whereas officials have given it a very high priority by placing second in their preferences.

Table 6. Citizens' Preferences for Services to be Provided via Email		
CATEGORY	SERVICE	DECISION MAKERS' RANKING
Clear preference	Briefing on outstanding debts	8
	Submission of complaints and observations	1
	Information for services that are provided by the Municipality	4
Unclear preference	Information on events	3
	Personal briefing on progress of one's application	2
	Forms on electronic completion	7
No preference	E-voting	6
	Completion of poll questionnaires	9
	Applications for downloading and printing	5

Furthermore, the same deviations also reemerge in Table 6 that shows the citizens' preferences regarding services that could be provided via email. Citizens clearly prefer to get notified for outstanding debts through emails, while decision makers did not consider it to be important. Also what decision makers thought that would be useful enough, namely "Information on Events" and "Forms to be Completed" was rather indifferent to citizens.

Table 7. Citizens' Preferences for Services to be Provided via Mobile Phones (SMSs)		
CATEGORY	SERVICE	DECISION MAKERS' RANKING
Clear preference	Briefing on outstanding debts	3
	Submission of complaints and observations	5
	Information on events	2
Unclear preference	Information for services that are provided by the Municipality	4
No preference	Completion of poll questionnaires	7
	E-voting	1
	Personal briefing on progress of one's application	6

Citizens' preferences regarding services that could be provided via mobile phones (SMSs) have been classified as they appear in Table 7. Regarding the services that could be provided via mobile phones, it is interesting to note electronic voting tops the list of preferences for municipality officials, whereas the public, has ranked this service second to last. Officials' preference on e-voting may be attributed to promotion of this service by specific vendors in the market.

Conclusion

This section presents the findings that satisfy the final objective: 'to compare the results of the above sections towards the identification of discrepancies; and the drawing of prescriptive conclusions on the subject of local e-government in Cyprus'.

As found by this research, most municipalities in the Republic of Cyprus are still functioning with a limited use of Information and Communication Technologies. Roughly half their employees (53%) state that they use computers at work. Various information systems are employed at isolation to support services, according to individual needs. The collaboration (e.g. for exchange of information) between these systems is currently limited, at least in most municipalities. The procedures followed are not always standardised, since to a large extent they are executed by various employees with the support (where it exists) of an automated system. The technical support of information and communication systems within the municipality is carried out by specialised personnel in collaboration with private companies, mainly in the big municipalities. Some municipalities do not employ specialised technical personnel and rely mainly on the support provided by the companies which supplied those systems.

From this research's investigation into the opinions of local government employees it was found that the majority have knowledge of use of internet services, even though they do not use them at work. Most of them are familiar with the concept of e-government and do not worry about the possibility of installing an e-government system in their local government. Both the local government employees' research and the citizens' research have evaluated the corresponding group's perception of the usefulness of various services' provision through various means/media. These evaluations are subsequently prioritised towards their incorporation into the constructed system.

The main differences between the citizens' and the officials' ' perceptions have been outlined. If we aim to e-government initiatives widely accepted, the provided services should follow the preferences elicited from the

citizens. In general, citizens place particular importance on 'submission of complaints' and 'personal account information', while 'completion of questionnaires' and 'electronic voting' rate low. Based on the above conclusions, the implementation of electronic government will initially need to include the services from the category 'clear preference'. In addition, services from the category 'unclear preference' can be offered where these are easily materialized and providing the municipality employees are ready.

Another important element towards the adoption of the new system is the concern that is expressed by the 41% of the interviewees in relation to their personal data security and confidentiality. With regards to the safety of payments via the Internet, the sample is polarized between those who worry (32%) and those who do not (47%). The fact however, that 59% of those asked have not made payments through the Internet also indicates the general concern on the matter.

Concluding, this research stresses the need for attention to be paid to functional aspects of e-government, as well as to the philosophical context and outlook of the initiative. E-government applications are indeed excellent instrument towards efficiency and effectiveness of governmental activities; especially so in managing the contact between authorities and individuals and other organizations. E-government though, is much more than that, and practices in other developed countries substantiate this view. E-government is not a mere tool that expedites processes, but a gateway; an interface between the citizen and its government. E-government merges individual and collective activities and decision-making, ultimately laying the groundwork for a truer and more participative form of democracy. Far from a theoretical perception this outlook has practical and tangible aspects. Above all the need to adopt a comprehensive, and interactive e-government system across government at all levels, with services accessible by all segments of society. Current e-government practices individually and partially may be adequate. Collectively and comprehensively though, they are clearly not. The resources and competencies exist. What is missing is organisation, coordination and more importantly vision.

Acknowledgements

This research has been partially supported by Cyprus Research Promotion Foundation (ΠΑΗΠΟ/0104)

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