SMART CITIES A CHALANGE IN URBAN SUSTAINABLE DEVELOPMENT

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Abstract – The importance of cities in social life justifies the actions needed to create smart cities. The smart city, should be analyzed less by the amount of IT applications implemented even more by optimizing its functions. The idea of a smart city must include the centralization of solutions to the citizen and his needs. From the smart city characteristics such as: intelligent governance, smart economy, smart mobility, intelligent environment, intelligent population, intelligent way of life results initiatives for implementation of these characteristics. There are gaps between smart cities, both by their size and geographic location. The ubiquitous digital gaps are also manifested in smart cities. There are correlations between the city's location and its size with the national indices of the digital divide. The rapid evolution of new digital technologies means that in most cases their failure to do so would hurt the implementation of smart city solutions more than their early adoption.
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1. SMART CITY CONCEPT

There are a wide variety for Smart City definitions. The most widely accepted is that Smart City is an urban area that creates sustainable development and a high quality of life by excellence in fields of activity as a result of solid human capital, social capital and ICT infrastructure, the use of digital technologies to raise the cost of living and better communication with citizens. Today, more than two-thirds of Europe's population lives in urban areas, and the trend is one of growth. As with commercial companies, most of this population is found in small and medium cities, cities facing a series of generic challenges of a demographic, economic, social, environmental, but also with a number of specific challenges such as utilities, public transport, infrastructure not adapted to new requirements, etc.

A "smart city" is a city that makes the most of modern technology and means of communication for the benefit of the community, in all its aspects: from traffic, parking, social services to paying local taxes and taxes and other areas linking the community to the business environment . Ignoring technology,

internet, everything that involves the IT means to block the future development of a city. In order to became „Smart" a city needs progresses and changes concerning three major steps:
- administrative aspects, given that cities will become more crowded than ever, the efficient operation of administrative systems is the key to intelligent cities;
- technological aspects, city development involves adequate investment in cutting-edge technologies;
- social issues, Smart City maximizes the synergy between the city and its citizens, who are not seen as simple users or consumers of city services, but as partners in t he development of the city.

Smart City is a concept that is growing more and more in this period and it means a lot of things for the benefit of the citizen integrated into a new concept. A new concept that allows for significant reductions in carbon dioxide emissions and substantial energy efficiency, to the creation of nearly zero-energy buildings. But also sustainable mobility, electrical mobility, integrated infrastructure, all of which are found in digital platforms accessible to citizens. There are many, many activities that create the concept of Smart City. A smart decision-making city based on highly bulky datasets from sensory, from everyday people's experiences, from everything that can be taken as a date to make intelligent decisions.

2. SMART CITY IN THE EU CONTEXT

In Europe, the development of Smart Cities has two main actors: the cities themselves (especially the capitals of the member countries) and the European Union (as well as institutional building). At the beginning of July 2015, the European Economic and Social Committee (EESC) adopted a document that sets out a new strategy to develop and support Smart City projects called "Intelligent Cities as the engine of a new industrial policy in Europe".
In order to support the development of smart cities across the EU, the EESC supports supporting investments in such projects with existing European, national, regional and national public funds and

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exploiting the possibilities offered by the European Fund for Strategic Investments (EFSI).

For example, the Innovation and Network Executive Agency (INEA), the European agency specialized in research / development / innovation, for 2014-2020, has a budget of 33.4 billions euros.

To facilitate the process, the European Innovation Partnership for Communities and Smart Cities (English acronym EIP-SCC) was set up to bring cities, industries and citizens together to improve the quality of urban life through more sustainable integrated solutions through innovation better planning, a more participatory approach, better energy efficiency, better transport solutions, intelligent use of ITC, etc.

3. MODERN INSTRUMENTS USE IN PUBLIC ADMINISTRATIONS

Public administration is increasingly confronted with problems related to efficient planning of city resources and economic resources in relation to citizens' needs. The process of developing goals and strategies in the necessary development of communities is a great challenge. Starting with the correct identification of the projects, continuing with their selection based on professional, independent and transparent criteria and finalizing with the efficient and maximum implementation of the project requirements, all are challenges for an administration with limited personal resources, political belonging and different interests.

In addition to the lack of coherence and support in strategies, there is also a lack of methods for setting and prioritizing projects and for correctly identifying the community's needs to increase the standard of living.Even where there are transparent criteria, there are difficulties in fully and accurately analyzing existing data and possibilities.

Lately, entry into and use in day-to-day information technology allows employees to perform their tasks faster and more efficiently. Thus, the analysis and the process of investment planning, as a difficult and elaborate process, can take place quickly and with notable results.

