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Requirements of Smart City Realization in Tehran Based on Good Governance Theory

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Abstract:

Many cities have commenced transformative projects and designs called Smart City Innovation to better serve their citizens and improve the quality of their lives, which have depended on the governance of these cities. With the approval of the E-government and the National Information Network in the path of creating an e-city that is a prerequisite for the smart city has taken the steps in this regard. Nevertheless, if the current status of Iran be studied in terms of smart cities, it can be found that even the metropolis of Tehran as the capital and most advanced city of the country is still far from the standards of a smart city. One of the main barriers to urban management, especially in metropolitan areas, is the urban management fragmentation in the arenas of policymaking, decision-making, planning, guidance and supervision. Meanwhile, smart city realization within the framework of good urban governance considered as one of the most important concerns of Tehran metropolis in metropolitan management. Tehran needs to be equipped with any smart component that includes smart economy, smart transport, smart sustainable environment, smart citizens, smart lifestyle and smart office management. Obviously, this move will be gradual, step-by-step, programmed, and of course, with the necessary supports it also will be legal, infrastructure, legal and cultural. Therefore, entering the arena of smart cities in Tehran requires the necessary infrastructures, especially the development of telecommunication infrastructures in (1) the production of content and applications tailored to the needs of the citizens (subject to update), (2) the focus on human capabilities (especially digital literacy) and (3) the equal use of all

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citizens from these abilities in order to reduce the digital divide and other issues and problems. However, in the absence of attention this issue in the long run it can be irreparable.

Keywords: Smart city, Good Governance Theory, Tehran city

Introduction

One of the concepts introduced into the public administration literature by the World Bank and IMF over the past two decades is the term of good governance. The subject of good governance in terms of the vulnerability of political systems and the weakening of the performances those indicators underpinning the principle of popular governance and good and accountable government is today one of the important and new debates that have emerged since 1980s in the literature of development (Eivazi & Marzban, 2017, p.118). Good governance emphasizes the partnership between the three sections of government, civil institutions, and the private sector, whereby public affairs will be managed in a more correct and optimal manner. Therefore, a proper and interactive three-way interaction creates good economic, political and administrative dimensions (Sharifzadeh, 2003, p. 95). In examining good governance in terms of indicators, the most frequently mentioned and almost the most widely used indicators come to the World Bank's perspective. The World Bank defines good governance on the basis of six indicators, namely: the right to comment and respond, the indicator of political stability, the efficiency and effectiveness of government, the quality of laws and regulations, the rule of law and the control of corruption (Sani, 2007, p. 65). Since the process of urbanization around the world has grown rapidly, the strategy of urban management has changed. In this regard, the latest urban management strategy is presented as Smart City. The smart city is a city that is well on its way to move forward in six characteristics smart people, smart mobility, smart living, smart economy and smart environments. This strategy is made from a smart mix of fateful and independent assets and activities as well as aware citizens (Mosannenzadeh & Vettoratob, 2014).

Accordingly, the smart city in the present era in line with the development and growth of economic, social and cultural foundations is in urban communities and in the form of good urban governance and in this regard the Islamic Republic of Iran is without exception. Urbanization of the Era of the Revolution provides information on various patterns of construction, texture and form of a city, which is the necessity of smart urbanization in Iran. In recent years, the topic of smart city in Iran has always been raised and even 5 cities of Uremia, Isfahan, Tehran, Mashhad and Tabriz have been introduced as smart cities of Iran. Experts, however, believe that these cities are still at odds with new benchmarks, and the need to upgrade technology and build infrastructure and debate is felt. Meanwhile, the realization of smart city within the framework of good urban governance is one of the most important concerns of Tehran metropolis in metropolitan management. The dimensions of Tehran as smart city can be explained in terms of economy, people, sovereignty, mobility, environment and intelligent life. On the other hand, the expected achievements of the Smart Tehran program are sustainable urban development, urban innovation guide, citizen satisfaction, im-

proved participation and transparency, as well as efficient management and service systems. Therefore, the author of this study intends to study the requirements of smart city realization in Islamic Republic of Iran based on good governance theory (with an emphasis on Tehran city). Considering the issue of smart city in the framework of good governance discourse and especially good urban governance, the most important aspects of smart city and good governance discourse in the Tehran metropolis explain the possible problems and obstacles, as well as its advancing strategies and achievements.

2 Theoretical foundations

2.1 Good governance

One of the very important and new debates in development literature from the 1980s onwards is the subject of good governance. This issue is particularly important in developing countries in establishing and institutionalizing civil society in aid-related policies.

1. The theme of good governance is aimed at achieving sustainable development, which emphasizes poverty reduction, sustainable job and welfare creation, environmental protection and rebirth, and women's growth and development, all of which are possible with good governance (Majd, 2011).

2. Good governance is a term that implies a paradigm shift in the role of systems and governments. Governance is not only about devices or actors, but more importantly about the quality of governance described by indicators (Abdul Latif, 2003, p.69).

