

# Belgrade: Smart Solutions for the Climate Change Challenges?

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## Belgrade: Smart Solutions for the Climate Change Challenges?

*.....The concept of smart city, targeting efficiency, liveability and sustainability of urban systems, has become one of preferred options for urban development.....*



## **Belgrade: Smart Solutions for the Climate Change Challenges?**



**INTRO**



**GLOBAL WARMING AND SMART RESPONSES**



**serbia – toward the smart solutions?**



**BELGRADE AS A SMART CITY?**



**CONCLUSION**





## Belgrade: Smart Solutions for the Climate Change Challenges?



### INTRO



## Belgrade: Smart Solutions for the Climate Change Challenges?

### INTRO

**MODERN cities – MODERN PROBLEMS**



**SMART cities – SMART SOLUTIONS**

Modern cities, as the nodes of highest concentration of people and activities, represent both the generators of environmental problems, as well as the innovative hubs addressing their solution



**Low-carbon/eco-smart/sustainable/resilient/healthy city**

**urban efficiency, environmental awareness  
high quality of life**





**Belgrade: Smart Solutions for the Climate Change Challenges?**

**GLOBAL WARMING AND SMART RESPONSES**



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GLOBAL WARMING AND SMART RESPONSES

Climate Change Impacts ↔ Low Quality of life

Climate change impacts living environment, generating numerous problems in cities affecting their *activities, spatial typologies, urban systems and public health*.

initiatives in order to mitigate the effects of global warming



The 'smart approach'



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### GLOBAL WARMING AND SMART RESPONSES

Climate Change Impacts ↔ ICT

SMART city concepts

The relationship between the sustainability of cities and their level of 'smartness' is enabled by the ICT, and its role in climate change mitigation and adaptation becomes more important every day.

- To increase accessibility of services
- To balance the use of available resources
- To increase use of renewable energy resources
- To decrease GHG emissions
- To increase energy efficiency

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### GLOBAL WARMING AND SMART RESPONSES



The smart elements introduced in cities are not only related to local development, but also influence regional networks and their functioning.



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### GLOBAL WARMING AND SMART RESPONSES



Six key factors define level of urban city 'smartness':

- smart economy
- smart citizens
- smart city government
- smart mobility
- smart environment
- smart living (Giffinger et al, 2007).



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### GLOBAL WARMING AND SMART RESPONSES

#### 'Smart City Vienna'

The initiative 'Smart City Vienna' was launched in 2011 and its main idea was to use **advanced technological support** in order to **decrease consumption and production of energy until 2050**, without limiting any mode of mobility and consumption.

The objectives of this initiative are related to the problems of global warming aiming at the **decrease of CO2 emission, the reduction of energy consumption and the promotion of multimodal transportation and public participation.**





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**serbia – toward the smart solutions?**



## Belgrade: Smart Solutions for the Climate Change Challenges?

### serbia – toward the smart solutions?

The general application of the smart city concept in Serbia is still in the initial phase, but the issues of global warming and CCA have been in the focus of professional and legislative attention during the last decade. (Pucar, 2013; Bajić Brković, 2013).

**Problems**



**Potentials**



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#### Problems



- Insufficient application of CCA documents
- Weak administrative support
- Low level of implementation
- The lack of the national GHG inventory
- No integration of SMART elements in the CCA strategies\*



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#### Potentials



- Several strategies for CCA
- Novi Sad, “smart city” concept, 2015
- “Smart traffic” analysis
- Information and knowledge exchange via web sites, social media, applications, e-magazines, etc.



- web-site of the Serbian Environmental Protection Agency (SEPA) and National Register of Pollution Sources.
- Digital platforms with GIS technology
- Blogs and platforms, e-magazines, etc.. (e.g. BUDIEKOFINa.COM),



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### **BELGRADE AS A SMART CITY?**



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

#### Belgrade - Introducing *SMART* elements

Apps, web sites, portals...



**The first group** includes internet sites and applications for more efficient coordination and orientation.

**The second one** provides information and online services for the citizens of Belgrade.



“belgrade Guide”



“e-uprava/e-government”

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### BELGRADE AS A SMART CITY?

Sites and apps related to wayfinding

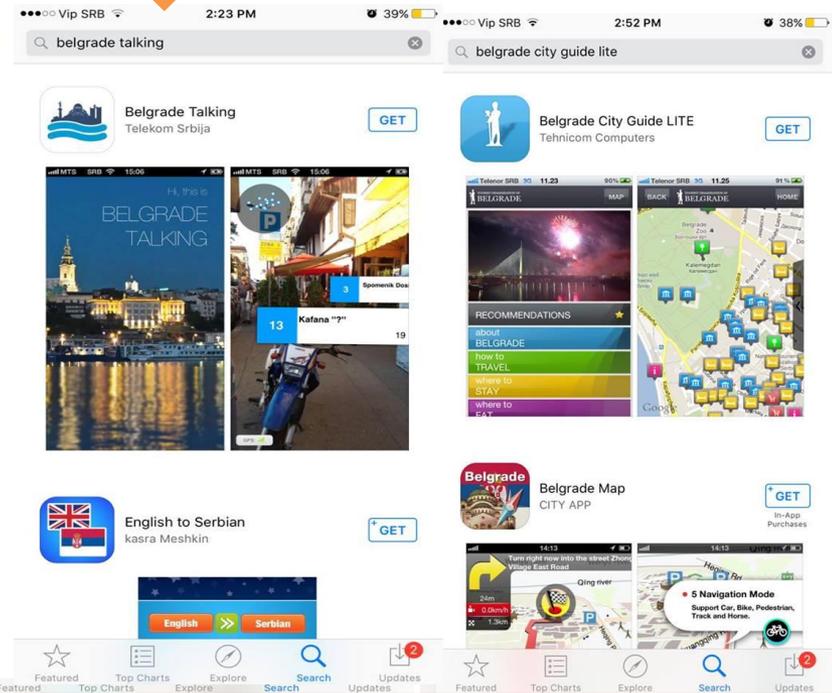
'Airport Nikola Tesla'

