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## Original Article

### Role of ICT in Sustainable Urban Development by Using Model SWOT

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#### ABSTRACT

Information and communication technologies are the most recent scientific achievements of mankind's ability seems to have much to offer society and are expected to be useful in solving the problems of human society. Many around the world believe that accelerates the process of adjustment in the exchange of knowledge and information through information and communication technologies a vital role in achieving sustainable development, human resources development and will play. Nowadays, information and communication technology (ICT), as the most important factor in the development of the world is hardware. Gains resulting from the negligence of such a life are incorporated it comes in different divisions. Due to the increasing information and communication Fnavrhay ICT in cities and the rise of the information age, the need for applying this technology to achieve sustainable development is strongly felt. In this research discusses the necessity of using information technology in urban management issues in order to achieve sustainable development: social, economic, environmental and physical towns mentioned. Documents and content analysis is a research method and Strategic SWOT descriptive model to evaluate internal and external opportunities and threats of the use of ICT in cities is discussed. Of this research is that the coordination of information and communication technologies lack of infrastructure development with other programs and provides technical and socio-economic impacts of sustainable development will be a lot.

#### 1.INTRODUCTION

It is well established that cities are growing rapidly and already in 2030 it is estimated that more than half of the world's population will live in cities ([www.unfpa.org](http://www.unfpa.org)). Urbanization alongside with climate changes are global trends and draw global interest (e.g. UNCED, Earth Summit). However, it is just recently that cities have been acknowledged as having a pivotal role for sustainable development (Kievani, 2010; Holden et al., 2008). It is the cities that have to leverage the challenges that coincide with urbanization, e.g. overpopulation and overcrowded

areas potentially leading to high levels of unemployment, poverty, inadequate access to water and sanitation, or traffic congestions resulting in increased Co2 emissions and, thus, also greater ecological footprints. Of course issues regarding housing, traffic, and environment (both ecological and social) are of another dignity in mega cities than in other large cities in the world. But regardless of the contextual differences, these challenges put demands on future city management to take major actions in order to meet the needs of the citizens without compromising the needs of future generations (cf. Brundtland report, WCED, 1987). Moreover, it is well

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known that the resources are limited and as a consequence it has been established on a European policy level that governments need to “provide better public services with fewer resources” (European eGovernment action plan 2011-2015, p. 3). Yet another global trend is the increased digitalization in and of societies (Baskerville, 2012; Walsham, 2012). Information and communication technology (ICT) is portrayed to play an important role in overcoming some of the challenges cities are facing. Hence, the present situation described above implies that city management and urban development face challenges with limited resources and at the same time explore opportunities through the use of ICT. The world is dramatically changing and the information systems (IS) field needs to be flexible and proactive to offer solutions to these societal challenges that focus both ethical and critical aspects (Walsham, 2012). Recently, the concept of smart cities has emerged as a new approach to make urban development more sustainable (Alawadhi et al., 2011). The concept denotes that cities through the use of ICT can become smarter in using resources and delivering and administrating services to citizens, and thus in a long run contributing to a better living and quality of life (Schaffers et al., 2012). Just like cities are portrayed as having a pivotal role for sustainable development, different types of ICT artefacts and applications can be seen as important instruments in achieving these goals. For example, the implementation and use of smart grids not only include implementing ICT infrastructure, but also the design and development of new ICT-based services. This also implies that there is a chain of activities that precedes the occurrence of new services and these activities often involve several stakeholders. Thus these kinds of development are complex as they not only involve many stakeholders with sometimes “competing objectives and values” (Chourabi et al., 2012, p. 2289), but also imply requirements of shared technical standards and interoperability (Perera et al., 2013). This has in recent years made the field of urban development, together with the use of information systems (IS) and information technology (IT) to achieve the above-mentioned goals, an interesting research topic for some IS researchers (Dedrick, 2010). However, the impact of IS/IT for environmental sustainability has so far gained much interest in practice, but as a research area it is still rather novel (Watson et al., 2010; Jenkin et al., 2011) and in a research agenda setting phase (Meville, 2010).

