NINETEENTH ANNUAL SESSION OF THE COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

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Contribution of the Republic of Poland

CSTD – contribution from Poland

1. Intelligent Transport System (ITS) Poznan

Project description and objectives

Advanced traffic management project carried out in Poznan (one of the biggest cities in Poland). This project covers western part of the city (see map below) – Grunwald district and part of Jezowice district. It includes about 100 traffic lights, of which approx. 60 required replacement of drivers, support structures and lighthouse signalling. It affects approx. 550 vehicles from the fleet of public transport, including buses and trams. Implementation timeframe: May 2013 - March 2015.

Source: www.itspoznan.pl

Main objective of the project is to improve traffic flow of public transport as well as individual vehicles. It will be achieved by:

- controlling the traffic on the road network and decrease of existing congestions,
- more efficient use of existing road and transport infrastructure,
- improving the conditions of travelling,
- acceleration of public transport, especially trams,
- increased demand for public transport,
- access to current information (for drivers and passengers) useful in the planning stage and during the trip,
- increase of traffic safety,
- monitoring and protection of the environment.

This project has increased transport efficiency in Poznan, traffic flow and its efficiency. By better and more efficient public transport it has reduced the number of individual car users, consequently lowering traffic congestions. It gives necessary information to users of public transport as well as individual drivers, thereby incising traffic safety. Additionally, it contributes to the environment protection by reducing fuel consumption and emission of car exhaust fumes.

The project involves also creation and provision of many applications for mobile devices, including for disabled persons.

Challenges and how to overcome them

During implementation of the project several challenges were indentified. First of all, there was the shortage of staff qualified in the area of information and communications with relevant experience and skills in the municipal office as well as in municipal entities working together to implement the project. This was overcome by cooperation with scientific and research institutions as well as support of ICT entities from private sector.

Secondly, there was the issue of interoperability of new systems and systems already in place, so as to gain synergy. This was the more important because of the implementation of several other projects that were under implementation at the same time. It was necessary to avoid the use of different systems and on-board computers to be used in each project. On top of that, in order to mitigate this risk in the future it was essential to ensure openness of communications protocols.

Finally, delays in construction of hard infrastructure and key nods also caused some troubles. This required proper and flexible managing and good organisation.

Project contact person:

More information about the project as well as photo gallery (works, systems, command and control centre) are available here: www.itspoznan.pl/galeria-zdjec .

In case of any questions related to the System ITS Poznan please contact directly with Mr. Tadeusz Szkudlarz – Plenipotentiary of the President of Poznan responsible for telecommunication infrastructure, phone: +48 61 878 5738, e-mail: tadeusz_szkudlarz@um.poznan.pl .

2. Coherent System of Bike Trails and Self-Service Bike Rental System in Wroclaw

These are actually two complementary projects aimed to provide efficient infrastructure and capabilities for cycling.

Project description and objectives

The objective of Coherent System of Bike Trails is to build a coherent system of bicycle routes consisting of the main and local routes.

The system has the ability to increase the number of bicycle trips in the amount of total trips. It consists of the following facilities for cyclists: bike roads, bike lanes, contra - lines, bicycle locks, a dedicated traffic light system, ordinary bicycle parking facilities and the type of B&R, lockable bicycle boxes.

In addition, within the project Wroclaw plans to:

- train children in the use of bicycles as a means of transport and safe driving,
- provide campaign promoting the bicycle,
- publish maps,
- publish cycling Guidem,
- publish brochures explaining how to use cycling infrastructure,
- organize outdoor family events where the theme is the bike,
- cooperate with the media,
- update the city web page dedicated to bicycles,
- cooperate with the organizers of bicycle events (substantive and financial), such as: Bike Days (film festival of cycling) Cycling Travelers Festival Wroclaw, Wroclaw Biker Festival (Group of cyclists ride through the streets city linked with picnic).

Increasing number of individual car journeys affects the deterioration of quality of life. It causes noise, air pollution, prolongs the time spent in cars, increases demand for parking lots and space on the road. In order to improve the quality of life of residents in the city it was necessary to create alternative modes of transport. Because Wroclaw has very good landform and favorable climate that encourages people to bike trips the decision was made to develop cycling infrastructure.

Project description and objectives

The objective of the Self-Service Bike Rental System is to provide access to bike rental stations and promote bicycle as a sustainable mode of transport. The city offers an additional opportunity for rapid and ecological mode of transport. The project started in 2011. Its scale increased in 2015, following a new tender for 70 rental stations and 700 bicycles.

This system complements and reinforces public transport and aims to increase the mobility of citizens and tourists, create alternative for traditional transport modes (for people who do not have a bike or those living temporarily in Wroclaw). The system is open (anyone in the age over 14 can access it). The use of the bicycle is free of charge for the first 20 minutes, a fee for one hour is 0,5 EUR. The maximum rental time is 12 hours.

