Modern technologies as urban management tools that work to sustain and develop urbanization in cities

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Abstract. The city and its urban growth generated exceeded the basic designs and plans due to the lack of application of laws and implementers' familiarity with the rules of urban planning or the absence of laws and the governmental role. This is caused a deficit in the urban planning of the foundations and standards to achieve a life that gives the requirements of adequate housing. In this paper, we tried to apply new technical methods to control and solve Problems and cooperated with planning cadres that work to counter changes in the city. This supports to improve the role of management and the reality of urban plans and management. Modern methods are applied covering the requirements of sustainability and development to serve its community and neighborhoods of MODON. This has been studied with international experiences to activate the principle of urban sustainability and development.

1. Introduction

1.1. Modern Techniques
The concept of technologies is an indication of the application of modern methods to all types of science that keep pace with modern development in the world. It is an approach to the meaning of (technology) that is concerned with making use of theories and the results of research and studies in the fields of science. From this, it turns out that technology and technology are two sides of the same coin [1]. And technology is a means of converting theoretical scientific discovery into inventions that can be used in various fields of life and developing the installation and implementation of information with modern technology [2].

1.2. Urban Management
It is one of the basic methods for the advancement of cities and their realization and making them a sophisticated urban environment where they work to coordinate resources and develop them in order to achieve the urban development goals in the city [3]. It is considered an instrument for an activity that seeks to highlight cooperative work for systematic planning, with programs for operation, maintenance, development and achievement of development goals in the government for cities, and to identify and deal with critical issues and problems with management that works to create services and develop what exists at present and to develop a strategy for its long-term development and advancement [4]. So, urban management is a three-dimensional system consisting of organization, planning and management, interconnected for an urban formation that provides all the urban needs of shelter, maintenance, operation
and linking them with the authorities involved in the implementation of decisions to achieve urban development goals in cities [5].

In this research will describe the use of modern methods with technologies that work to link urban distribution and administrative work to serve the city. It is a community depend on urban foundations and standards that achieve the development of the city. The use of technologies generates the progress and development of the country, by identifying the problem, solving it and reaching a major framework that supports urban management in a better, accurate way with less effort. It also achieves smart management that urban administration seeks to find optimal urban sustainability and development. The growth and expansion of cities without studying their interconnectedness with their neighbourhoods generated problems and lack of control over overcoming administrative weakness that required the use of modern methods to reduce it and develop the city and the sustainability of its components. The use of technology and modern technologies work to support and activate administrative work and helps the urban, social, economic development and sustainability that cities need [5].

2. Impact of Technology on the Urbanization
Progress and development take place by harnessing information for the benefit of society by limiting or avoiding existing problems. The era of knowledge and technology is characterized by abundance and flow of information in a large way, especially the progress and development of life and the growth of knowledge and technology growth, which negatively affects the development of urban societies when they are renewed or the problems of existing ones are due to the rapid and large change in urbanization and the difficulty of preparing projects in their traditional form (general and structural) [6].

The use of techniques requires modern technology that facilitates work, as urbanization is one of the most interactive sectors and influences the surrounding environment, and because it is one of the sectors most linked to economic, social and other fields, and that urbanization is the basic symbol of the progress of civilization in the cities of the world. The importance of technology when used in urbanization [7] is highlighted by the following:

1. Urban layout: The increase in progress and the accelerated growth of technology and population and urban growth change the form of the urban system, especially in cities and more developed regions. Also, the increasing areas of urban areas worldwide generate change and growth in the urban pattern in cities. The urbanization trend is led by knowledge and technology economies, and it represents 50% of the national results of the developed nations [8].

2. Urban communities and their spacing: Rapid progress in the various means of transportation and communication generated the absence of spacing, which helped to reduce distances between cities and helped to reduce crowding within one city. The smaller the size of the city, the more it helped to carry out the city's functions with more technology, making its work and services the same as the work of major cities, with the presence of technology and communications. These are features of development thanks to modern technology and knowledge [9].

3. Land uses: The availability of technology and modern technologies helped to know the best spatial prediction for service, industrial and other uses. Among the advantages of technology is that it helped to recognize the spatial prediction for land uses [10].
3. Modern Technology as Method of Administrative Development in Cities
The uses of systems technology help activities and information to classify and work with them to raise the efficiency and effectiveness of management and the decision-making bodies to provide information and support the decision of officials. Because the decision is the basis of administrative work, the study of work in the field of technology and its applications helps to advance the urban reality of the city and to study projects and future scenarios to advance cities and their society [11]. It increases the efficiency of advanced urban services and also helps decision-makers to take decisions in the right time and to reduce and avoid problems, the way that generates the growth and the development of the city [12].

![Diagram showing the positives, negatives, and obstacles of technological uses in cities and the advancement of their administrative reality.]

