

SCENARIOS AND MECHANISMS FOR LOCAL DEVELOPMENT

Abstract

In the last century the urban models have progressed from structural models to static models to dynamic models. These urban development models can be classified in two categories: traditional urban models which usually simulate the urban system at a macro level and evolved models which reflect with accurately the dynamic, self-organizing, or emerging characteristics of urban systems.

Keywords: intelligent locality, new technologies, intelligent solutions, sustainability, city development, cellular automata

JEL CODES: D80, O33

SCENARII ȘI MECANISME DE DEZVOLTARE LOCALĂ

Lorena (BĂTĂGAN) POCATILU

Lecturer Ph.D., Economic Informatics Department,
Bucharest University of Economic Studies

E-mail: lorena.batagan@ie.ase.ro

Rezumat

În ultimul secolul modelele urbane au progresat de la modele structurale la modele statice la modele dinamice. Aceste modele de dezvoltare urbană pot fi clasificate în două categorii: modele tradiționale urbane, care simulează, de obicei, sistemul urban, la nivel macro și modele evoluate, care reflectă cu acuratețe dinamica, auto-organizarea, caracteristicile de dezvoltare ale sistemelor urbane.

Cuvinte cheie: localitate inteligentă, noi tehnologii, soluții inteligente, dezvoltarea locală, sustenabilitate, celule autonome.



Proceedings of the eighth Administration
and Public Management International
Conference

1. INTRODUCTION

Paper aims to establish the most useful solutions for urban development.

The first part will present the importance of urban development. By smarter, we mean that intelligence is being infused into the systems and processes that make the world work—into things no one would recognize as computers: cars, appliances, roadways, power grids, clothes, even natural systems such as agriculture and waterways.

The second part presents the mechanisms of urban development.

An urban development demands a balance among economic, social and environmental concerns. The mechanism of attaining a balance depends on the specific situation of a city. The development of urban sustainability involves several complicated problems, including externalities, public goods, healthcare, the accumulative effects of long-term efforts, cross-sectoral coordination, and conflict management policies. Market mechanisms alone cannot be relied upon for achieving sustainability; instead, specially designed strategies and policies are generally required (Chen, Ho and Jan, 2006).

The third part presents a scenario for urban development. By 2050 (IBM, 2011), cities will be home to more than two-thirds of the world's population. They already wield more economic power and have access to more advanced technological capabilities than ever before. Simultaneously, cities are struggling with a wide range of challenges and threats to sustainability in their core support and governance systems, including transport, water, energy, communications, healthcare and social services.

2. URBAN DEVELOPMENT

Urban development has in view the economic prosperity and social welfare by creating an environment for business, along with community integration of vulnerable groups, use of endogenous resources, private sector development.

Today urban development is a major global issue that requires urgent attention because of the intensification of human activities that wantonly use natural resources and degrade the environment. The urban development is related to the quality of life and in a smart city the economic, social and environmental systems are providing a healthy, productive, good life for all the citizens.

We can say that urban development is a complex system that concerns the entire economic, social, and cultural sectors from the city. In this case, the answer is to focus attention on high-impact areas of the

city. In (Dirks, Gurdgiev and Keeling, 2010) we identified the eighth primordial areas for urban development:

- Education and training;
- Health;
- Science and research;
- Environmental protection;
- Social development;
- Economy and market;
- Governance;
- Spatial planning.

All these areas are interdependent and for urban development we must develop a strategy based on sustainable urban development models.

One of the major problems of the current economy is to use resources efficiently. This principle requires the conservation and rational use of renewable resources, as well as balancing the pace of exploitation of other resources and their regeneration rate. An effective solution requires that everything is taken from nature to be used and useful substances from waste and used goods to be recycled. Here we can see that it is necessary to use new information technologies to ensure efficient use of the resources.

Europe 2020 puts for urban development three priorities:

- smart growth: developing an economy based on knowledge and innovation.
- sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

Sustainable urban development is defined (Hald, 2009) as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The future city has been recognized as a new stage of urban development in which we use the resources and the environment efficiently. Because of different development of these eight primordial areas we can't have the same strategy for all cities.

3. THE MECHANISMS OF URBAN DEVELOPMENT

We can say that in our age cities are complex systems—systems of systems. Advancing these systems to be more instrumented, intelligent and interconnected requires a profound shift in management and governance toward far more collaborative approaches. Using intelligent systems in a city we want to improve the quality of life of citizens, but also the efficient use of natural resources deemed to be limited (Batagan, 2011).

Based on IBM conception to build a smart city we can identified three main mechanism for urban development:

- Instrumentation - enables cities to gather more high-quality data in a short time than ever before;
- Interconnection creates links among data, systems and people in ways not previously possible;
- Intelligence – in the form of new kinds of computing models and new algorithms – enables cities to generate predictive insights for informed decision making and action.

