

Hrestak, Denis

Conference Paper

Technology Adoption Model of Electronic Public Administration Services in Croatia - Research Framework Proposition

Provided in Cooperation with:

IRENET - Society for Advancing Innovation and Research in Economy, Zagreb

Suggested Citation: Hrestak, Denis (2016) : Technology Adoption Model of Electronic Public Administration Services in Croatia - Research Framework Proposition, In: Proceedings of the ENTRENOVA - ENTERPRISE RESEARCH INNOVATION CONFERENCE, Rovinj, Croatia, 8-9 September 2016, IRENET - Society for Advancing Innovation and Research in Economy, Zagreb, pp. 422-427

This Version is available at:

<https://hdl.handle.net/10419/183746>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by-nc/4.0/>

Technology Adoption Model of Electronic Public Administration Services in Croatia - Research Framework Proposition

Denis Hrestak
APIS IT d.o.o., Croatia

Abstract

In the last few years we have witnessed the rapid development of electronic public administration services in the Republic of Croatia, while, at the same time, there are no clear indications what has an influence on the acceptance of such services. The purpose of this paper is the identification of factors that contribute to or hinder the adoption of electronic public administration services in the Republic of Croatia. The concept of electronic public administration services (eGovernment) is related to information technology that facilitates the process of information exchange, communication and transactions between state institutions, citizens and businesses. Although the eGovernment became available to everyone not everyone is using it. This research will try to give an answer to why is this so and what can be done to improve the acceptance of eGovernment. The research will help to detect factors that contribute to or hinder the adoption of eGovernment in Croatia and help to understand the impact of various characteristics such as demographics, security, and other, on the level of acceptance of eGovernment, the intended use of eGovernment services, and, finally, the actual use of these services. Some of the key questions here are whether the usefulness of available eGovernment services affects the intended use; whether the usability of ICT systems influences the intended use and whether perceived shortcomings affect the intended use of the eGovernment services. Primary research will be carried out by a structured questionnaire. The collected data will be statistically processed through quantitative econometric analysis that would confirm or deny the existence of a strong correlation between the above factors.

Keywords: ICT, technology, electronic public administration, Croatia, acceptance model, research, eGovernment

JEL classification: O330

Introduction

The paper will focus on the analysis of models of acceptance of electronic public administration services in Republic of Croatia. The use of modern information technology in the field of public administration services has increased the availability of public administration services for those citizens who, so far, have had limited access to the eGovernment (e.g. disabled people, patients, persons with isolated and geographically remote residence, for people who cannot adjust the working hours of the administrative bodies, etc.). At the same time, although the electronic public administration services became available to everyone, some people do not use it.

The term technological change or technological development, in any area, refers to a process that consists of three phases: invention or creation of new technology,

innovation or improvement of new technology and the diffusion as well as the spread of new technology in society and industry. The basic elements of diffusion, according to "Rogers (1983)" are (1) innovative technology (2) that communicates through certain channels (3) with the members of a social system (4) which is adopted during a certain period of time. The tool used to describe the way in which technological changes are adopted during a certain period of time is technology acceptance model (TAM).

The interest of science for technology acceptance model corresponds to the beginning of intensive development of information technologies. The first models are based on the so-called "Theory of reasoned action" set in 1975 by Fishbein and Ajzen (1975). Thereafter, in 1989 Davis developed Technology Acceptance Model Davis (1989) which introduced the terms Perceived usefulness (PU), which represents the degree of user belief that technology will increase its efficiency and Perceived ease-of-use (PEOU), which represents the degree of users' belief that the technology can be used without significant effort.

A large number of authors divided the electronic public administration services according to the level of development, but all authors share four basic stages. More details about the individual models that describe the stages of development of electronic public administration services can be found in the comparative study Fath-Allahat et al. (2014). Notably, models always contain the following phases:

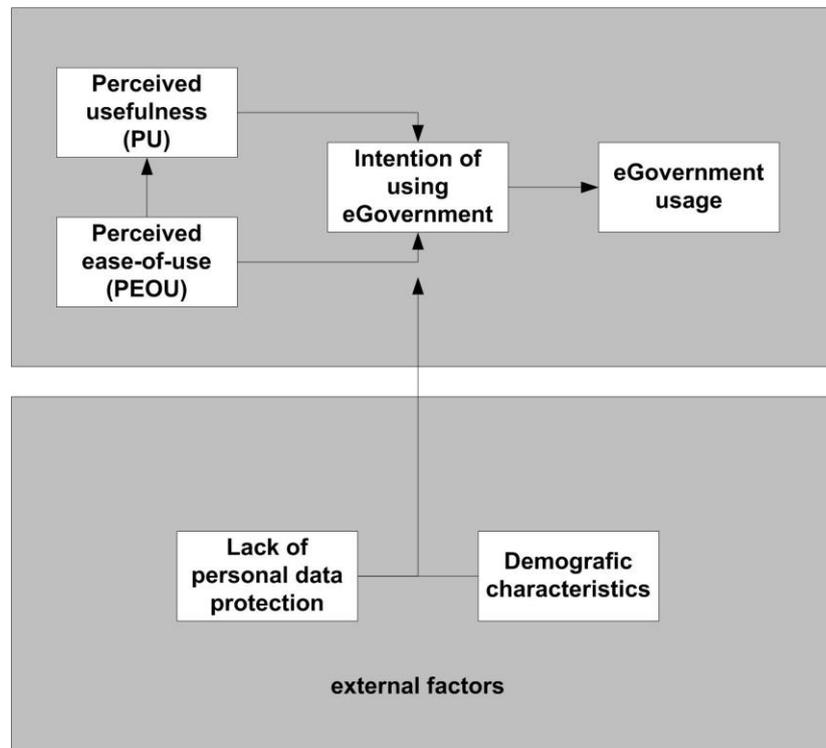
- Presence: the availability on the web, static pages, links to other sites
- Interaction: the possibility of communication with management, downloading forms, e-mail communication
- Transaction: performing tasks remotely, database availability
- Integration: information sharing, integrated features, single access point