4. Foundations of the Modern Urban Development
Providing flexible and effective administration includes modern knowledge and technologies in a manner compatible with its visions to advance the urban reality of cities. Interaction within institutions and coordination of tasks among them (service departments and their divisions) with government agencies involved in coherently providing services to achieve a goal that is to serve the city and its community and advance its urban reality. Considering information as units for communication and exchange between the urban development's stages of the city and those concerned with the services [13].

Providing a suitable urban environment that achieves progress and development for the development of economic sectors and encouraging investment projects to take advantage of modern technologies and keep pace with development and its applications on urbanization and upgrading of cities and enable the benefit of the city and local government agencies to raise the level of cities. Creating a strategy with an administrative directive that works on urban development in cities. Investing resources and competencies to serve the city and its urban development will raise the efficiency of government institutions and developing decentralization by increasing production capacity and advancing the development reality of cities [13].

5. Roles of Modern Technology in the Urban Sustainability
The city and its urbanization are among the main reasons that require achieving sustainability by making use of open spaces and, improving the quality of life and systematic and smart urban growth, the protection of natural resources in it, with the participation of local capabilities and the residents of those cities, by making cities less energy-consuming and resources, and environmental protection for achieving a sustainable future [14].

The primary role to achieve the goals of urban sustainability in the city and its components - including the residential neighborhood - is achieved in providing the basic requirements and vital aspects of urban life, and finding the vital aspects of urban life in the social aspects related to contentment, awareness, experiences and highlighting the role of public participation in decision-making. Also, urban sustainability is achieved with the help of citizen behavior and the formal decision-making process, whereby, by its presence, the main changes in the urban infrastructure are identified, namely energy, land use, transportation systems and the structure of urban management. One of the most important advantages of urban sustainability is smart planning, enhancing the ability of government organizations to provide public services and citizen participation in decision-making processes. From this, urban sustainability is achieved when all social, economic and environmental issues are taken into account[14].

Taking Arab and international experiences, the urban administration experience is recognized by activating its goals, using modern technologies, drawing the most important lessons and how to solve problems and benefit from them.

5.1. The Pearl Island - United Arab Emirates – Qatar
The United Arab Emirates and Qatar are among the countries in which the use of technology has emerged with technologies that have linked urbanization to keep pace with development and protect its internal and external environment and meet the need of the community residing in it. The island was distinguished by its well-organized buildings and construction, which are connected to a distinguished transportation network. It is also characterized by all criteria of sustainability and urban development, with an administrative link that supports decentralization and investment that has made the development of urbanism possible in this site. It was distinguished by managing and exchanging experiences and competencies by investing foreign competencies to develop this area. The investment of competencies and the growth of urbanization through external investment is one of the basics of modern urban development and the activation of decentralization of the decision. These characteristics are among the most prominent goals of urban administration and what its indicators and goals seek to achieve the progress of the urban site and make it a center for the well-being of society, which is characterized by all sustainability criteria in it [15].

Figure 2. The island of the pearl - in - Doha – Qatar- WWW.mawdoo3.com

5.2. Masdar City – Abu Dhabi
It is known for being capable of achieving modern technologies in urban management, urbanization, and consideration of smart cities, i.e. it is characterized by clear efficiency and effectiveness in the field of management and their resources, which has resulted in a reduction in their expenditures. It is also distinguished by the speed and ease of providing services to the community, which generated a
transformation in all areas of life by using technology in the administration of urban development, generating a city that meets the needs and requirements of its residents with less time and effort. This came from interdependence and complementarity between the institutions concerned with the provision of services and the use of modern technologies, as Abu Dhabi is one of the cities that offer the best measure of happiness, well-being and the advancement of urbanism. It is considered one of the most prominent Arab countries that used modern technologies and management concerned with achieving various types of methods to reach the best quality of life. It is characterized by the uses of technology with the guidance and energy, environmental protection and growing urbanization through investments and transfer of all modern experiences in urban applications in the best ways. The use of urban management method with the application of modern technologies to protect the environment and institutional interconnection with a technology that made the city upgrading and made it the most urbanized development management department with modern technology emerged in it [16].

Choosing one of the Iraqi cities that requires improvement in the status of the services provided therein, depending on the experiences of Arab and international cities, applying previous curricula and experiences in developing the city, and applying administrative indicators that make sustainability possible in it, namely the city of Bismayah – Republic of Iraq – Baghdad.

One of the modern cities that were formed by the investment of Korean companies that worked to transfer modern technology with the best designs and urban standards, with special management of the city. It was characterized by privacy and urban development, and buildings distributed in an optimal distribution according to the standards achieved by the comfort of the inhabitants in it while providing services and green spaces between buildings. Despite its location, the link between the main road to the southern governorates links with the center of Baghdad, but it is characterized by isolationism and specificity, that is, it is not connected to the neighboring cities. It was divided into eight sites, each site includes a set of services and requirements that serve the residents of it, and the city is centered on major commercial center and central services than the existing services in each of the sites scattered in the city.

