Take-up of municipality e-services:
Some findings from citizens' survey in Tallinn

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Introduction

Increase of Internet use amongst European citizens is a well-known fact. There is also sound evidence that e-services become more available and their quality is improving. Nevertheless, take up rates of e-services remain low and frozen even in those countries, which rank high at scale of Internet use and readiness (Capgemini 2006).

A cross-country survey on user's behaviour explores some reasons of take-up activity. One of the main findings suggests that online services should be viewed in context of services in general; they should fit seamlessly within overall service provision (e-User 2004).

This notion serves as departing point for current study, which aims to investigate use of e-services in municipality of Tallinn, capital city of Estonia. I argue that previous studies were unable to discover, why citizens do not use e-services because their approach has been too technology-oriented. They studied e-services as such and left the wider context of local governance without attention. According to me e-behaviour is one of the aspects of citizenship behaviour. To enhance the take up of municipality e-services, citizens must regard local government as something that matters in their life. My core assumption is that use of public e-services depends on user's broader social attitudes more than on his ICT literacy. The more trust and interest he has towards the local government the more active he is in using variety of public services.

The argument develops through, firstly, a critical appraisal of the previous theoretical and empirical research on the role of Internet in citizens' behaviour. Departing from that knowledge I construct my research questions and define variables. The third part of the paper is devoted to the empirical analysis based on the survey data; the last section makes conclusion and discusses further prospects of research.

Theoretical background

Political science literature approaches the Internet mainly as a mean to enhance citizens' involvement and to close the digital gap. However, little if any evidence is found to support democratic empowerment function of the Internet. Milner turns the position of variables into another way around and looks how political regime can affect spread of the Internet in the country. She found strong evidence that democratic regimes facilitate the spread of the Internet relative to autocratic ones (Milner 2006). Although Milner made her study at macro-level using comparative data of roughly 200 countries, the key message is important also for micro-level analysis. She, for example argues, that institutions fearing loss of their political power in result of technological change will block innovations (ibid). Thus, only truly democratic municipality governments are interested to make a real progress in applying Internet for better governance. The notion "real" is especially meaningful in Estonian context, since the country has several legal norms, which oblige governmental and municipal agencies to use on-line tools in communication with the public (see for example the *Public Information Act, Government Program 2007-2011*). Thus, high level of supply does not necessarily bring to the intensive use. Latest Gapgemini's survey demonstrated that Finland, Norway and Sweden have smaller gap between the availability and use of online services than Estonia (Capgemini 2006, p. 16). This finding correlates with the level of public trust towards government, which is higher in Scandinavian countries than in Estonia.

 This controversial state of affairs pegs more academic attention to the practices and reasons of the e-services take-up. One of the ways to estimate whether existing Internet services meet citizens' expectations is to study public attitudes toward these instruments and the actual usage of services. Regrettably, despite of the fact that public e-services exist already quite many years, little advancement in terms of research level can be found in public administration or government sciences. Most of the surveys are called by the governmental bodies and the latter have usually very little interest in secondary analysis. Typically, already well-known facts on the effect of age, education, socio-economic status (in some societies also of color and political affiliation) on the Internet use are reported (West 2005, Reinsalu 2004, Kalkun & Kalvet 2002 Runnel & Pruulmann-Vergerfeldt 2004, Dugdale et al. 2005). In the area of commercial marketing the research is more advanced, but many findings are not applicable in public policy research due to the different nature of private and public

sectors. However, in some cases useful knowledge can be found. Iqbal, Verma and Baran uncover combination of traditional service features and on-line features to be most profitable for the firms, since it helps to overcome the transition barrier by off-line consumers (Iqbal, Verma and Baran 2003). Surprisingly, a European-wide survey e-User came to the similar conclusions. The authors argue that citizens do not care for online services as such but just for quality services (eUser 2004).

Majority of cited studies, but most prominently the e-User and Dugdale et al. stress the possible emergence of the new digital divide resulting from the developments in the area of online public services. In countries were technological barriers are insignificant the motivation barriers tend to be most crucial in molding the digital cap. Kalkun & Kalvet revealed quite many years ago that lack of motivation is the main reason in Estonia for non-take-up of e-services (Kalkun & Kalvet 2002). Today this factor has remained as strong as previously.

In sum, two key messages follow from the literature review. Firstly, a study of online services should concentrate on issues of social inclusiveness and take-up of e-services. Otherwise real factors affecting use of online services remain undiscovered, especially in developed countries. Secondly, in policy research it makes sense to focus on those factors of e-behaviour, which can be changed by the policies. Social-economic factors like different income and educational level will always remain, therefore the knowledge about their effect on use of e-services is of little practical value. Instead, as suggested by Dugdale et al, one should investigate social capital and self-efficacy of citizens in connection to the use of public e-services (Dugdale et al. 2005).

