Studying the Effects of Smart Cities to Solve Problems of Cities in Iran

Mahsa Afraz

UrbanismDepartment**,**Khavaran higher education institute, Mashhad, Islamic Republic of Iran–
mahsan.afraz@yahoo.com

Elham Haddadnia

Urbanism Department**,** Khavaran higher education institute, Mashhad, Islamic Republic of Iran –
elham_haddadnia@yahoo.com

Shiva Ajilian Momtaz

Urbanism Department**,** Khavaran higher education institute,Master of Urban Planning, Mashhad, Islamic Republic of
Iran –g201095@gmail.com

Abstract — Urban problems were aggravated with the development of cities. Growth of population led to physical development of city and made providing urban services difficult. Therefore, environmental and housing problems, shortage of sufficient landscape, urban traffic and consequently air pollution, shortage of parking lot, marginalization are among the factors lead to urban dissatisfaction. A smart city is a city where management of citizens, such as online round-the-clock services of state and organizations of private sector, is carried out seven days a week with a high quality and high safety factor using IT and communication tools and their applications. In other words, in a smart city, all the services required by the residents are satisfied through information networks. Today, a smart city and an e-city, as the approaches to solve urban problems, have gained attentions of urban planners and urban managers. Therefore, this article mainly aims at examining whether smart cities affect urban problems. This article was carried out through the documentary research method using the valuable resources in this field. The results and analyses indicate effectiveness of this method in solving urban problems.

Keyword — urban problems, smart city, Urbanization, Effects.

1. INTRODUCTION

A city is a live active changing being in the time cycle and in the context of place. It consists of physical and human components and complex relations among them. It crystallizes the role and lofty thought of human under the influence of social, economic, political, cultural, and geographical factors. The major features in this relation are urbanization of population, increase of population of cities, and consequently development of small and big cities. Early 19th century, only 3% of the world population was living in cities and this increased to 15% at the beginning of the 20th century. In the 21st century, urban population in the world approached 50%of the whole world population. It is predicted that it exceeds 61% in 2025.

Rapid growth of population and concentration of population in cities all over the world affect prospect of life of most humans. 'Cities' have become synonymous with 'growth'. They are increasingly exposed to unfavorable crises, especially in the developing countries. Poverty, environmental destruction, lack of urban services, decline of available infrastructure, lack of access to land and shelter — in one word, *loss of natural and human assets* — are among the crises related to this issue. Meanwhile, disregarding infrastructure services and urban public services causes shortages and pressures on available installations. In this concern, '*Smart City*' was set forth as an unparalleled approach to solve many current problems of cities. Undoubtedly, having access to the smart technologies plays a crucial role in improving living conditions of citizens. With the growth of population, not only area of cities should be increased, but also we should be able to build new cities equipped with the latest smart technologies.

2. MATERIALS AND METHODS

2.1.City and Urbanization

Cities have played an invaluable role in the growth of human civilization, as 'civilization' is known as an equivalent to 'urbanization' and commencement of such lifestyle in human life. Throughout the history, the rulers and thinkers have been concerned about management of this social department.

Directing and controlling urbanization process and its consequences have been the major concerns of urban managers and governments in human society since long time ago. In the contemporary era, such consequence was revealed as two different phenomena: one is development of urbanization that is a dynamic and ongoing phenomenon and the other is development of urbanization as a static phenomenon. Concurrent with the development of urbanization in a society, its infrastructure institutions are changed and differences of quality of life in urban and rural areas become greater.

Current Trends in Technology and Science
ISSN : 2279-0535
8thSASTech 2014 Symposium on Advances in Science & Technology-Commission-IV Mashhad, Iran

Tendency and rush of villagers to metropolises to use urban life facilities set forth housing and marginalization issues, social deviance, environmental pollution, traffic problems, and unfair distribution of urban services and facilities.

2.2. Problems of Big Cities

Urban problems were aggravated with the development of cities.

Iranian cities have several problems in different administrative, social, physical, economic, and legal systems. Application of IT will play an important role in adjusting them. Some of them are as follows:

- Traffic and environmental pollution in cities
- Population density, particularly in major cities and specific areas of cities
- Poverty, poor housing and residential spaces in urban areas, the poor and marginalized sectors and jobs
- Social class differences
- Problems in the banking and monetary system _ Education
- Problems citizens and public space in urban areas

2.3.Definition of 'Smart City'

'Smart City', 'E-city', and 'Virtual City' are the terms that invite an 'e-citizen' to the new world and live in modern cities, a city where it is possible to purchase online, pay bills online, hold meetings online and even travel online.

An e-city takes citizens from a one-dimensional world of the traditional and modern cities to a two-dimensional world that is the achievement of the new technologies of information and communication of the Internet world. An e-city is a round-the-clock city where urban affairs are conducted through the days and nights. The citizens can access to their required information, educational, recreational, commercial, office, health services, etc anytime and anywhere.

