Research from Slovenia shows 'administrative literacy' is key in people getting the most from e-government services

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*Both e-government provision and digital and computer skills have come on leaps and bounds over recent years. But how important is digital literacy in getting the most out of e-government services? According to new research from Slovenia carried out by **Bojan Cestnik** and **Alenka Kern**, it is possibly less important than administrative literacy in this regard.*
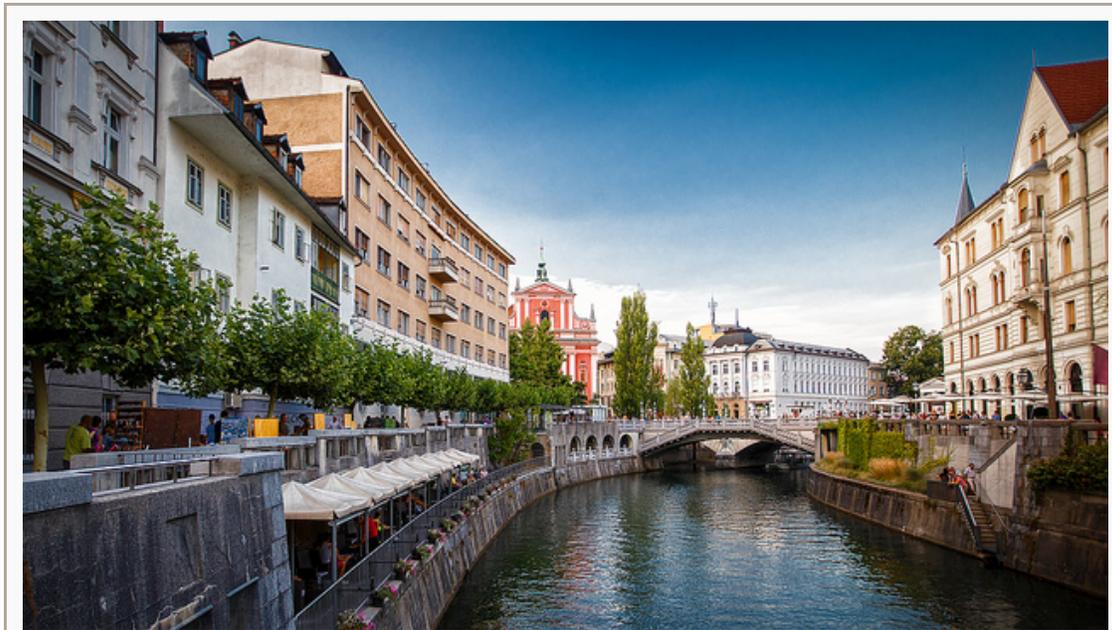
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According to the Capgemini benchmark study of the e-Government field in Europe, online availability and the sophistication of services for citizens and business have steadily improved over the last decade. The actual average for national online availability in Europe has reached an impressive 74%, while the online availability for local public services stands at 63%. Modern usability features are present on 78% of government websites. However, the ease and speed of use of the same websites scored at only 58%. Although the online availability and sophistication of e-Government services have achieved remarkable level of development in EU, citizen participation and engagement have not followed the same pattern. The figures for the year 2014 show that 54 % of EU citizens are non-believers or potential drop-outs from e-government services. According to this data there is much to be done if we want to increase the citizens' participation and engagement.

In e-Government research publications and reports, online participation and engagement is often studied in connection with digital and administrative literacies. The latter is defined as the ability to navigate a bureaucracy in order to find forms and following procedures required to fulfil certain tasks. Digital literacy, meanwhile, refers to skills and knowledge – mostly from the field of informatics and computer science – that a person possesses. High digital literacy of citizens is often believed to be beneficial for the use of e-government services. However, high digital literacy is not enough; contrary to common expectations, in some cases it might even be counter-effective.

The goal of our study was to better understand and engage citizens in using online services provided by a public housing fund. As an illustrative case study, we present a public tender for renting and buying housing facilities for

citizens under favourable terms. The concerned citizens could, according to their skill and preference, decide to fill in and submit an online form application or a paper application for renting a flat. The collected data show that little less than half of them decided to use an online form, which was considered as a moderate success by the Fund's management.

The lack of online user engagement was evident, and the Fund's officers decided to tame the problem by first identifying possible influencing causes and then proposing actionable guidelines to mitigate the low completeness rate problem. The Fund implemented new guidelines following Chadwick's 2011 proposal on a new public tender for selling flats to citizens, which was implemented after July 2014. The results show that by implementing new guidelines, the Fund managed to maintain the ratio between electronic and paper form applications at approximately fifty percent, while substantially improving the share of completed eligible electronic form applications.

Public tenders for renting and selling flats

The state housing Fund was established by the Housing Act to finance the National Housing Programme and to promote housing construction, renovation and maintenance of apartments and residential houses in the state in Slovenia. The data for the analysis described in this paper were collected in a process for renting flats to citizens under favourable terms, conducted by the state housing Fund. One of the Fund's assignments is to construct and rent apartments to citizens at favourable prices. Its strategic goals in support these activities are assuring suitable quality of apartments, assuring larger number of apartments offered to the market, and lowering (or at least stabilising) the prices of apartments in the housing market. This assignment turned out to be well received by the general public and consequently attracted considerable media attention.