In almost all countries that have started to develop electronic public administration services, as well as in the Republic of Croatia, development of services began sporadically. This isolated islands, the services that the individual government body has offered to citizens or legal entities in the Republic of Croatia, developed regardless of any integration framework. Currently available services are scattered throughout all stages of development. For example, the Ministry of Tourism's web site, <http://www.mint.hr/>, is undoubtedly in presence stage, while the Ministry of Finance's web site, with its organizational units, Tax Administration and Customs Administration, is well in the stage of integration, providing integrated services, with a single access point, through the system eCitizens: <https://pretinac.gov.hr/KorisnickiPretinac/eGradani.html>.

In the last few years we have witnessed the rapid development of electronic public administration services in the Republic of Croatia as well as the region. None of these countries has a clear vision on parameters that have a significant impact on the acceptance of such services. Considering these arguments, there is a need for research of electronic public administration services adoption model in Croatia.

TAM of eGovernment services in Croatia is defined as shown in the following figure.

Figure 1
Technology Adoption Model of Electronic Public Administration Services in Croatia



Source: Author's illustration

Structure of the paper will contain:

- Introduction, where development and current state of electronic public administration services in Croatia will be described. Also, theoretical assumptions, the history of development and implementation, and previous research models acceptance of new technologies in the field of electronic services of public administration will be introduced.
- Methodology, where research methodology and characteristics of the research data sample will be presented. The research hypotheses and associated research questions will be explained, as well as description of the statistical methods used.
- Results, with presentation of the results after data processing.
- Discussion, where the limitations and suggested future research will be stated.
- and Conclusion, where the main guidelines for the growing acceptance of technology of electronic public administration services in Croatia will be given as well as answers to the proposed hypotheses.

Methodology

Working hypothesis which will be tested are defined on the basis of previous research studies from relevant international and domestic sources, and will be tested using structural equation modelling method as a combination of several statistical methods: analysis of variance and covariance, joint factor extraction as well as others.

To test the hypothesis, primary research, will be conducted by using the structured questionnaire. Primary contact to respondents will be established by e-mail and

answers (data) will be gathered via a web form questionnaire. The target population of this research are adult Croatian citizens, who use the services of a public electronic administration. The research will measure the perceived usefulness of public electronic government services, perceived ease of use, intended use, the perception of security, and the actual use of eGovernment services. The sample to be used for this research is deliberate, quota sample. Control variables will be age, gender and education of the respondents. It is planned to elect a total of 300 subjects, distributed according to age, gender and level of education following the structure of the Croatian population in accordance with the currently valid census.

This research will be conducted in two phases. The first phase will carry out a preliminary survey testing which additionally aims to test the understanding of the questionnaire. The preliminary part of the research will include a smaller number of respondents. During this phase it will be checked whether the survey questions are unambiguous and whether respondents understand them. Based on the results of the first phase of the research, questionnaire should be adapted and developed to the final version. Second phase will perform research using a structured questionnaire from phase one. This part of the research will be carried out using a web form questionnaire. During the research, it will be verified whether the data follow a planned quota sample design. Once the data is collected, accessed will be the preparation and verification of data collected by a survey. Once the data is collected, outliers in the data will be examined, as well as the assumption of normal distribution of manifest variables. In order to test the hypothesis of research, analysis of the data will be carried out, using structural equation modelling method according to the model shown in Figure 1.

Results

The results of this research should:

- examine whether there is a connection and influence between perceived usefulness and intention to use electronic public administration services
- examine whether there is a connection and impact between the perceived ease of use and intention to use electronic public administration
- examine whether there is a relationship and influence between perceived ease of use and perceived usefulness of electronic public administration services,
- examine whether there is a connection and influence between perceived lack of protection of personal data and the intention of using electronic public administration services,
- examine whether there is a connection and influence between demographic characteristics and intentions of using eGovernment services,
- examine whether the intention of using electronic public administration services significantly affects the actual use of electronic services of public administration.

Discussion

Governments understand very well how to increase economic growth by investing in roads, power grid and other physical infrastructure, but only recently have they understood that investing in the services of electronic public administration - digital channels, applications, portals and websites that connect citizens with public sector, can also produce significant economic improvement.