To support the activities of the administrations, many solutions have been developed that can make real-life space and spatial analyzes to make effective use of resources to enable faster issuance of notices and shorter working and workloads.

4. INFORMATIC INSTRUMENTS AND SPATIAL ANALYSIS IN THE ACTIVITIES OF THE ADMINISTRATIONS. DIGITAL SPACE

Modern IT tools allow data to be displayed in an aggregated, coherent and synthesized manner through simple, intuitive, easy-to-interpret results and analysis. A new dimension, such as space-related localization, allows institutions a much more concrete and useful analysis to determine the details.

Analyzes are carried out taking into account the location and the elements of the environment that could influence reality. Thus, all elements related to road infrastructure, utilities infrastructure, legal, economic aspects of the land, its quality and environment, the economic development of the area and the facilities in the area of interest will be taken into account.

The practices of European states have shown more and more concern and focus on collecting and analyzing these types of data.

To make these data easy to access and at the same time to be up-to-date and maintain at a minimal cost, a number of laws and regulations have been developed. Thus, most spatial data holders, depending on the area of interest, make available to those interested, usually through a national platform or portal, data required in the current activity, data that comply with existing European standards and directives such as the Inspire Directive. Thus, for example, a city-level assessment of community-based roads and the possibility of expanding the infrastructure so as to obtain the route that allows for the take-up and distribution of intense traffic, it is possible to optimize the ways of access to certain objectives, but to be able be quickly built up, without problems with protected areas and areas or the legal regime of land. All these criteria can be taken into account in a spatial analysis, so that with the data available to the specialized authorities that further will use the data according to the directive, it is possible to carry out accurate analyzes with relevance and bringing together data from different institutions, thus achieving the necessary interoperability between state institutions. Criteria can be complex combined, can be added or weighted depending on the importance and also built several risk scenarios.

Such tools or analyzes can be applied in various areas of interest such as urban planning and spatial planning, urban development, town planning, cadastre, utilities, extension of projects or maintenance, taxes and duties, economic and regional development, environment and tourism promotion.

The Internet is currently widely used for communication and dissemination of information globally. There are a lot of resources available online as well as tools to access them. There is an increase in the number of websites created to present the essential aspects of society. Cities need to demonstrate their potential to make the best use of electronic resources. It is important to identify real needs to support the creation of new services in smart cities. Digital city space is a fundamental component of intelligent cities.

According to Komninos' assertions (2008), digital space is one of the three fundamental levels of a smart city, the digital component, the physical city, the innovation ecosystem.

Digital city space is a system composed of four concentric rings. The center is the networks, the digital infrastructure, which allows access to communication, data collection, data exchange and information. Then information technologies that allow data storage, processing. The third ring encompasses digital applications in various fields,

eGovernment, utilities management, sustainable development. The outer ring includes electronic services, business applications as services.

The creation of digital space is based on two distinct complementary processes. Software developers, digital planning specialists can either use existing solutions that have already been applied in other cities and are recognized as good practices for city management, sustainability and development, or can create new solutions and applications by using existing technologies, research studies and the creative potential of the community.

In both cases, the development of digital solutions is based on information and communication technologies, which have been growing exponentially in recent years.

Smart cities have intelligent, interconnected systems. Based on information and communications technology, the applications needed to improve the quality of life of citizens in the community are being developed.

Smart city refers to a digital space embedded in the physical space of the city, its infrastructure being connected to a new set of technologies, equipment, devices and applications.

The landscape of a smart city can be defined as an open innovation environment based on information and communication technologies and on electronic services.

The future welfare of cities is determined by a number of factors including: a creative population, educational institutions, research and innovation centers, networks of public-private partnerships, active participation of citizens in important decisions on economic and social life.

We identify a similarity with Porter's concept of competitive advantage: the wealth potential of cities and urban areas depends on human resources, capital, infrastructure, knowledge and information, strategy and governance.

The smart city also refers to how citizens can shape the city by using new technologies, and how they are empowered to contribute to urban change to meet their needs and expectations. At the same time, the smart city offers the conditions and resources to make change. In this context, the smart city is a true urban innovation ecosystem, an urban experimentation laboratory, a real agent of urban change.

The intelligent city is also a transformation engine, a true solution generator, proving that it behaves intelligently.

Developing a smart city requires innovation environments, communities and stakeholders in the urban value system that will have different roles. Local governments are the ones that set priorities, challenges for competitiveness, sustainability and social inclusion, develop and implement urban development policies, develop urban planning plans.