The business process of renting and selling flats consists of the six phases. First, the Fund prepares a call that defines eligibility criteria and application requirements for housing rent and publishes it by the media and on the Internet. Second, interested applicants fulfil and submit the prescribed paper or electronic form (based on their preference). Third, received applications are identified and validated by the Fund's officers. Next, all complete applications are ranked according to their priority and allowed to participate in the process of apartments' distribution. Ranking criteria and the rules for rank computation are determined in advance and include attributes like family status, health condition, number of kids, etc. When two or more applicants fall into the same priority rank, random choice is used as the fifth phase to select a single applicant to rent each apartment. In the sixth phase, all the applicants are notified about the outcome of the apartments' distribution sub-process.

We collected data from 614 applications for renting flats under favourable prices, which were submitted in the period from February 2013 till March 2014 (the tender was labelled 'SL'), and analysed them with statistical package *R*. Each applicant had two options: submit the application and attached documents through the prepared web interface, or fill the application on a printed form and submit it together with the printed attachments via regular post. Each application was carefully checked by the Fund's officers. If it satisfied all the necessary preconditions imposed by the tender, it was labelled as complete. After the appointed time (typically three or four weeks), all the complete applications proceeded to the stage of approval, while the rest of the applications were labelled as incomplete. In the approval stage, all the complete applications were marked as approved or rejected, depending on the final outcome of the selection process.

A case study for improving citizen participation and engagement

In our study we first identified and selected three variables from the submitted forms to determine their impact to selected communication channel and application completeness. The variables selected for a closer study were the following: *applicant's gender*, *applicant's age*, and *applicant's priority*. What were their "risky" values? The "risky" values are the values that increase the risk that an application is categorised as incomplete. The risk is inversely proportional to the probability of completeness. For online submission forms average probability of completeness is 38.3%. By analysing the data we found out that the dependences between the variables are not significant, with the exception of the applicant's priority. The selected variables and their determined "risky" values are not actionable in

the sense that we cannot change them for a given application. To improve online citizen participation and engagement and, consequently, mitigate the form application incompleteness problem, we decided to propose three indirect concrete actions that were implemented as guidelines for the following public housing tenders: review and revise online form user interface, review all the communication messages for better clarity, and more frequently include social media as a channel for communication.

The first action to review and revise online form user interface is the most obvious one and the least in line with the Chadwick's suggestions. The electronic web form was initially designed to be simple and easy to access, use and navigate. However, to maintain high level of credibility, the supporting information system has to provide transparent and comprehensible insight into all phases of the underlying process. The quality of user interfaces to the respective web pages is a critical success factor. In the preparatory phase we tested the utility of both application forms; based on the testing findings we introduced minor corrections, typically related to the ease of use and simplicity of the user interface. Additional improvements were made in the phase of informing the applicants about their applications by including fields that enabled essential, but not too hampered data about their status. By incorporating such additional control information we intended to decrease the number of unintentional errors in the submitted forms.

The second action was to review all the communication messages for better clarity. We found out that one of the keys to improve the citizens' sense of efficacy is to present them with more personalized information. After presenting personalized information, we should explain how these data are relevant for the final decision. This explanation is particularly crucial for negative decisions. By implementing the described process we believe that citizens have the capacity to understand this kind of information. Moreover, their engagement in the process is essential, since the decision contains not only the information, but also gives the opportunity to act.

The third action was to more frequently include social media, such as Facebook or Twitter, as a channel for communication. The role of this action was more supportive. The action includes regular posts to social networks; the posts are preferably neutral with the goal to inform the general public about the state of affairs in the state housing fund.

We tested the new guidelines for risk detection and communication clarity on a new tender of the Fund for selling flats that was introduced in June 2014 (labelled 'SM'). We gathered 393 applications, 180 submitted online and 213 on paper. By implementing the described process we believe that citizens have the capacity to understand this kind of information. Moreover, their engagement in the process is essential, since the decision contains not only the information, but gives also the opportunity to act. Therefore, our aim is to use the information to engage citizens by helping them and to change the course of their lives. By following the proposed guidelines, the Fund managed to alleviate the dependency between the variables communication channel and completeness, which for all practical purposes became insignificant. By introducing and following the proposed guidelines the completeness rate of online form applications improved from 38.3% to 92.2%, even though the improvement might be also partially influenced by other external factors. By implementing the described process we demonstrated that concerned citizens have the capacity to understand and engage in online tender form applications. Moreover, their engagement in the process is essential, since the decision contains not only the information, but gives also the opportunity to act. Public perception of the Fund's actions and decisions was improved. Public housing is a delicate field and receives intense media attention, especially in cases of negative publicity. Note, however, that the approval rate of complete online form applications (approved to complete ratio) decreased form 75.5% in 'SL' down to 59.6% in 'SM'.

Our experience and lessons learned while conducting the tender for renting and selling flats by the public housing Fund of the Republic of Slovenia indicate that by observing three simple variables and correspondingly implementing suggested guidelines (adjusting the user interface and clarity of communication messages and including social media as a channel for communication), the Fund managed to maintain the ratio between submitted electronic and paper forms (at approximately half) and drastically improve the completeness of electronic forms. As a consequence, citizens' perceptions of the quality of the Fund's services have substantially improved, building their trust and confidence in using the web form applications. Also, the quality of interactions between the citizens and the

Fund's officers, which in the long run also contributes to better quality of the Fund's services, has shown a steady improvement during the last public tender.

For future work we are considering extending the findings to other public services provided by the housing Fund. We plan to adapt the user interfaces to enable online form submission also on mobile devices. In such a way, the concerned citizens would gain access to the relevant information without having an access to desktop computer, which could bring additional variability to the housing tender process. We also plan to enable automatic connection to various social networks like Twitter or Facebook, thereby offering the possibility for citizens to directly publish their conducted actions.

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