

## Planning of Smart Government of Belgrade

*Eva Vaništa Lazarević, Marija Cvetković, Uroš Stojadinović*

(Dr Eva Vaništa Lazarević, Full Professor, Faculty of Architecture University of Belgrade, Blvd. King Alexander 73, Belgrade, eva.vanistalazarevic@gmail.com)

(Marija Cvetković, Assistant, Faculty of Architecture University of Belgrade, Blvd. King Alexander 73, Belgrade, marija.cvetk1@gmail.com)

(Uroš Stojadinović, Master student, Faculty of Architecture University of Belgrade, Blvd. King Alexander 73, Belgrade, mail: uros\_stojadinovic@hotmail.com)

### 1 ABSTRACT

Today cities are becoming ever more complex systems with vast amounts of data flowing through various channels of our societies. By adding layers and layers of complexity, we as individuals become more disoriented in the vast amount of available information, possibilities and choices. It is only when we are able to structure this information and data into meaningful patterns, can we find ways to understand and cope with the issues at hand. Whether it be seeking employment, better education, cultural events or trying to solve complex issues at a larger scale, similar principles apply. Cultivating a community and bringing people together represents one of the most important aspects of how we choose to use these tools/technologies to make an impact on cities and the globe. The process of building a web application/digital platform should be based on MVP – Minimum viable product, which means that the product should be put into function as soon as possible and tested with minimum investments in time and money. The reason for this is also a better way to find a path to potential users and to make corrections early on, to get rid of needless categories, or to add and develop new applications for the platform. The first phase of the project includes making a map with hyperlinks, pinpoints and other tools which ensures the efficient mapping of start-ups, collaborative spaces, cultural events, etc, so that users can easily search and get information.

Authors of new platform - students of Master class named “City and Design” at the Faculty of Architecture University of Belgrade, under the mentoring of Prof. Dr Eva Vaništa Lazarević represent newgrowing young specialists; those who will be responsible for the development of cities in the 21st century, new soft leaders which should be soon incorporated in planning of smart government of Belgrade.

### 2 SMART GOVERNANCE FOR NEW PLANNING<sup>1</sup>

Striving for a single EU market, which Serbia is entering in the years to come - means guaranteeing labour mobility in the era of crisis, reducing barriers for the entry and exit of companies and eliminating unjustified restrictions for business and professional services. For EU public administrations there is intention to improve digital exchanges between administrations and enterprises as well as citizens, to rolling-out E-procurement EU wide, to promote the use of public sector information, to open public data and to implement trans european services. In a word to develop EU wide on line service and to modernise public administration.

Working together even closer – we are all coping with today’s complexity and pace of changes in a context of constrained resources which requires integrations of diverse insights, experience and expertise, cooperation from different organisations. Though, the main topic of smart governance is to tailor workflows to citizens and businesses which need extensive process overhauls across administration but also, in Serbia, to battle against a corruption and to work under the absence of strict EU laws, not yet implemented in practice.

Although, there is in fact a high level of E-environment in Serbia, thanks to globalization & fast implementation of digital Era as well as the presence of smart and intelligent highly educated people. In Serbia we can indeed notice a “Silicon Valley Syndrom” as it was once in Dublin or Tel Aviv - but, unfortunately, with a significant exodus of educated young people to abroad. That younger generation is in fact a real auditorium for smart governance, and a gap between generations can be easily concluded as a problem. Big data, however - has no limits – so there is intention to achieve a full level of smart governance in Serbia, especially and primarily in the context of social data.

---

<sup>1</sup> Abecasis, Margarida: “Smart Government means being enteroperable”; E-Government Conference, Nicosia Cyprus, 2012.

### 3 SOME RAW MODELS

Planning of the smart cities must be oriented on a practical application of adaptive management and integrated development. In the context of overall economic and environmental crisis a detailed analysis of the potentials and needs of existing urban infrastructure, public spaces and its users is needed. There is a growing recognition among city leaders in the developed economies that smarter approaches represent a goal to address the challenges which confront society, to improve the efficiency of public service delivery, the sustainability of the urban environment, and the quality of life in our cities. Furthermore, these cities are using smart concepts to enhance their locational competitive advantage, promoting their sustainable and smart credentials to attract new business and talent. It can be achieved with smart advertising, creating more opportunities and building stronger communities. The advertising message aims to be detected, understood, remembered and to direct to a specific type of behavior characterized by specific types of functionality. One of the most important instruments and tools that advertising message uses is a mechanism of persuasion. Each advertisement is in fact the message: it has a sender (company, which owned released and acclaimed product) and the recipient - the public, as well as the transmission channel, which is called advertising medium. In smart cities advertising medium can be mobile application, internet sites, programs etc.