## 2. METHODS AND MATERIALS

Considering the fact that all of the instruments and the systematic collection of data and the method of logical analysis to reach a specific goal of this method is called. The methods used in this research is a descriptive - analytic and data collection methods were used: And then the library field. Swot analysis tool is one of the main ways to create order and the special relationship

between strategic matters and the best techniques for analyzing and conducting medium is considered. In order questions and study swot tool for identification and classification of environmental factors, both internal and external use. Data analysis using the evaluation matrix ife internal factors and external factors efe evaluation matrix is made. The matrix is prepared as follows:

Identify the strengths and weaknesses of ICT Assign a weight coefficient between zero (no importance) to one (very important) to each agent, the sum of weights assigned by normalizing the weights must be equal to one. Determine the current status of each factor scores range from 1 to 5 based on the following criteria:

5 = very good, 3 = moderate, 4 = above average, 2 =below average, weak = 1

The calculation of the weighted scores of the factor scores for each row in weight normalization factor and insert the new column. Calculate the weighted score a minimum of 1 and a maximum of 5 and 3 would mean. If the final score matrix is less than 3, the area of the internal factors of the weakness is and if final score ife is greater than 3, the total area of the internal factors of strength. This is a general tool for analyzing the internal environment (Nqat strengths and weaknesses) and external environment analysis (opportunities and threats) of the systematic approach to the problem, which will help in decision situations.

## 3. RESULTS

### 3.1. Information technology and state formation - Electronic City

To facilitate the transfer of information and the widespread use of ICT within the government and in the electron is essential. Electronic government is the use of information and communication technologies in the delivery of government services to citizens so that they can the necessary information and services in electronic form using the computer at all hours of the day are available. In fact, Electronic government information technology to reform by strengthening transparency, eliminating the gap between government and citizens and empower people to participate in the political process uses that affect their lives in the shadow of electronic Ideally realization Electronic government. In fact, a smaller model of e-government, e-learning in the city and a municipality are included. For the realization of e-government and urban infrastructure hardware software at different levels of society is essential. Due to the high costs of infrastructure in the early stages of the implementation of e-government or investments platform it is widely used by the public sector. This infrastructure include:

A - including the development of telecommunications network infrastructure and communication technology, hardware and software development, Internet Vnram.

(B) the security and intelligence infrastructure such as electronic signature.

(C) commercial and economic infrastructure such as electronic money, credit cards, electronic bank.

(D) legal infrastructure such as the court system, software Vhrym personal rights

(Z) and human social infrastructure such as education, culture, all segments of society. Infrastructure mentioned specially trained human resources is essential for achieving the objectives of electronic these infrastructures are weak, inefficient or even negative impacts on the whole community will be.

### 3.2. The role of information and communication technologies and sustainable urban development

About the use of ICT in general, there are two views:

A) a structural point of view, advocates of this view believe that many of the problems of the urban structure and new technologies can be difficult to feed, poor housing and culture solved and excessive emphasis on technology allows the realization of technological determinism. The theory of structuralism and neo-Marxist ideology is more attentive.

B) technocratic perspective, according to this view, the correct use of information technologies may be many socioeconomic and environmental problems largely relieved. For example, by providing e-learning for the poor can drive higher levels of knowledge and ability of their health was mostly. In general, the second approach (technocrat Vfn axis) is considered by many researchers in the modern. Most studies in this area since the mid-1990s, has been done in developed countries. The research institute for global knowledge partnership (ITC), can be a great help to solve these challenges.

**Poverty Alleviation:** ITC can play an important role in reducing poverty through increased productivity and delivering goods and services and the rapid flow of information between people.

**Scalability:** ITC can invest in developing and promoting creativity and facilitate the planning, implementation and monitoring is essential role.

**Increase civic participation:** ICT strategic issues and conflicts in general can be facilitative role opposite social classes.

### 3.3. Information Technology and Sustainable Economic Development

Application of information technology and the realization of the state - in electronic, increase productivity and improve the performance of various sectors of economic activity in the fields of production, trade and services cities. In some cases, it may be noted that: Use of information technology in the manufacturing, human resources and training designed to increase employment. E poor to increase their literacy and access to jobs is. Reduction in costs due to the purchase of digital citizens.

Transparency and accountability to the purchaser of the product sold. Rentier economic decline due to economic transparency.