"Smart cards", "e-banking", "e-health", ","e-commerce", "e-government" are the terms, which are heard every day by citizens. However, if all of them gather in a single city, they will create an "e-city". It is assumed in an e-city that services are offered in a quick and efficient manner in the city area with costs, traffic, pollution, etc decreasing. Providing communication infrastructures, software network, software, humanware, security infrastructures, development of information institutions are the prerequisites for creating an e-city.

2.4. Concept of Virtual City

An e-city mostly discusses the concept of offering e-services in a city area. On Virtual Reality issue, we face the effect of nature not nature; therefore, attempts are made to bring virtuality and reality close together. Those who deal with the virtualization industry attempt to remove boundaries between reality and virtuality through activating sensors and providing various aspects. Virtual world is the effect of the real world. In fact, it is the representation of reality of the real world. Therefore, when we talk about a virtual city, we face the content of the effect of nature and the consequences exist in this atmosphere. Based on this, a virtual city is a city responsible for representing a real city and it can be stated that it is the same real city, but in a virtual atmosphere.

2.5. Advantage and Necessity to Build an E-city

An e-city has numerous advantages; some of them are mentioned as follows. These advantages make clearer the necessity to build an e-city.

- Providing high-speed high-quality Internet services for citizens
- Providing different training channels and life-time training atmosphere
- Improving quality of life of people and providing citizens with one-stage services
- Strengthening commercial competition of city and providing further business opportunities through e-commerce
- Providing better communication among different urban organizations
- Increasing public participation to manage city and saving time and cost of citizens
- Reducing inner-city and inter-city commutes considerably, reducing noise and air pollutions, and reducing fuel consumption
- Reducing administrative corruption, reducing state costs, and improving efficiency of employees and organizations
- Providing conditions for people to take advantage of state services equally, reducing deprivation of remote areas due to having no access to center under present conditions
- Improving levels of satisfaction of citizens
- Improving efficiency and performance of municipalities and reducing physical presence
- Obtaining, restoring, and analyzing data and data of an e-city to promote multiple purposes
- Having quick and accurate reaction under critical and emergency conditions (earthquakes, floods, urgent and emergency needs)

2.6. Iran's Position on Virtual Communication, Cyberspace, and Smart City

In the Age of Information Highways, *virtual communication* affects forms and urban activities. For instance, it creates some activities using virtual communication. As these activities are virtual, the dependant societies also become virtual; the required form and space for these activities also become *virtual*, in other words, *cyber*. Virtual activities are directed through telecommunication technology.

By examining three activities that require telecommunication in Iran, we may understand better Iran's position in the cyberspace, virtual city, and smart urbanization. These three activities can be summarized as below with respect to the theoretical foundations.

- Teleworking - Telecommerce - E-Banking

2.6.1. Teleworking

'Teleworking' has not found its special position in Iran yet; however, some forms of this activity are seen in some private companies.

2.6.2. Telecommerce

The prerequisite of telecommerce at an extended level is the existence of an electronic banking system and sufficient underlying equipment in different urban areas. Our country has just started an appropriate banking system and development of information networks. In this concern, the extensive activities causing trans-regional performance are not considered; meanwhile, we face the activities related to commerce nationwide. E-advertising, creating *Home Page* for some companies and factories, establishing electronic communication with some institutes and companies are some limited activities that are in connection with telecommerce in our country. Success of the financial and commercial electronic systems requires the following two prerequisites in connection with users:

1- Training users to use systems, 2- Required security and confidence while networks are public, 3-Training telecommunication

2.6.3. E-Banking

Primarily, we may refer to the activity of Saderat Bank to establish a research department on e-banking. By joining the SWIFT[1] network for a few years to perform e-banking financial exchanges, executing and implementing Card Service Plan and issuing international credit cards, such as *Euro Card* and *Master Card*, the bank has taken practical steps. Other measures taken by the bank toward the mentioned objectives are as follows:

- Changing the Export Development Bank database and equip it with advanced database support for electronic banking.

- Computer systems: 1-Import and export letters of credit 2- Currency obligations 3- Money Transfer and Wire Transfer.

Issuance of smart cards is among the activity of other banks. At present, the most important project is the general distribution of magnetic cards owned by Sepah Bank that launched from 2011 based on issuing approximately one hundred thousand cards. It is estimated that about 15-20 million cards are needed nationwide. With respect to the present conditions, the most fundamental activity along the route of smart city organization is within e-banking whose rate of progress is not compatible with the requirements for structural changes in cities.

Although considerable activities have been performed in the banks for e-banking system, it does not mean that performing re-engineering studies BPR(Business Process Reengineering) of the banking methods have already been completed and/or the banks do not need to perform BPR[2]. BPR studies will determine all shortcomings of the available banking systems. Moreover, to conduct BPR studies, we should revise the existing organization and structures for maximum efficiency in a bank.

E-banking has finished its trial period through public communications networks. At present, by bearing reasonable costs within a short period, it is possible to be prepared for offering such a system across the country.