By simulating city in virtual reality, with interactive maps found on your phone, you can easily access all needed data for your planned activities. Jean Baudrillard<sup>2</sup> shows that media simulation and staging the event is a key to "historic triumph of the West." Postmodern for Baudrillard means that "civilization has overcome its boiling point, it is now getting cold."<sup>3</sup> It survives, and many things are taking place, but nothing is happening any more. There are no more events, and if they take place, then it's just a simulation of them. By simulating real city in virtual reality we have to be careful not to be trapped by it. With an integrated vision and mapping, all the massive information generated by the city (residents, services and infrastructure) in real time, providing valuable information for citizens, Smart cities are improving their quality of life and generating wealth.

From some raw models of Smart cities we selected those ones which could be a basis for the suiting and adjustment:

(1) Singapore city (fig.1) is building a Smart Nation that will function beyond the capabilities of Smart City. It is the only country thus far with a national impetus to leapfrog the smart city concept and build a Smart Nation. Their strategy is to establish an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure and to develop a globally competitive infocomm industry. This platform will create additional jobs, and their goal is to be #1 in the world in harnessing infocomm to add value to the economy and society.



Figure 1. Singapore

(2) New York as the oldest „Smart City“ in the world – government of this city began to develop computer controlled system of the city in the early 1990es. Today, two smart platforms are working simultaneously in NY – Cisco and City 24/7. Furthermore, in NY computer program was developed a platform to fight street crime so now this metropolis has become the safest city in the United States.

<sup>2</sup> Baudrillard, Jean: "Transparency of Evil", (orig. "Prozirnost zla"), Svetovi, Novi Sad, 1994.

<sup>3</sup> Logroño, capital of La Rioja, has been chosen as "the best city to live in Spain" by Merco Ciudad 2010 research, managing by Justo Villafaña, Professor of the Complutense University of Madrid. Besides, it is ranked among the Best Ten Spanish Cities for studying and enjoying.

(3) Amsterdam is the first smart city in Europe. Since 2000 companies such as Philips, Cisco, IBM, computerized almost all spheres of activity of citizens. A smart city is filled with data streams. Smart meters read how much energy people use; cameras follow cars on the highway; mobile operators can follow their users constantly; and banks know exactly who buys what, where and when. Amsterdam Smart City (ASC) is positioned as a partnership between businesses, authorities, research institutions and the people of Amsterdam. Under the initiative, the Amsterdam Metropolitan Area has been set up as an urban living lab that allows businesses to both test and demonstrate innovative products and services.

(4) Karamay (fig. 2) is the first smart city in the Xinjiang Uyghur Autonomous Region of China. The distinctiveness of the Smart Hub concept is focus on the integration of all the devices into a single information network, and continuously informing the citizens about all aspects of city life. For example, each bus stop in the city is equipped with a computer screen, which shows the movement of all buses in the area. Road traffic is monitored with the help of thousands webcams, and each one of them can be connected by mobile phone.



Figure 2. Karamay, China



Figure 3. Seoul

(5) Smart Seoul 2015 (fig. 3) takes a slightly different approach by being more people-oriented or human-centric. With this latest strategy, Seoul aims to implement as many smart technologies as possible and also to

create a more collaborative relationship between the city and its citizens. Eun-pyeong u City project (district of Seoul): smart city connections enable residents in the district to receive practical information via smart devices on their living room walls. In the interests of residents' safety, intelligent CCTV cameras installed on every street corner automatically detect people trespassing on private premises. If a person with a disability or an elderly person carrying a location detecting device leaves Eun-pyeong or pushes an emergency bell on the device, their location is automatically sent to their guardians via text message. The city's high-tech street lamps reduce energy use, broadcast audio and provide residents with wireless Internet access. A digital newsletter provides news, the bus schedule and other practical information to residents and visitors. Finally, the city's u-Green service monitors factors such as water and air quality through a network of sensors, transmitting this information directly to the Media Board and the devices in citizens' living rooms.<sup>4</sup>

(6) Another example is SmartAppCity, which was piloted in Spanish city Logroño,<sup>5</sup> brings together all the city services, boosting the commercial sector, generating value to citizens and improving the quality of life. In this application, city shops and businesses will offer their products and services and government will open data to serve citizens. SmartAppCity is the application that brings together all the city services and information on cloud, boosting the commercial sector and generating value to the residents, tourists, public administration and local businesses; facilitating interaction between different agents and generating added value for decision-making and citizen participation.<sup>6</sup>

As we can see, there are indeed some excellent smart international practices that Belgrade can follow and learn from, adjusting the goals and methods to actual conditions in order to preserve cultural identity, as well as the concept of the existing modern city, its user groups, aesthetics and philosophy, the potentials to preserve the physical structure, but also to recognize ways for reprogramming as a part of the continuous and sustainable planning process.