The instrumentation of the systems of the city is the first step for urban development. Using the solution for instrumented, the city will become interconnected. In many areas of our city we must to focus on the efficient use of existing infrastructure and in other parts we must to modernisation it. Using the instrumented and interconnected solutions the city will becoming intelligent.

The future city can integrate and optimize all the systems to achieve a new level of productivity, quality and efficiency. These mechanisms are esantial for urban development.

In my vision urban development is based on use of the new technologies in all activities for improve the quality of work and of life, to reduce cost and to improve the efficiencies.

4. A SCENARIO FOR URBAN DEVELOPMENT

A question of our day is how development a city and what are the step and principles outlined above in the most cost-effective and productive fashion? The answer is to focus initially on four high-impact areas of improvement (Dirks, Gurdgiev and Keeling, 2010):

- Reduce congestion in transport systems – a smart system for traffic;
- Improve government services and public safety – a smart system for government services;
- Improve education systems – a smart system for education;

- Enable appropriate access to healthcare data for better quality of care – a smart system for health.

All the research highlight that we can implementing smart solutions in our city to become smarter. For this we can start from four areas (transportation, education, healthcare and public administration) that are the core system of the city.

For a smart city we must to have in view to interconnect all the city systems. This can be do step by step start from one system and then extended to the entire city.

Every system can be characterized by some function: sensing, information management, analytics and modelling, and influencing outcomes. For best results these systems must to be integrated in one system.

Analyzing the models of smart cities that exist among the world I identified some priority categories: model for resource consumption, model for traffic congestion, model for healthcare and model for educational system. All the models have in view to optimize control of the city systems and to offer citizens better outcomes and a quality life.

Using this models we can stabilish a scenary in four steps for urban development:

The first step for a smart city is to observing and understanding city activity. In this case we will know where to implementing the smart solutions. For a city who have a big problem with traffic we consider that is a good idea to start with a model for traffic congestion, and on the other hand in a city with a lot of consume of water we will start with a smart solution for reduce the water consume. For this we must to analyze all the important areas of the city.

The second step is to select the primordial area of the city and implement smart solution.

The third step is to extend the smart solutions to other areas of the city and to manage information across all the city systems.

And the last step is to optimize the solutions for improve the quality of life.

The use of new technology/smart solutions efficiently in our cities is an important part of innovation, evolution and sustainable development. Our world today is more interconnected, intelligent and the information is positioned in the middle of it. In our age the urban development depends on the use of more and more new intelligent solution. For smart and sustainable growth of cities are important to use efficient the new technology and resources.

5. CONCLUSIONS

In conclusion, the smart system represents a real support for an urban development which will generate a sustainable development of quality of our cities. To improve the quality and performance of cities is recommended to involve all interested parties to implement efficiently smart systems. The city development depends on the evolution and the efficient uses of the intelligent solutions. In many countries the telecommunications systems infrastructure currently exists, but isn't use to the real value. So, is very important to develop a city strategy is most essential step to becoming a smarter city. This strategy will help determine where and when to invest, because we must to know where and when we can use the smart solutions.

ACKNOWLEDGMENTS

This work was supported from the European Social Fund through Sectoral Operational Programmer Human Resources Development 2007- 2013, project number POSDRU/89/1.5/S/59184, "Performance and excellence in postdoctoral research in Romanian economics science domain".

REFERENCES

- Bătăgan, L. (2011). "Smart Cities and Sustainability Models", *Revista de Informatică Economică*, Vol.15, No.3, pp. 80-87.
- Chen, M.C., Ho, T.P., Jan, C.G. (2006). "A System Dynamics Model of Sustainable Urban Development: Assessing Air Purification Policies at Taipei City", *Asian Pacific Planning Review*, Vol. 4, No.1, pp. 29-52.
- Dirks, S., Gurdgiev, C., Keeling, M. (2010). "How cities can optimize their systems for the talent-based economy", IBM Global Business Services Executive Report IBM Institute for Business Value Smarter cities for smarter growth, Copyright IBM Corporation. Retrieved 12 May, 2012 from: <http://public.dhe.ibm.com/common/ssi/ecm/en/gbe03348usen/GBE03348USEN.PDF>
- European Commission (2010). "EUROPE 2020. A strategy for smart, sustainable and inclusive growth", Brussels. Retrieved 12 April, 2012 from: <http://www.eurunion.org/eu/images/stories/eufactsh-eur2020-8-10.pdf>.
- Hald, M. (2009). "Sustainable Urban Development and the Chinese Eco-City - Concepts, Strategies, Policies and Assessments", FNI Report 5, Fridtjof Nansen Institute. Retrieved 2 May, 2012 from: <http://www.fni.no/doc&pdf/FNI-R0509.pdf>.
- IBM (2011). "IBM's Smarter Cities Challenge", Helsinki Report, USA. Retrieved 30 May, 2012 from: <http://smartercitieschallenge.org/>