This research is based on the assumption that the information about the intentions of use and the actual use of electronic public administration services, collected by empirical primary research, can be representative and “shed light” on the actual circumstances. However, based on the sample size, which includes 300 Croatian citizens aged 18 to 65, it can be concluded that this research will be representative and will well reflect the characteristics of the population. The relatively small sample size is one of the possible mayor limitations of this study.

The primary research will be carried out in a period of time, which will have characteristics of a cross-sectional research. Therefore, one of the main limitations of this study stems from the fact that the collected data represent a “snapshot” of specific data in a certain moment, while not giving an insight into the long-term integration and change. However, cross-sectional studies are widely used in the social sciences, due to high costs of longitudinal studies which are the reason why the said approach will be used.

Therefore, conducting of a similar research, on data collected by observing behaviour of many users of the e-Government services by computer logs analysis, over a long period of time, will be suggested. This would bypass the factor of subjectivity.

Conclusion

The goal of this research is to determine the parameters of successful diffusion and user acceptance of electronic public administration services, which has not yet been explored in the Croatian, European and even international scientific literature. Therefore, this research will have a significant scientific and practical contribution.

A large number of unsuccessful transformations of government public services is based on the fact that, regardless of the good will, many governments continue to design and release services that meet their needs, instead the needs of the citizens. In order to avoid this mistake, it is useful to measure the customer satisfaction.

According to the study of the European Commission, 29% of users in the EU is disappointed with electronic public administration service plausibility, and are willing to give up the use of it Tinholt et al. (2012). These are the people who have used online government channels, but prefer to use other channels due to the poor service. In order to increase the rate of electronic public administration services usage by their citizens, countries should look to the private sector where they have developed many successful techniques to attract customers online, but also continuously improve their strategies in order to be competitive. The implementation of new technologies in mobile devices, tablets, applications, etc. can be helpful.

The contribution of this research is primarily in determining the prerequisites for a good acceptance of electronic public government services and the parameters that affect the use of these services. The citizens, the government and enterprises are interested to use public electronic administration service as much as possible, as this will achieve significant cost savings in public administration and business enterprises, as well as financial and time savings for the citizens. It will increase the efficiency of interaction with government bodies and allows that this interaction becomes completely independent of the physical location of the user and the time of services' access.

References

1. Fishbein, M.A., Ajzen, I. (1975), “Belief, attitude, intention and behaviour: an introduction to theory and research”. Reading, Addison-Wesley.

2. Davis, F.D. (1989), "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319-340.
3. Rogers, E.M. (1983), *Diffusion of Innovations*, London, The Free Press.
4. Tinholt, D. et al. (2012), "Digital by Default or by Detour?" Assessing User Centric eGovernment performance in Europe – eGovernment Benchmark 2012. "Public Services Online. Luxembourg, Publications Office of the European Union.
5. Kirchherr, J., Klier, J., Stern, S. (2015), "Europe's e-government opportunity, Public Sector (Europe)", McKinsey, available at: http://www.mckinsey.com/insights/public_sector/europes_e-government_opportunity (5/2/2016)
6. Deloitte (2014), "Making digital default, Understanding citizen attitudes", available at: http://www2.deloitte.com/content/dam/Deloitte/ie/Documents/PublicSector/uk_gps_making_digital_default_2014.pdf (5/2/2016)
7. National e-Government Development in Europe (2012), "Special Report", *Journal of E-Governance*, Vol. 35 No. 2, pp. 164 – 170.
8. Sebetci, O. (2015), "A TAM-based model for e-government: a case for Turkey", *International Journal of Electronic Governance*, Vol. 7 No. 2, pp. 113.
9. Vining, J. (2014), "Tutorial: Successful Approaches to Citizen Electronic Identification Initiatives in Government", Gartner, available at <http://www.gartner.com/technology/home.jsp> (5/2/2016)
10. Jiang, X., Ji, S. (2015), "E-Government Web Portal Adoption: The Effects of Service Quality", *e-Service Journal*, Vol. 9 No. 3, pp. 43-60.
11. Abu-Shanab, E. A. (2015), "Gender and Age: Moderators or Predictors of E-Government Acceptance?", *International Journal of E-Adoption (IJE)*, Vol. 7 No. 1, pp. 32-51.
12. Al-Masaeed, S., Love, S. (2014), "Implementing mobile government in Jordan: strategies for success", *Int. J. Electronic Governance*, Vol. 7 No. 1, pp. 3-26.
13. Archer, G. (2014), "Repositioning IT to Deliver Digital Government in Times of Crisis", Gartner, available at <http://www.gartner.com/technology/home.jsp> (5/2/2016)

About the author

Denis Hrestak works as a member of the Board of the leading Croatian IT company APIS IT. He began his career in the automotive industry in the company AD Plastik, and then fifteen years he spent at various jobs in the department of information technology at Zagrebačka banka. He graduated from the Faculty of Electrical Engineering and Computing, University of Zagreb, Master's degree at the Faculty of Economics, University of Zagreb, and is currently writing his doctoral thesis at the Faculty of Commercial and Business Knowledge in Celje, Slovenia. The author can be contacted at denis.hrestak@gmail.com.