#### **4 PROPOSAL FOR SMART GOVERNANCE IN BELGRADE: BELAPPGRADE PLATFORM**

In the age of the fourth industrial revolution and intensive digitalization of the world, architecture and urbanism will have to respond to these newly established challenges. These technologies are changing the way we live and work, how we learn and communicate, and they also represent new tools that can be used to make an impact in our world. The power of internet brought us the opportunity to scale and spread our ideas, products and services throughout the world. Big data and data mining are giving us opportunities to collect and analyze vast amounts of data, thus giving us an insight into the factual state. Predictive analytics enables us to form new patterns or models and apply them accordingly to improve our cities.

For cities to attract top talent and foster creativity, they have to adopt a set of strategies that will insure the influx of creatives and engineers. Some of these include efficient administration which is able to serve citizens and satisfy their needs, open policies of inclusion and participatory processes, opening the data for analysis and experimentation, enabling a network of collaborative and cooperative spaces, making an ecosystem for innovation and entrepreneurship, creating incentives and tax breaks for newly established enterprises, better connectedness with the world, diversifying community etc. Within these frameworks entrepreneurship, creativity and innovation can be developed. Another part of this equation is a cultural dimension. Culture represents a way to bring people together, to nourish intellectual, emotional and spiritual sensibility, which are directly connected to innovativeness and creativity. A city must also be a cultural hub in order to be an entrepreneurial hub, offering its residents vibrant life and interesting content.

Traditional architectural practice has not yet shown the capacity to adapt quickly and integrate new technologies into its business model. It is especially true for the practice of urban planning and design. Considering that big data, data mining, predictive analytics and various other technologies will have a vast impact on how we think and plan our cities, we have to find new ways to integrate these methods into our practices and use them as tools to enhance our living environment. We, as architects and urban planners, have to define new frameworks and work within them to achieve our common goals.

---

<sup>4</sup> <https://itunews.itu.int/en/4148-Smart-Seoul.note.aspx>

<sup>5</sup> Logroño, capital of La Rioja, has been chosen as "the best city to live in Spain" by Merco Ciudad 2010 research, managing by Justo Villafañe, Professor of the Complutense University of Madrid. Besides, it is ranked among the Best Ten Spanish Cities for studying and enjoying.

<sup>6</sup> [https://eu-smartcities.eu/sites/all/files/docs/best-practice/smartappcity\\_english.pdf](https://eu-smartcities.eu/sites/all/files/docs/best-practice/smartappcity_english.pdf)



Figure 4: BELAPPGRADE logo.

This is what propelled a group of students from the Faculty of Architecture and the Faculty of Electrical Engineering from the University of Belgrade to initiate a project called Belappgrade. (fig. 4)

The aim of this project is to create a digital platform in the form of a web application that maps different places in the city such as startups, collaborative spaces, cultural events, public art etc. Our mission is to promote entrepreneurship, innovation and creativity in Belgrade, the capital of Serbia. In order for us to start and develop this project, we had to adopt an entrepreneurial mindset and form an interdisciplinary team of students that was able to tackle all the issues that emerged. We used entrepreneurship as a modality through which we created a sustainable framework and dynamic process of creation, so that we could realize our project efficiently. We applied the principles of Lean Startup<sup>6</sup> and based a product on MVP – Minimum viable product, which stands for a product built with minimum investments in time and resources and put into action as soon as possible to be tested. The digital platform was made with high levels of flexibility and adaptivity so that it can be easily changed to fulfill the users' requirements. The potential users of this app are students, job applicants, organizations, companies, and other individuals interest in these topics. Since it is not always possible to predict who the exact users of our application will be, it is reasonable to assume that changes are inevitable. The concept of an open platform can take significant amounts of data and information, and allows a participation of different companies, organizations and partners, as well as a gradual integration of all important aspects. The application consists of two major categories: Startups and Culture. These reflect the core values that we've adopted in promoting the city and informing our users. Within the category of Startups you can find subcategories that include mapped companies, collaborative spaces, events such as conferences and meetups, and job offers. All of the startup companies in the city are mapped and contain basic information about them, along with contact info, addresses and links to their profiles on social networks. Collaborative spaces include entrepreneurial and innovation hubs which serve to provide spaces work teamwork, offices and workshops. Events include conferences, meetups and workshops. Companies can also register, log into their profiles and post job offers to potential job seekers in the job offers category. In this category user can click on the name of the company, search for a suitable job, and then apply with a CV template through our web application.