The current paper takes an attempt to address these issues by analyzing survey data with the aim to find evidence about linkage between citizens' broader behaviour and use of on-line services.

Research questions and method

To test validity of my research assumptions I chose the capital city of Estonia, Tallinn as a research site. Three arguments guided this decision. Firstly, the research site should possess a sufficient institutional capacity. It means that the municipality provides large list of services, including online services. Tallinn as a municipality surpasses clearly other local governments in Estonia in terms of resources and innovation capacity. Secondly, further delegation of governance functions from

central to local level is expected in the future. Modern cities with high innovation level will be important international examples in this change, which involves a combination of new administrative practices and ICT applications (Lanvin and Lewin 2007). This challenge is already taken in Estonian Information Society Strategy that calls local governments to open up their on-line services for the citizens of other countries. The last argument to chose Tallinn was very practical. In the beginning of 2007 a representative survey was carried out amongst citizens' of Tallinn. The database, which includes 341 items answered by 511 respondents in the age 14-74 serves as a promising empirical base to validate research questions. Since similar surveys have been carried out in Tallinn 2004, and in Tartu in 2005, there is also some comparative material available to trace trends.

Departing from the central argument that take up of e-services is socially determined I defined following research questions.

Firstly, what are the main features of citizens' e-readiness? What is the balance between technological and social determinants of e-readiness?

Secondly, How citizens see functions and priorities of the municipality government? What is their attitude towards municipality services?

Thirdly, How informed are citizens about local e-services? What are their attitudes towards and experiences in using them?

Fourthly, What facilitates take-up of online services? Is there a link between social components of e-readiness and use of services?

To operationalise the research questions I defined depending and independent variables. Depending variable can be called as the e-user culture. This complex indicator includes three components typically found in works on civic culture. I measure respondents' knowledge about availability of e-services, their attitudes or readiness to take them, and their real experience of using them.

Independent variables measure impact of individual socio-demographic characteristics like age, social class, gender, and household type on e-user culture in combination with intensity of use, level of skills and purpose of using Internet. By running a factor analysis I compose citizens' cluster on the basis of listed above single variables. I argue that e-user culture varies within user's clusters.

Analyses

E-readiness in Tallinn: main indicators and issues

Estonia is internationally known as a country performing high in ratings of population access to computers and Internet. In 2007 61% of Estonian population uses Internet, 46% of households have home computers connected to the Internet (Statistics Estonia). In Tallinn the situation is even better. Here 67% of households have Internet at home, 90% of them with permanent connection. Within two years the share of Internet users amongst citizens of Tallinn has increased by 20% and consists no 75% of people aged 14-75 (Ariko Marketing 2004; eTallinn 2007).

Having and using the ICT is most strongly correlated with respondents' age. In the age group 14-34-years 87% have Internet at home, whereas amongst people older than 50-years, the same figure is 46%. However, the main reason not to have an Internet access at home is lack of understanding of its usefulness; price is mentioned as a second important factor. The survey also found that type of household plays more important role in e-readiness than the income level. Single persons, childless couples and the non-employed use ICT significantly less regardelss of their age and income. These data confirm mentioned above thesis on link between ICT activities and social capital.

Half of the survey participants using PC reported that their computer skills are absolutely sufficient; one third would need assistance in case of more advanced or non-familiar software. Still, the interest to receive relevant training turned to be quite modest. Notably, most willing to take training where those who already have good skills and not elderly people with lower competences. Consequently, the e-behaviour has a lot to do with persons' self-perception and self-efficacy.

To get a holistic picture on citizens' e-readiness we constructed five categories of respondents, taking into account intensity of use, level of skills and purpose of using the Internet. The first category, "non-users" does not use the Internet at all, two next categories use it rarely, but have different level of ICT literacy. Group of "low-skilled users" is characterised by the low level in both skills and use, group of "low-users" consists from people, who use Internet only occasionally although have good skills. Two last groups are characterised by the good skill level and regular use, but the purpose of use varies. The third category we called "fun-users", who spend time in the

Internet mainly by playing, listening music or simply surfing. The fifth category, called "intensive users" makes regular use of the Internet for various purposes; they have also good access and high skills in ICT.

Why these clusters have significance to the hypotheses of current article? Firstly, it suggests that not technological e-readiness only explains features of ICT use, but also personal interests and preferences. Secondly, I found that these groups vary at most in terms of using Internet for communication with the municipality. In this respect "fun-users" are similar to the "low-skilled users" despite of contrasting level in computer literacy.