'Belgrade Talking'

'Belgrade Map'

'Belgrade City Guide'

'Belgrade Travel  
Guide'



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

Sites and apps related to wayfinding and monitoring

'Osmatrač' –  
*Observer*

'Beograd uživo' -  
*Belgrade live*

The image displays several screenshots of the 'Beograd uživo' app. The top screenshot shows the app's main interface with a live camera feed of a city street at night, titled 'Web Kamere Beograd UŽIVO!'. Below the feed, there are statistics: '10 хиљада' (10 thousand) downloads, a '4,4' star rating, and '182' users. There are also icons for 'Mediji i video' and 'Слично' (Similar). The bottom screenshot shows a grid of live camera feeds from various locations in Belgrade, such as 'Batajina', 'Autoput Novi Beograd', and 'Novi Beograd'. The right side of the image shows a mobile app interface with a search bar and a list of locations, including 'Serbia', 'Belgrade', 'Kopaonik', 'Kragujevac', 'Nis', 'Novi Pazar', 'Novi Sad', 'Zlatibor', 'Zrenjanin', and 'Croatia'. The bottom right corner features a large '4,1' star rating with '3.791' users and a green progress bar.

Beograd uživo ti omogućava da u svakom trenutku posmatraš saobraćaj u Beogradu!



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

Sites and apps related to urban mobility and transportation

Belgrade Plan Plus

Bus Plus

BG voz

Red voznje

CAR:GO



CAR:GO - Go Anywhere!

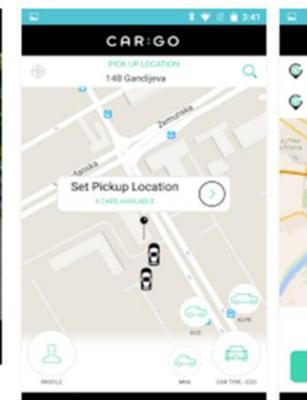
CAR:GO Technologies Transportation

★★★★★ 135

PEGI 3

Add to Wishlist

Install



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

#### Sites and apps related to urban mobility and transportation

'StartStop Parking  
Servis Beograd'

'BelParking'

'Parkiraj Beograd PS'

'Moj Parking'



Parkiraj Beograd PS

Android Parking Servis Beograd Transportation

★★★★★ 60

Unrated

Add to Wishlist

Install



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

Sites and apps related to **urban mobility and transportation** do not link environmental effects of transportation and its efficiency, but it could be used as a starting point for the introduction of more integrated services and tools.



## Belgrade: Smart Solutions for the Climate Change Challenges?

### BELGRADE AS A SMART CITY?

Center for environmental improvement has developed several apps regarding environmental sustainability: which include information about weather, precipitation, UV radiation, the ozone layer or natural resources.

“MORECAST”

“UV indeks Srbija”

“Blue Green Map Serbia”

POWERED BY telenor

PLAVO ZELENA MAPA SRBIJE

BLUE GREEN MAP OF SERBIA

CENTAR ZA UNAPREĐENJE ŽIVOTNE SREĆE

Plavo zelena mapa Srbije

Centar za unapređenje životne..

3 PEGI 3

ИНСТАЛИРАЈ

500

4,4

14

Путовања и локални

Слично

Putujete Srbijom i želite da posetite

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### BELGRADE AS A SMART CITY?

#### 'Libelium World - EkoBus Project'

- an attempt to integrate an urban system (transportation) with environmental monitoring.  
- [SmartSantander](#) project-

**The system utilizes public transportation vehicles to monitor a set of environmental parameters, and provide information for user.**

it provides data on six parameters - temperature, relative humidity, Carbon Monoxide (CO), Carbon Dioxide (CO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) and GPS location.



## Belgrade: Smart Solutions for the Climate Change Challenges?



### CONCLUSION



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### CONCLUSION

#### SMART cities –SMART SOLUTIONS

The integration of **smart features** into the process of urban development is still in its **initial phase** in Serbia and Belgrade, but some examples demonstrate a number of **possibilities** for their use, especially in the process of adaptation to climate change.

The advanced technology - ICT, represents the basic foundation for the necessary upgrading, which should be conducted both on the institutional and non-institutional level, via national strategies and programs, as well as by local governments and urban policies.



**urban efficiency and environmental awareness**





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**THANKS FOR YOUR ATTENTION**