Figure 5. Belgrade, Serbia

In Culture category subcategories are divided between cultural events that include workshops, exhibitions and gatherings, public art which includes different kinds of performances, urban art, graffiti etc. There is also

a possibility for organizers of these events to add them to the platform by clicking on ADD EVENT, and then filling a form with description and info, and sending it to the administrators.

This platform offers great opportunities to connect physical places to potential users and inform them about possibilities and activities. Integration of different options, filters, criteria on an interactive map, has the objective to empower users with wider range of opportunities and make a quest for information much easier. We aspired to achieve a balance between providing good quality service by preserving the initial goals on one hand, and on the other making an interesting interactive usage so that platform can stay active for a long period of time.

## 5 CONCLUSION

We are seeing major transformations that are occurring in Europe and the rest of the world. Migrations are changing the face of Europe, mobility is becoming more common everyday, densification and resource consumption are developing fast. Information technologies are changing the way we live, work and communicate with each other. It is in these circumstances that we have to create new frameworks for action and use our knowledge and skills to make a positive impact in the cities we live in. We must find ways to use and integrate technology and innovations as tools in the process of urban planning, urban design, city management etc. Smart cities require smart people who are able to coordinate and articulate transformations on ecological, economic and socio-cultural level.

With the growing population of today's cities one of the most important aspects will be efficient integration of these people into the system. Also, precise information will provide a strong feedback to the administration and urban planners and it can, thus, be used to inform the decisions made by these actors. The systems that insure a good feedback channels are able to build frameworks that enable participatory processes and more democratic distribution of resources.

In the world of rapid transformation and changes, what other way to cope with the issues than to use the resources and technologies available to all of us in order to understand at first, and then act accordingly to provide solutions to the problems and enhance our living environment. Concepts such as big data and predictive analytics enable us, among other things, to distinct relevant information from vast amounts of data and recognize meaningful patterns. And it is only when we are able to detect meaningful patterns and organize them into well structured models, we can make informed decisions and integrate these conclusions into our plans, concepts, models of development, designs etc.

The progress that was made in the last few decades in the areas of information technologies, but also in other areas, should be seen as a great opportunity to incorporate them and form interdisciplinary teams of experts that will contribute with their unique set of skills and knowledge. Transcending the boundaries of each profession individually so that we can get the best results will be one of the priorities in the near future and it should be embraced as a possibility to secure a good position for our knowledge and skills as architects and urban planners in the ever changing world.

## 6 REFERENCES

- 1 Abecasis, Margarida: "Smart Government means being enteroperable"; E-Government Conference, Nicosia Cyprus, 2012.
  - 2 Baudrillard, Jean: "Transparency of Evil", (orig. "Prozirnost zla"), Svetovi, Novi Sad, 1994.
  - 3 <https://itunews.itu.int/en/4148-Smart-Seoul.note.aspx>
  - 4 Logroño, capital of La Rioja, has been chosen as "the best city to live in Spain" by Merco Ciudad 2010 research, managing by Justo Villafaña, Professor of the Complutense University of Madrid. Besides, it is ranked among the Best Ten Spanish Cities for studying and enjoying.
  - 5 [https://eu-smartcities.eu/sites/all/files/docs/best-practice/smartappcity\\_english.pdf](https://eu-smartcities.eu/sites/all/files/docs/best-practice/smartappcity_english.pdf)
  - 6 Lean Startup, Eric Ries, Mate, 2014.
- Figure 1. <http://learstream-events.com/gsf-conference-singapore>  
Figure 2. <http://www.atkinsglobal.com/~media/Images/A/Atkins>  
Figure 3. <http://www.worldstudy.com.br/intercambio/coreia-do-sul/seul/>  
Figure 4. logo of the student's asociation  
Figure 5. <http://partytrail.com/belgrade-serbia/>