Citizen attitudes towards and communication with municipality

74% of citizens in Tallinn are interested in local issues and only 15% say that they do not care. More than half expresses interest in almost all areas of municipality life, although the intensity of interest varies significantly within policy areas. Public interest is highest in security and social policy matters (ca. 34-45%), whereas work of NGO-s, city council and government is of interest only for 6% of respondents. Low interest towards local democracy is reflected also in relevant critical attitudes. Only 16% says that city government takes citizens standpoints into account, 88% found that it should be a top priority for the future. Attitudes towards municipal bureaucracy are less critical, but at the same time also more controversial. One third thinks, that city administration has improved, but the same portion of respondents holds exactly the opposite position. It is significant, that nearly half did not have a standpoint in these questions. This controversial state of affairs can be explained by the low level of contacts between citizens and municipality. According to the study 52% of respondents did have neither interest nor reason to communicate with the municipality. In a comparable survey three years earlier this figure was quite similar – 57% (Ariko Marekting 2004). Thus, although 51% of citizens agreed that "the municipality website and e-services have made communication more convenient", it hasn't enhanced the effective communication between the municipality and citizens. One possible explanation here can be the role of local government in the whole public administration system in Estonia or, being more correct – how the public perceives this role. Estonia has followed the neo-liberal ideology quite firmly including NPM and PPP therefore many public services are contracted out to commercial providers. These include some e-services as well, for example the m-parking system and on-line

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registration to the doctor. Additionally, Estonia has a centralised administration system, which effects also development of e-governance. Current "Estonian Information Strategy 2013" declares to avoid duplication of IT solutions in the public sector develop further of the central Citizen portal www.eesti.ee, which represents the "one-stop-shop" ideology. This is already today an increasing practice where municipality websites guide service users to the central governmental portals. In sum, citizens may not recognise some services as belonging to the municipality competence. If that is the case, we should be able to observe an increasing use of local public e-services despite of the fact that respondents reported not having contacted municipal agencies.

Therefore I move to the next step in my analysis looking how informed are citizens about existing e-services and what are their main consumption patterns.

Awareness about local e-services and experience of using them
The gateway to the public e-services at local level is the municipality website. Therefore I start my examination with this. Comparing to the year 2004 www.tallinn.ee has gained more popularity. In 2004 43% of regular Internet users have visited it, in 2007 this figure has increased by 20%, i.e. in the same pace as the share of Internet users amongst municipality residents. The primary reasons to do it remained also similar within the years - searching for information about transport, addresses, cultural events and maps. The same pattern was found in a similar study in the municipality of Tartu 2005 (Reinsalu 2005). Because of inconsistency in data, more detailed comparison of various surveys is not possible, however one interesting fact can be highlighted. In 2004 on the second place amongst the reasons to visit city's websites was looking for legal acts (Ariko Marketing 2004), in 2007 all categories alike that (statutes of municipality agencies, development plans, municipality acts) got very low ranking. Thus, the survey data suggest that meaning of municipality website in citizens' perception is changing. Former orientation towards politics is replaced by the interest in public policies and everyday needs that shifts also online services more into focus. So, information about health care, education and social assistance is today searched by 32-36% of regular Internet users, whereas only 12% of them are interested in the city budget or municipality council meetings minutes. At the same time, the municipality itself puts more emphasis on e-democracy. E-democracy tools represented at municipality website, are richer and at

the higher level of technological development. Whereas most of services for citizens' provide just forms for downloading, city government and city council meetings can be watched online. As survey data from Tartu and Tallinn show, only very few citizens use this possibility.

Regardless of this mismatch in priorities citizens increasingly use municipality websites. Today tree times more people are looking for some services at municipality website than in 2004. This has brought also to the increase in awareness about availability of services and new forms of behaviour.

40% of Internet users in our survey were informed about availability of the forms, although just 8% have downloaded them. However, since 33% preferred precisely the website as a place for getting them one can conclude that the main reason for non-take-up is obviously the fact that forms are rarely needed.

Not all services need the filling in a form therefore the take-up of online services must be approached also from another angles. I look here at two issues. Firstly, for which services citizens use more often Internet and secondly, what is their attitude toward development of more sophisticated services. In both cases I adapt the methodology of the EU survey on availability of public services, which distinguishes four stages of service development (Capgemini 2006).