Benefits of the projects:

- creation of opportunities for safe and convenient movement on bikes mainly for the purpose of communication but also recreational and sports activities,
- reduction of air pollution,
- noise reduction,
- improvement of the safety of cyclists,
- increase of cycling trips in the amount of overall travel,
- reduction of the need for car parks,
- current level of participation in the split on modes of transport reaches 5-6%.
- the possibility of using a bicycle without having their own bicycle,
- the possibility of using bicycles by tourists,
- more than 90 000 registered users,
- in May 2015 nearly 140 000 rentals were noted.

In case of any questions related to the Coherent System of Bike Trails in Wroclaw please contact directly with Mr. Daniel Chojnacki, e-mail: daniel.chojnacki@um.wroc.pl .

3. Municipal Spatial Information System – Observatory in Krakow

Project description and objectives

Municipal Spatial Information System – Observatory is a web interactive portal that gives access to many useful information about Krakow. This portal can be useful especially for architects, builders, surveyors, investors, developers, planners, appraisers, planners, as well as all those who are planning to build a house or buy a flat. It contains information about the numbers of individual plots, their shape, surface, utilities, property, ad surrounding area. Everyone can also get the information if in the area there are landslides, what kind of architectural decisions were issued relevant to a given area, and what are the average transaction prices of flats or apartments. For those who are interested there are also available historical maps of Krakow since 1730.

The portal can be accessed here: http://msip.um.krakow.pl/msip/

Krakow municipal authorities intend to develop the service and add to it more information from official resources.

The idea of smart city and its implementation is an ongoing process. It has to take in consideration the all the socio-economical changes related to migration, urban development, especially in case of

metropolitan cities. Municipal Spatial Information System can help to face all those challenges. It is a great and easily accessible system that gives investors and citizens one source of information they need to realize their undertakings. It allows better planning and saves time and costs.

In case of any questions related to the Municipal Spatial Information System – Observatory in Krakow please contact directly with Mrs. Dominika Urbanska, phone: +48 12 616 1128, e-mail: dominika.urbanska@um.krakow.pl or Mrs. Malgorzata Chlebda, phone: +48 12 616 1532, e-mail: malgorzata.chlebda@um.krakow.pl .

Below you will find a comprehensive approach do Smart City projects presented by the city of Gdansk.

1. *Can you give examples of 2-3 main smart city and infrastructure applications in your country and how it contributed to sustainable development?*

Efficient management of Gdansk's public space and constant improvement of the comfort of its inhabitants' life are not possible without comprehensive solutions based on modern technologies. For Gdansk and the whole metropolis, the concept of smart cities is an opportunity to improve the functioning of the whole area by way of effective, economical and ecological management. This will be reflected in the efficiency of, among others, public services, mobility, energy and dialogue with the inhabitants. This assumption fits into the sustainable development policy of the European Union, and is a chance to change the city's face as one which is friendlier to its users.

Selected solutions for the smart city, infrastructure for the intelligent city in Gdansk:

- TRISTAR – Integrated Traffic Management System for the metropolitan area consisting of Gdansk, Gdynia, Sopot. It allows automated traffic control in these cities, improving safety and sustainable and efficient management of road infrastructure. Travel conditions are improved also by the information drivers and urban transport passengers get through variable message signs, LCD screens and on the Internet.

http://www.gdansk.pl/urzad/biznes,1105.html

- Open Gdansk. The city is implementing the policy of openness, sharing its data with the residents. The data sets created by the city are released to the public, regarding legal and IT conditions. Among data sets released to a day: urban transport timetables, everyday city expenditure, request for public information, data on demographics, maps, construction permits, queues in the city hall etc. Main goal of the Open Gdansk project is creation of condition for the re-use of data created by the city. Citizens, NGOs, companies are encouraged to use released data freely.

http://www.gdansk.pl/urzad/otwartygdansk,1842,33332.html

- ACCUS (Adaptive Control of Urban Cooperative Subsystems) is a R&D projects run by an international consortium consisting of 28 research institutions and companies from eight EU countries, including the city of Gdansk, Technical University of Gdansk and ICT Cluster Interizon. The goal of the project is developing a cutting-edge IT platform for smart cities - a solution for the integration of information and

communication systems (CCTV, lighting, traffic management etc.) for intelligent management of the city. The project, worth approx. 15M EUR, is financed under the 7th Framework Programme. The development of the system should last till the end of 2016.

http://www.gdansk.pl/urzad/start_nowy,512,33887.html

- Map of Maintenance - an interactive map of Gdansk (a part of city's GIS) has a functionality called "Map of Maintenance" –which allows any city resident to report via Internet issues related to the day-to-day maintenance of the city (potholes, littering, vandalism etc.). All the reports are redirected automatically to a city department responsible for managing the issue. Launched in 2011, it was a first application in Poland of its kind.

http://www.gdansk.pl/urzad/nasze-miasto,512,18885.html

- Noise map - is a part of a project of monitoring noise levels in Gdansk. Data on noise is retrieved through sensors and published on a website:

http://mapaakustyczna.gdansk.gda.pl/GdanskMakus/

- Gdansk Education Platform (GEP)
  As an outcome of the project, 186 educational institutions in Gdansk were supplied with interactive board, secure Internet connection and access to a platform of educational resources. GEP consists also of HR, accounting and student information modules. Students, parents, teachers and the city gained on-line access to comprehensive information on education in Gdansk.

https://www.edu.gdansk.pl/Strony/GPE.aspx

- e-Portal is an integrated system for the data exchange among the city and its external entities financed from the city's budget. E-Portal helps settle funds among parties and control of task assigned by the city to the external entities.