Citizens and businesses have an interest in profiling their living and working conditions. As a part of the application, they can be organized in various interest groups or professional communities.

Different actors and stakeholders can cooperate within networks because it is crucial that solutions to various issues are carried out with the support of citizens, consumers and users together with researchers and representatives of local government.

Research institutes, universities can offer the technological solutions and facilities for testing and experimenting with social innovations.

Particularly important are public-private partnerships to deliver urban development projects such as health, social innovation, job creation, environmental issues, transport optimization, etc.

The innovation and adaptation eco- system is based on integrating policies for urban development, digitization, and intelligent environments that harness collective intelligence, innovations co-created with citizens, service users, and research that can be experienced.

5. TIMISOARA MIGHT BECOME SMART CITY?

The Smart City concept is a relatively new one, but the European Commission has earmarked 18 billion euros for it. It involves the transformation of a district or neighborhood into a highly energy-efficient one, from a hi-tech energy rehabilitation of the blocks to the creation of applications to indicate to drivers the available parking spaces in that area.

An area of Timisoara could enter this program after the City Hall joined Karlsruhe and Miskolc and tried to access European funds for this program. At present, Timişoara's projects are now being considered by the specialists of the Fraunhofer Institute, the world's largest research institute.

Specifically, from the funds that will come to Timişoara, the municipality will try to turn the old blocs in this district into highly energy-efficient housing.

Practically, integrated measures are proposed within a district, say, a district in Timişoara that will bring buildings between 30,000 and 40,000 square meters of habitable energy almost zero. That is, investments that exceed the type of energy efficiency we normally do, ie insulation with polystyrene and roof insulation, and go to individual distribution, the combined heat and cooling networks that Colterm is capable of doing, a lot of sensory in the apartments , heat pumps, photovoltaic panels. This leads to a very low energy consumption in apartments, estimated at around 50 Kw / h per square meter per year.

On the other hand, funds will be invested in the purchase of electric vehicles, from bikes to boats that run on Bega, which will automatically mean a reduction in carbon dioxide emissions.

The other concern is electromobility. And here we are talking about electric boats on Bega. We are trying to build two such boats, which are in the research and development phase in many of Europe's shipyards, with no approved craft. This also means charging stations for these boats, using green energy, is also a significant area of carbon dioxide emissions.

The loading stations will be for boats as well as for other means of transport.

The third area in which to invest will be the sensors. These will be mounted in each pillar and will provide a wealth of data, from public lighting to traffic management or parking. Specifically, among many other data, the sensors will give Timisoara drivers the opportunity to find out which parking places are available in the area, traffic management to change the traffic lights.

There are other aspects to mention, for example, electrical mobility elements within the project, but also the obtaining of many data by the location of sensors both in the district and in other areas of the city. And an integration of the infrastructure, especially in the area of the district we are targeting. We are talking about data infrastructure, intelligent lighting, which implies the software control of all light bulbs in public lighting, motion sensors, wireless sensors between lighting systems, and pollution sensors within the same poles. All the data we will get from both citizens' energy consumption behavior and pole sensing and direct participation of citizens in areas such as traffic management, parking management will all be translated into a digital platform uses open data and will turn into applications that are accessible to citizens. This means traffic data, shared transport data, smart parking data, all in one application available to citizens, on all equipment, either web or mobile. At present we are talking about a pilot program that will have direct efficiency in a specific area of Timisoara, but of course also an indirect efficiency for the other inhabitants.

The total project value for all three cities in the consortium is estimated at 25 million euros, of which Timişoara will receive a maximum of 8 million euros.

6. CONCLUSIONS

Interactive actors interact to create smart cities. In addition to traditional city actors (institutional, architects and urbanists, service providers, transport network operators, energy grid operators, etc.), many actors are starting to occupy an important place in tomorrow's smart city building, for example specialists in new information and communication technologies or citizens.

The city is the place of integration of actors and multiple and interdependent systems. It is a systems system in which interactions and exchanges of information between systems and between actors are fundamental.

In the case of smart cities, governance and modalities mst be rethought to improve the cooperation of all city actors, but also their cooperation with other organizations - local, regional and national institutions.

In addition, with the consolidation of European policies in the field of sustainable development (mobility, habitat, energy, etc.), alignment to the European standard will also be fundamental.

On the other hand, governments will have the task of knowing how to organize the coexistence between public policies and private initiatives: governors will have to choose between instigation and regulation.

Accessing European funds or implementing public-private partnerships allows cities to be endowed with infrastructure, community facilities and related services, the costs of which can not be borne by themselves, given the innovative solutions in terms of design, construction, financing, operation and maintenance public facilities.

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