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English summary

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Introduction

In this paper we focused on the subject of information system design for the city of Brno. We believe a functionable information system would be very beneficial not only to the city of Brno and its citizens, but also as to other cities in Czech Republic and rest of Europe, where it could serve as a good example of successful Smart City initiative.

Information system should be working mainly for the benefit of citizens of city of Brno. In order to achieve this successfully, it is reasonable to take inspiration from other cities and foreign countries, where ISes already function several years. Therefore, in this paper, such measures were taken.

Considering the population of Brno, we realize that our attention must be centred mainly on citizens between ages of 28 and 40 years¹. According to the latest population count, Brno is currently home to approximately 377 thousand inhabitants. Almost 66% of those are in productive age, approximately 14.5% in pre-productive and 19.5% in post-productive age². Out of these data, which were taken from the Czech statistical office, we can easily deduce that the group of people between 25 and 40 years has the biggest representation.

Our ultimate goal is to achieve a situation in which IS of city of Brno will function as an integrated centralized platform for the communication of citizen-to-citizen and city-to-citizen. Moreover, it should serve as public mediator of various information related to the city not only in the sphere of local government, but also the one of culture or public initiatives. The applications in the new IS should be customizable and the citizen shall have the opportunity to register and create their own profile.

Some functions are to be created in order to supplement or completely substitute services provided to the citizens by the city. It is essential to create a system for registration and login of users which will secure authorization of user's identity. It is important to keep in mind that there is no legal possibility for cities in Czech Republic to have an access to the government's registry of citizens³. For that reason, the city cannot use the government's data neither for verification of users, nor for creating city's policy. Absence of universal global e-government policy, as well as absence of national e-identities makes process of creating new information system even more complicated. The only possibility for cities is to create mechanisms similar to those used by online shops and other public servers. Such procedures are based on voluntary provision of personal information by users to the cities. This must be conditioned by unimpeachable protection of those personal information and the city must guarantee that all processes running in this information system will be safe and

¹ GREGOROVÁ, Eva a ZVARA, Jan. What statistics have to say about Brno. [Co vše o Brně prozrazují statistiky.]

² SEIDENGLANZ, Daniel, Václav TOUŠEK a Filip CHVÁTAL. Demographic prognosis of inhabitants in Brno and its surroundings. [Prognóza demografického obyvatelstva města Brna a jeho okolí.]

³ Law regarding basic registry. [Zákon o základních registrech]. *Zakonyprolidi.cz*

secured. Especially payments or binding reservations must be at the center of all security efforts.

Information system

Information system can be defined⁴ as almost anything that contribute to saving, classifying and mediating information and is based on workings of information technology. IS consists of hardware, software and people who operate its working.

The most common understandings of IS are those of on-line shops such as Amazon or those used by banks for on-line transactions and customer-to-bank communication. Another good example are online library services such as that of Moravská Zemská Knihovna in Brno. We based our project on these approaches. Information systems are supposed to be functional, quick and easy to use. Furthermore there should be some kind of option for personalization of IS for the user's convenience.

E-government

Information system planned by municipality of Brno should in the first place be a tool for local city administration (eventually for the region of “Jihomoravský kraj”), which is a measure that goes hand in hand with the establishment of e-government.

The term e-government loosely describes various forms of public administration execution achieved with the help of information and communication technologies. It does not refer to a simple transition of services into electronic media. It rather means a completely new concept of thinking about state and society interactions.

Local IS

We strongly believe that implementation of information system will significantly help Brno in development of its “Smart City” status. Concept of “Smart City”⁵ might be somewhat hard for ordinary citizens to understand and to promote it. Most people have already had some contact with information system, since they are already used on everyday basis such at universities in banks, or businesses for administration on-line transactions. Young and middle-aged citizens in the first place use them quite often. There is a chance that people will easily understand the benefits of and IS and to use it. Brno will through this way have have an opportunity to engage people in the governance of their own city. The initiative can also help Brno to present itself abroad as a successful modern city which may help tourism and business.

⁴ Information System. *Techopedia.com*

⁵ HAMBLIN, Matt. Just what IS a smart city?

Reservation applications

Booking system is a system concerning on-line booking (reservations) services provided by municipality of city of Brno. It should save time for users be user friendly in all aspects, and inform users about procedures.

One such service could be ordering exact date and hour for an office visit. For example, it is possible to order arrangement of new citizen IDs and passports online using internet and avoid waiting. Arrangements of these documents belongs under administration circuit Brno-city to “Odbor správních činností” office, currently it is quite hard for users to find web page of this office in order to conduct them, though.

Vision for the city of Brno

Apart from possibilities mentioned in previous chapters it is also possible to use information system for more advanced functions. Although the complexity of these functions is something that goes beyond this project they should be at least mentioned here, as they are potentially very beneficial for the future development of IS. Information system could be used for participative budgets which means that citizens can by themselves choose for what the city would spend its means. There are other possible, though not immediate ways in which IS can be used in the future. A good example are local elections, although their functioning would probably be dependant on a global e-identity establishment

Participative budget is considered as an innovative solution supporting direct democracy, as it allows civic society to choose budget priorities on incomes and expenditures⁶. Citizens can, in a specific time interval, decide how money should be distributed according to to what do they find the most important. Main benefits of participative budget are the principle of subsidiarity, decrease of tension among citizens etc..

Similar participative budgeting already works in other Czech cities such as Semily, Praha 7, Ostrava-Jih etc. Their course usually consists of four phases – collection of proposals, checking and editing, voting and at the end realization.

Another way in which IS can be potentially used are municipal election . Here we encounter much more complicated and complex issues, because the legislation does not enable on-line elections yet. When a citizen votes, we need to make sure that his vote is counted only once and that his decision is secret. Furthermore we need to verify his/her identity absolutely, in order to avoid election frauds. Brno will in short future hardly achieve the level of online authorization, which would make this possible. The only means to achieve this would be distribution of a local or global e-ID card, or hardware tokens, all of them globally recognized as means of official electronic identification. Moreover, when both classical and online voting is allowed, there would have to be measures that make it impossible for a person to vote multiple times. If the elections were conducted only via online voting, the city

⁶ SGUEO, Gianluca. *Participatory budgeting: An innovative approach*

would, on the other side, have to make sure that every citizen has an access to the internet and their IS account.

Introduction and implementation of IS

Implementation of information system cannot be underestimated, as long as such actions might lead to the future users developing an aversion towards new information system, thus securing failure of the whole project. Low number of citizens using online communication tools might be also a problem

The project should be first implemented in Brno-střed city part (center of the city). The application could be easier on smaller location. Furthermore, Brno-střed is the most dynamic knot, where many offices are located, many people work and many tourists visit. Other city parts could observe the functioning of the IS from safe distance and later choose whether they want to join or not. We have reviewed several strategies for implementation some of which we found feasible.

Conclusion

This project was concentrating on developing a version of information system which could be created by city of Brno and its citizens as well as other cities in Czech Republic as well as abroad. Information system should be working mainly for citizens and we have concentrated on finding means to achieve that.

We have described an information system in which citizens could ask questions regarding direction of the city, book exact date and time to arrange whatever administrative task they need to solve, and use many other functions as well. Their private information such as the one considering payments will be secured. There will be a verification process to make sure that only identified citizen can use this IS.

Even though it may take a while for citizens to get used to the new IS we believe that overtime, they will be satisfied with it, and that this information will be successfully implemented.

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