Services	Level of service sophistication	% of service users who used Internet
Buying a public transport monthly card	4	25
Visiting a family doctor	3	23
Using library services	1- 4	23
Sending an information claim to civil servants	4	14
Applying for the compensation of dental care	2	9
Announcement of movement/new place of residence	2	9
Applying for the social assistance	2	8
Registering a car		7
Building/reconstructing a home	2	6
Registering a pet	1	5
Announcement to the police		4

Table 1.Use of online services and their level of sophistication.
Data: Citizens survey in Tallinn, 2007
Key to levels: 1- information is available; 2 – forms for downloading available (one-way interaction), 3 – electronic intake with an e-form (two-ways interaction), 4- full electronic case handling (paperless)

Deciding upon the level of sophistication is not always a clear-cut issue. In the case of library services for example, the most common activity is checking the availability of a certain publication (1st level). However, there is also a possibility to order a book or

to extend the return date via Internet (4th level). Regardless of these limits in the analysis one can conclude that level of service sophistication positively affects the take-up rate (see table 1). This conclusion is supported also by the positive attitudes of citizens toward further development of public services. Approximately one third regards the Internet as not necessary for these services whereas majority found it useful. 25-30% of respondents prefer to have services at the highest level of sophistication; about 10% were satisfied with online information.
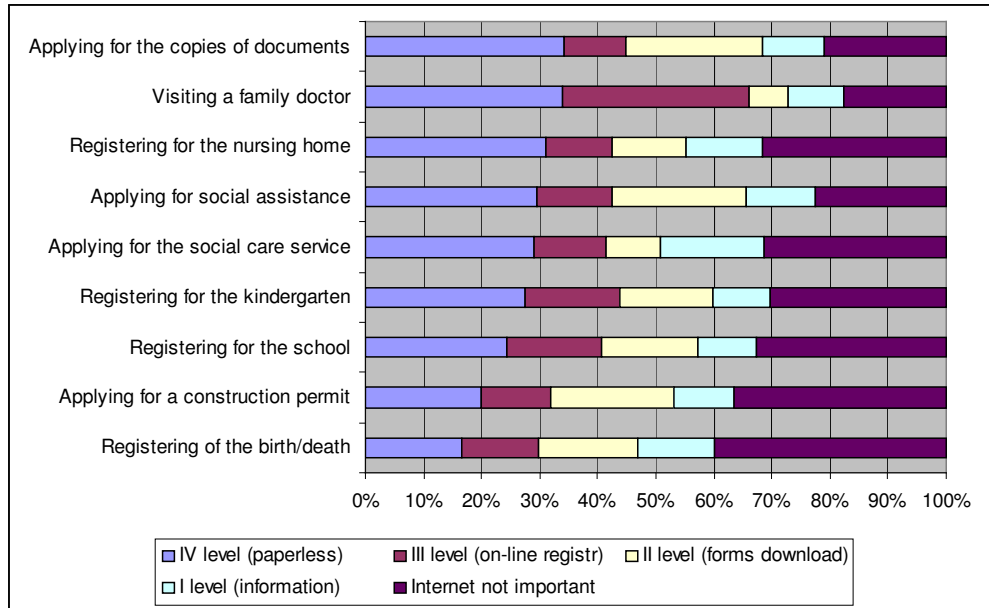

Fig.2. Support to the development of online services, % of Internet users (n=365)

Summing up survey results one can see progress on the one hand, but misfit between local government initiatives and citizens' preferences on the other. Taken the strong national strategy towards the e-governance more services is available today than couple of years ago. Also, citizens' awareness and possibilities to use them actively have improved. When in 2004 75% of respondents were unable to suggest any ID card based online service what they would like to have, then today about one third stays at indifferent position.

However, the sophistication level is not progressing in these areas what are prioritised by the public. Local government has put most attention to the development of e-democracy tools, which are least valued by citizens. Majority of on-line services for citizens in Tallinn are currently represented still at the level of one-way interaction, which does not satisfy expectations of significant portion of Internet users. As data of

effective use suggest, low level of sophistication can be one of the hurdles in taking up the service.

Variance of take-up within citizens' categories

In this section I will study, what factors facilitate use of online services and whether diverge patterns of using online services can be found within Internet users.

Take-up of online services depends upon different arguments, which can be broadly grouped into rational and emotional ones. Rational motives like economy in time and money in comparing with traditional service in city office are equally mentioned by all respondents regardless of their age, gender, occupational status or household type. Yet, emotional arguments have different value for different users' groups. These are more important for women and Russian-speaking population. So, 43% of Russians compared to 26% of Estonians and 37% of women compared to 27% of men agreed that they use online-services because friends and relatives urge to do it. Women in a greater extent than men mentioned also rude behaviour of civil servants and willingness of being modern. These figures indicate that social relations matter in take-up of on-line services, although for some groups they have greater importance than for others.