It follows administrative and executive and settlement specificity and is not open to the neighboring cities, that is, it is sufficient to provide services to its community in a correct way that meets the objectives of the urban administration. But it requires openness and interconnectedness with its neighborhoods, not only through its interconnectedness through major roads. However, Problems were created for workers outside the city in occupations that did not exist in the city, which affects traffic momentum despite their self-sufficiency in the services provided and their sustainable development characteristics, especially since most ministries have developed strategic plans to support the project, but only little of them have been implemented [17].

6. Results and recommendations
That the use of technology in cities works to change the administrative approach and the formation of smart cities linking the variables of sustainability and technology variables, which generates cities that satisfy all concepts and variables of sustainability and its goals that are achieved in the presence of technology. It is a
growing city with urban management that meets the needs of a community of cities characterized by all the characteristics of modern development.

Urbanism reflects all the urban characteristics generated by social management and interdependence and economic development, which demonstrates the stage of state development and civilization. So, it requires maintaining and developing it in ways that seek to advance it following the techniques of keeping pace with modern technological growth, taking into account the characteristics of sustainability at the same time.

![Figure 4. City of Bismayah, city scene and the signature of the land uses in it, with urban management and technical use/http://www.bismayah.org](http://www.bismayah.org)

Paying attention to the problems of cities and implementing the goals of urban management that seek to achieve efficiency and sustainability, with a correlation between urban management and the basic planning goals of cities to be developed and making them a structure with modern urban characteristics. Formulating an urban framework for urban development and keeping up with modern development and technology in all areas requires changes and urban indicators, which advance cities and are linked to projects for their development according to international foundations and standards that seek to develop and sustain cities to benefit from external experiences, the development of local cadres to advance ideas and areas of implementation to protect the city's environment and keep pace with modern development and application of what serves the city.

The involvement of service institutions and services in providing services, which generates urban management and development for cities, where work in a team spirit generates better results than independence to solve problems in less time and effort in the presence of modern assistive technologies for institutions that are concerned with the services that they provide to cities, and this is what the city of Bismayah requires.

Taking in consideration that Bismayah is locally a modern city, and keeping pace with the goals of modern urban management, with resources and technologies that keep pace with development, helped transfer international experiences to local sites, and helped in the development of urbanization.

The presence of technologies and technology helped and still helps to reduce effort and time and support an urban administration that is distinguished by all its indicators for the rise and development of urbanization, so it requires support in this field and the pursuit of its application and implementation in most cities and awareness of its importance.

Learn about the principles, standards and methods used to provide services with scientific and technical methods as followed by some countries and benefit from them to harness the requirements of cities with balanced management to achieve sustainable development of existing and new cities.
References

[1] Andrea C, Chiara F, Del Bo and Peter N 2009 Smart Cities in Europe, 3rd Central European Conference in Regional Science.

[2] Paul F D 2009 Architecture and Cities for changing climate, Library of Congress, published by Springer, December, pp. 66-67.

[3] Alqisas, M A 2012 Arab Environment Survival Options - The Ecological Footprint in Arab Countries, Arab Forum for Environment and Development Report.

[4] UN-Habitat 2002 Global Campaign on Urban Governance Concept Paper 2nd edition – Nairobi – Kenya, pp. 32-33.

[5] Edgar P 2000 Participatory Urban Governance Practical Approaches Regional Trends and UMP Experiences Urban Management Programme UNCHS/UNDP/World Bank – Nairobi - Kenya, p57.

[6] El-Sherini A, Buryaa and Adrian 2000 The world 2500 year outlook Translate By, The Egyptian general distraction of the book, pp. 71-74.

[7] Nam T and Pardo T A 2012 Understanding Smart Cities An Integrative Framework 45th Hawaii International Conference on System Sciences, PP2187-2189, Hawaii, IEEE Computer Society, p. 78-81.

[8] UN-HABITAT 2004 Urban Governance the Role of Local Authorities and the Contribution of Civil Society Groups, Think Piece, Electronic Version, pp. 63.

[9] Ali & Nabil 2001 Urban Culture and the Information Age, The World of Knowledge, pp. 54-56

[10] Pallmer, Robert, Richards and Greg 2010 Eventful Cities Cultural Management and Urban Revitalisation Elsevier Limited, pp. 54-56.

[11] Deep R and Sulayman M 2009 Planning for Sustainable Development Damascus University Journal of Engineering Sciences, Vol. 25, No. 1, p. 487

[12] Nam T and Pardo TA 2012 Understanding Smart Cities An Integrative Framework 45th Hawaii International Conference on System Sciences, pp2187-2189, Hawaii, IEEE Computer Society, pp. 83 - 85.

[13] WWW.youm7.com.

[14] https:albenaamag.com

[15] Doha – Qatar- WWW.mawdoo3.com

[16] Masdar City - Abu Dhabi - https://images.search.yahoo.com

[17] http://www.bismayah.org