- Participatory budget – city residents can vote via Internet and decide how to spend a part of the city budget. City residents submit proposal for projects, than feasibility studies are conducted and if feasible, projects are voted. Second edition of a budget took place in 2015.

http://www.gdansk.pl/urzad/budzet-obywatelski

- Hot-spot network Gd@nskWiFI
  The most visited areas of the city are covered by a free WiFi network (approx. 100 hot-spots).

http://www.gdanskwifi.pl/

- Application for planting trees (BAND) – the city provides its residents with an online application, which allows pinpointing on a map desired locations for planting new trees. All requests are checked by the city hall, and if a location fulfills environment and technical criteria, new trees are planted

http://bandgdansk.com

The above-mentioned initiatives are run in accordance with the Strategy of Development Gdansk 2030 Plus and Operational Programmes (currently under development). The strategy stresses the role of innovative ICT solutions for the development of Gdansk. We believe that modern technologies can help managing the city and make life in the city better. They should facilitate access to the high-quality public services in the field of infrastructure, transportation, education etc. Our areas of interest are smart city tools making information more available to residents, facilitating communication and consultation between the city hall and residents and helping manage city in a more efficient way.

2. *What are the main challenges confronted while trying to implement smart city related projects in your country or region?*

Among challenges, there is ensuring smooth cooperation among various stakeholders: local government, national government, NGOs, science, business community. Tightening cooperation with these stakeholders is an important objective of the city of Gdansk. We need our solutions for the intelligent city to be effective, cost efficient and environment friendly – and providing such solutions is also a challenge.

The Strategy Gdansk 2030 Plus is considered an important step towards making Gdansk smart city. Therefore we would like to mention the process of creating the strategy, as we consider it "the smart way" of planning the future of the city.

The process of creating the Gdansk 2030 Plus Development Strategy and defining the far reaching priorities, directions and objectives included in it is open to all inhabitants. Specification of development challenges, identification of problems and, finally, selection of the elements of a common vision require social approval. Thanks to this approach, dialogue and co-responsibility, which are the foundations of sustainable development, are nowadays the basis for shared and participatory management of urban development.

The process of the Strategy's creation was aimed not only at joint specification of visions, priorities and objectives, but also at the creation of possibilities to actually influence the decisions made. Referring to the knowledge and needs of the Gdansk community, the mechanism of consultations with the inhabitants and opinion leaders and experts in various fields of the city's life was used for this purpose.

The city's inhabitants, supported by the employees of the City Hall, experts, and social and economic leaders, compiled this document as the result of a process which took nearly one year. The findings of debates, meetings and public consultations match the conclusions drawn as a result of the participatory stage. The process of compiling the Gdansk

Development Strategy had a multi-stage, inclusive and flexible nature. Based on the knowledge and involvement of the inhabitants of Gdansk, a common vision, priorities and objectives were determined.

More information on this process could be found on p. 29 of the above mentioned document
(http://www.gdansk.pl/urzad/strategia,1654,35041.html)

Among challenges for Gdansk following issues can be mentioned:

- fostering the condition for digital inclusion and new models of using ICT in the public sector and for the cooperation with NGOs, residents, entrepreneurs.
- Re-use of public information and resources generated by the city hall and its entities, both for non-profit (education, culture, social services) and for-profit purposes (new enterprises, new products and services).
- Coordination of various existing systems for traffic management, energy management etc.
- Encouraging creation of new mobile/on-line applications for residents, for the improvement of the quality of life in Gdansk.
- Creating new smart city solutions in accordance with the main areas of the Strategy Gdansk 2030 Plus – education, cooperation, mobility, openness.

3. *How can the science, technology and innovation community contribute towards overcoming these challenges? Can you give any success stories in this regard from your country or region?*

Solutions and initiatives mentioned in (1) helped improve governing the city, for example:

- TRISTAR – more efficient traffic management
- Open Gdansk – increasing transparency in governing the city, better access to information for residents
- Map of maintenance – more accurate information on issues like potholes, littering
- Gdansk Education Platform – faster and cost-efficient management of schools and kindergartens in Gdansk
- E-Portal – better control of financial flows among the city hall and its entities Participatory budget – increasing engagement of residents in developing areas in their districts

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