	Very important + Somewhat important	Somewhat unimportant + Not important	Don't know
Internet helps to save time	94	2	3
On-line service is cheaper than going to the city office	86	10	4
I like using Internet in general	78	12	10
In the Internet I can compare information	72	14	14
Internet provides better information on the service	71	13	16
I have good experience of using e-services	68	14	17
I want to be modern	49	37	14
The municipality website is user-friendly	40	13	46
Civil servants are rude, reluctant	30	37	33
My relatives urge me to use e-services	23	49	28

Table 2. Factors affecting take-up of online services (% real online service users)

Yet, interestingly emotional factors that promote use of e-services can for some people be also an obstacle. As the study revealed, the main reason not to use web-based services is they desire to talk to civil servants. This was mentioned by the 47% of those who are not using the Internet. Low computer literacy or high price of the Internet connection was seen as an obstacle by very few citizens. For both Internet

users and non-users the quality of municipality website, including design of online services was not a significant argument. Thus the main problem with non-users seems to be still lack of motivation, which hurdles also taking training to improve their skills or getting informed about existing on-line services. Until this motivation barrier has not been overcome, the number of on-line users is unlikely to grow despite of technological progress.

Analysing behaviour of those citizens' who generally use PC and Internet I apply the four clusters identified previously according to the skills, intensity and dominant purpose of use. I found some variance in terms of attitudes towards further development of online services. "Fun-users" are at least interested in further development of services, whereas "intensive users" are most interested. Two groups of low users have different and clearly targeted interests. The subgroup with low skills emphasise health and social services, whereas the more competent subgroup amongst low users prefers legal and documentary services. The most advanced group, "intensive users" supports equally enhancing of all service areas. Described variances can be explained by the socio demographic characteristics of the user clusters. "Fun-users" are mostly teenagers who have no need yet to think about "adult" services. "Low skilled users" are mainly elderly people typically more concerned about health and managing-the-life issues. To the group of "low users" typically belong middle-aged persons who more than others have to deal with legal arrangements of their private lives.

	Fun-users	Low skilled users	Low users	Intensive users
Registering to the school	22	25	25	27
Applying for social benefits	27	26	33	31
Applying for copies of documents	26	38	43	33
Visiting a doctor	32	42	34	33
Applying for social care service	23	31	27	35
Applying for nursing home	33	43	24	32
Applying for the kindergarten	24	28	32	28

Table 3. Support to the development of online services at the 4th level of sophistication (fully available on-line), % within the cluster

Conclusion and further prospects for research

The performed analyses tried to look at e-readiness towards the online services based on a citizens' survey in the largest municipality of Estonia, the capital city Tallinn. Although technological aspects of readiness have improved significantly, one can still conclude that one third of municipality residents are on another side of digital divide, since they do not use the Internet at all. This finding confirms that appeal towards inclusive e-governance where "No citizen is left behind" as expressed in the last EU report on availability of public online services is a very acute one.

Unfortunately, this research gave little new knowledge about attitudes of this one-third of the local community, which is not using Internet. Due to the design of survey questionnaire, many items were skipped for those respondents who did not use the Internet. Taking the pure methodical correctness this was the right way to go, but from the analytical point of view a lot of information was not collected. Non-users were overwhelmingly aged people, who are politically more active and additionally, represent on of the main target group of municipal services. Thus I found myself in the situation, described in the Australian survey addressing inclusion of marginal groups into information society (Dugdale et al). Main conclusion concerning the group of non-users, which comes from my research, is that the main barrier to start using online services is lack of motivation and understanding about usefulness of provided services for private life arrangements.

Major part of the study, which analyzed the e-user culture of those included into information society, confirmed my general assumption that e-user culture is embedded into broader context of life stages and individual interests. Besides good access to the Internet, age and purposes of using Internet play significant role in take-up of e-services. The most active group of users is typically a household with children that is interested in variety of services provided at the high level of sophistication. Like many previous attempts in political science, I did not find any strong evidence that take-up of e-services is closely related to the citizens' political engagement. Instead, rational arguments as economy and better possibilities to make up personal choice are dominating facilitators.

The most problematic finding of current research concerns possible policy recommendations. On the one hand, Internet users are willing to see even more rapid progress in advancement of online services. By choosing this alternative governments risk to widen the gap between insider and outsider of the information society. The

latter group appreciates face-to-face contacts with service managers therefore implementation of fully online services will be against their attitude. In sum, the only feasible way to move forward with the inclusive e-society is to focus on combination of on-line and off-line service provision. Let me remember that Iqbal et al. suggested the same for the private firms to be successful in gaining customers.

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