Electronic employability. Most women the opportunity to work from home. You can control the maintenance and improvement of production processes and products. Reduce personnel costs, supplies vtasysaty government Small institutions with global markets.

### 3.4. Assess weaknesses, strengths, opportunities and threats (SWOT) using IT in cities

Considering the fact that ICT has a positive and negative functions in urban society. Conscious use of these technologies in the field of vision must be evaluated. Strategic SWOT is an assessment model. This model is a strategic approach to internal and external variables are the strengths and weaknesses of a particular strategy deals analysis of adaptation strategies strengths and weaknesses opportunities and threats within the system outside the system. In this method, we can utilize the benefits of opportunity and overcome the weaknesses and threats due to the fact that information technology is an innovation unique to western countries deliberately minimized the use of this innovation is a futurist. This study was descriptive and symbolic - because of the lack of quantitative information - are used. The following tables shows the internal and external opportunities and threats of the use of information technology is explained. As can be seen in the tables below, strengths and weaknesses, opportunities for internal and external use of information technologies far beyond it. For example, if the application of information technology to reduce at least 30% of trips in the city, this is at least 30% of air pollution from cars will reduce traffic and a decrease of 30 percent gasoline and reduce more than 10% of the diseases caused by air pollution - will transport. This process is sufficient to consider only the importance of using information and communication technologies in environmental sustainability, reducing the risk of respiratory diseases in the city is a major consideration.

**Table 1.**

priority setting, internal factors in order to identify the strengths and weaknesses of using ICT in the inner cities

Weights Rating	Rated current	Weight	Analytical model swot (analysis of strengths, weaknesses, opportunities and threats)	Row
0.45	5	0.09	Table 1: Matrix examine internal factors (ife strengths) (engths str)	1
0.15	3	0.05	Reducing air pollution and environmental problems	2
0.21	3	0.07	Saving time and expense of citizens	3
0.03	1	0.03	Development of e-learning for all	4
0.04	1	0.04	Strengthening health care	5
)weaknesses(				
0.09	3	0.03	Citizen satisfaction	6
0.06	2	0.03	Creating a digital divide between poor and rich	7
0.04	2	0.02	- The loss of traditional identity	8
0.02	1	0.02	- Deterioration of human values	9
0.10	2	0.05	- Improve access to personal information Vhrym	10
1.19	-	0.43	- Technological determinism	Σ
			Total points	

**Table 2.**

priority setting, opportunities and threats are external factors to determine the application of information technology in cities

Weights Rating	Rated current	Weight	Table 2: Evaluation Matrix external factors (efe) opportunities (opportunities)	Row
0.16	2	0.08	The possibility of localizing information technology at a lower cost	1
0.12	2	0.06	Aamkan attract foreign investment	2
0.08	2	0.04	Aamkan better introduction to the works and relative power in the international arena	3
0.12	2	0.06	The possibility of cooperation in the development of non-governmental organizations	4
0.06	1	0.06	Ability to attract tourism and foreign experts	5
(thaeats)				
0.06	1	0.06	Failure to provide the hardware and software components by producing countries	6
0.12	2	0.06	Greater access to confidential information of	7
0.08	2	0.04	Sudden price increase required electronics	8
0.8	-	0.46	Total points	Σ

## CONCLUSION

Based on the above information and communication technologies play an important role in solving the problems of cities of different sizes, this technology provides a unique opportunity to create an electronic utopia. But in every society, while maintaining the values underlying strategic planning the use of these technologies bed and noted that information technology is only a tool to achieve development and other infrastructure such as trained, good design and software must be provided by public sector investment in infrastructure, public and private will be coordinated. On

the other hand, to achieve sustainable development requires coordination with other economic and social development programs in our community. Excessive attention to these technologies without coordination with other levels of planning global, national, local, like many some interventions may worsen the situation without the city. To prevent the digital divide can also take advantage of the power of non-governmental organizations in this field, inexpensive enough notes, loans, buy a computer and Internet training ... the poor strata of the contract and ensuring that these technologies increase the knowledge, life skills Vtvannndsazy poor groups and other social groups will be. But the main question is, with the wide spread of

information technologies and relational or groups who will lead the electronics utopia.

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