2.7. E-citizen and E-municipality required for Realization of Smart Cities in Iran

E-city is not realized without e-citizen; therefore, paying a scientific and systematic attention to the available conditions in Iran cities is the prerequisite for realization of these two factors. It should be done in a way to gain the maximum benefit from the different educational, collaborative, infrastructural, and structural aspects within the shortest period.

As the prerequisites of creating e-municipalities are awareness and effective participation of citizens and at the same time investment in urban infrastructure, e-municipality will not be realized regardless of applying the mentioned items. Creating and launching an e-municipality and extending it to the rest of urban organizations and institutions pave way to create an e-city. Generally, two important factors - *infrastructures* and *culture creation* - should be considered to realize e-city in Iran. In fact, before implementing ambitious plans, such as e-government in Iran, smaller plans such as e-city should be taken into consideration. If the plan is successful, common services in the field of urban management will be offered to the citizens through e-systems.

Later, e-services can be developed and offered nationwide. At present, most urban services can be performed through the electronic systems. The important point in executing such a plan is its dependence on an issue called *e-citizen*. In other words, as long as the citizens do not reach the cultural, educational and information levels to prefer to use electronic services rather than traditional and paper-based services, the e-city plan will not be effective. One of the requirements of developing «electronic citizenship culture» is that the citizens should be provided with the required information concerning different urban services on the electronic networks. For instance, an active citizen in France studies all the routes through connecting to the high-speed inexpensive Internet before leaving home. He studies the type of goods or services to receive. If necessary, he makes a reservation via the Internet or receives the details of the relevant goods or services. He will take inner-city travel only if it is urgent. The necessity to prevent loss of resources in cities, perform citizens' affairs in a shortest period, prevent interference and inconsistencies, provide citizens with appropriate services and many issues that is impossible to mention all here indicate that it is necessary for all authorities, politicians, government officials, planners, and legislators to pay careful attention to establish a single urban management. The prerequisite of these measures is to launch and execute e-municipality as the most suitable approach for optimal pattern of consumption, reduction of costs and loss of time, and finally quick and easy access of citizens to city services.

---

[1]Society for Worldwide Interbank Financial Telecommunication
[2]Business Process Re-engineering

If the «single urban management» is established, with respect to the abovementioned points, based on the presented model, and the items discussed on the smart city and e-city integrated system in Iran, most duplications of work are reduced and execution of a smart city, e-city, and e-municipality – in the form of an integrated and comprehensive system – will be realized earlier.

3. CONCLUSION

A city is growing and changing like a living being. Urban problems were aggravated with the development of cities and the general applications are unable to provide citizens with favorable services. Therefore, employing IT in cities or launching an e-city is of the origins of city managers for favorable supply and optimal use of urban services. Most countries turned to approaches of the virtual world to solve their urbanization problems, especially the ones, which cannot be solved in the conventional scientific-professional system. In the approaches related to the virtual world, it is possible to change problem statement of some urban issues and lessen its problematic nature. For example, the complex and compound problem of traffic, environmental pollution, and consumption of perishable fossil energies for fuels that adversely affects development unsustainability can be solved through organizing virtual communities and cyberspace. Using IT, virtual communities are developed, the use of equipment and real physical fields are adjusted, and physical space of a city are assisted by cyberspaces. Although Iran is not a developed country, we need information technologies with respect to the present situation and existing problems. Iran lags behind many countries; however, the Age of Information is still young and we may shorten the way by taking an optimal shortcut and attempt to approach the developed countries. Developing application of the technologies underlying a smart city and information world is an inevitable task in developing earth and organizing urban spaces of Iran.

REFERENCES

[1]   Article "*Smart City, Necessity of the third Millennium for Integrated Interaction of E-Municipality*" by "Akbar Kiani (PhD)"

[2]   Book "*Human and City*", written by "Asadollah Naghdi (PhD)", Abu Ali Sina University Publications

[3]   Article "*Necessities and Obstacles to Build Smart City in Iran*", written by "Mostafa Behzadfar (PhD)"

[4]   Jalali, A.A. 2005, "E-City", Iran University of Science and Technology Publications

[5]   Kahzadi, Nowruz (2000) "*A Glance at Traditional Banking to E-banking*", Proceedings of the First Conference on Electronic Banking, Export Development Bank of Iran

[6]   Gouyabad, Ali Akbar (2000): "*E-banking, One Choice or One Commitment*", Proceedings of the First Conference on Electronic Banking, Export Development Bank of Iran

[7]   The Hamshahri daily (2000): "*Iran's Share of Industry with an Unimaginable Future*", The Hamshahri daily, Year 8, Tuesday 16 May 2000

[8]   The Hamshahri daily (2000): "*Growth of Electronic Industries in Iran*", The Hamshahri daily, Year 8, Tuesday 16 May 2000

[9]   Chitsaz, Alireza (2007): "*Training Computer Sciences and Applying its Practical Concepts*", Journal of Tejarat Bank, Year 2, Issue No. 6

[10] Javanshir, Arian (2000): "*Relationship and Applications of Communication Equipment*", Memorial of Journal of International Communication Center of Tehran, Summer 2000, Issue No. 11