3. Good governance is in fact the equal and identic participation of all citizens in the decision-making process.

4. According to the United Nations Development Plan (UNDP), good governance is: "The administration of public affairs based on the rule of law, an efficient and fair judiciary and broad participation of the people in the governance process" (Middar, 2006, p.265).

5. In general, good governance is the decision-making process that involves the flow of decisions made. Good governance is not just about the public sector but about all the institutions and processes involved in decision making. According to the IMF, providing regulatory quality, improving public sector effectiveness and accountability and eliminating economic corruption and progress are good governance tools (Perry, 2012, p.163).

6. The European Union's definition of this term is that good governance and transparent and accountable management in one country is aimed at ensuring just and sustainable economic and social development.

7. In another definition, good governance includes the respect of politicians and institutions to human rights, the principles of democracy and the rule of law.

8. Good governance is also specifically concerned with managing public resources for creating sustainable economy and fair distribution practices.

Table 1:
Definitions of Good Governance

Source	Definitions
World Bank (1992)	Effective government management (including budgeting, auditing, reporting and troubleshooting), accountability, legal framework for development, transparency and information (information on effectiveness of activities and transparency to prevent corruption).

Overseas Development Administration (ODA) of UK (1993)	Government legitimacy (i.e., participatory processes and satisfaction in individuals), accountability, government competence, respect for human rights and compliance with the law.
Friedman (1998)	Public accountability, peaceful crisis management, creative and intelligent political leadership.
World Bank (2000)	Partnership, transparency, accountability, sensitivity to the needs of indigents, strong management and cost effectiveness.
United Nations Development Plan (UNDP, 2000)	Participation, justice, transparency, accountability, rule of law, responsibility, consensus, productivity and efficiency, and strategic outlook.
United Nations Center for Human Settlements (UNCHS, 2000)	Decentralization of authority and resource (decision-making authority), decision-making fairness, transparency, accountability, civic engagement and its citizens, efficiency, outlook, sustainable development strategy and security.
World Bank (2006)	Comprehensiveness and accountability realized in three key areas: elections, accountability and replacement of rulers (commendation and accountability, sustainability and nonviolence). Institutional efficiency, regulations, resource management (regulatory framework and government effectiveness), respect for institutions, laws and interactions among actors in civil societies, business and politics (corruption control and legal equality).
United Nations Development Plan (UNDP)	Good governance is: Regularity, transparency, accountability, efficiency and fairness, legal equality promotion, ensuring that political, social and economic priorities are based on collective consensus, the views of poor and vulnerable individuals in deciding on the allocation of development resources.
IMF	Ensuring legal equality, improving public sector efficiency and accountability, and reducing corruption.
Kaufman	The theme can be measured in six aspects (comment and accountability, political stability and lack of violence, crime, murder, mayhem, government efficiency, lack of law-abiding enforcements, legal equality and control of corruption)
(Hayden et al.,)	In five aspects (participation, fairness, competence, efficiency, accountability, and transparency), the good governance can be measured in six areas (civil society, political society, government, bureaucracy, economic society and judiciary).
Dixit (2009)	Good governance is needed to guarantee the three essential prerequisites of the economic market (protection of property rights, contract enforcement, and collective action). Economics of good governance supports all of the business processes by which people specialize in different fields and exchange with each other in order to achieve the ultimate economic potential of society.
Grindel (2010)	Good governance in most cases represents a list of high quality characteristics that the government must have. Good governance expresses normative concerns about what the government should do. Such as reducing poverty, maintaining political stability, or providing basic services.
(The first five definitions were extracted by Grindel in 2007 (Marzban, 2016, p.23)	

3 Good governance indicators

Indicators are a good mechanism for introducing and measuring a phenomenon. In this regard, some in defining and identifying good governance have expressed their indicators in order to identify good governance, using indicators to measure and assess it in different societies. To this end, individuals, groups, and national and international institutions have introduced indicators and characteristics for good governance (Salehnejad, 2014). In the following, we will try to explain each of the indicators put forward by different individuals and institutions for good governance.

A) Good governance indicators from the World Bank's perspective

According to the World Bank research, good governance is defined by six characteristics:

1. The right to express and respond: namely, the participation rate of people in the type of government and their system, the freedom of expression, the freedom of personal and legal associations and the freedom of the media.

2. Political instability and violence: The effectiveness rate of governments and states from the violent and illegal threats such as terrorism, etc., to overthrow the government.

3. Government effectiveness: The quality of government services, civil services, and the degree to which these services are dependent on political pressures, the quality of policy formulation and enforcement, as well as the validity of obligation and the commitment of government to the implementation of these policies.

4. Financial burden of regulation (regulatory quality): The extent to which the government is able to formulate and enforce policies and adjust them to achieve and improve the development of the private sectors.

5. Rule of law: the equality rate of individuals, institutions and groups against the rule of law.

6. Corruption control: The extent of government actions and their impact on reducing the level of corruption at the level of society and government agencies (Kaufman et al., 2007, p. 253).

B) Good governance indicators from the perspective of UN

1. Partnerships: partnership means the participation of all people in different decisions, which realizes both directly and through legitimate intermediate representatives and institutions.

2. Equality before the law

Good governance requires a fair and equitable legal system and framework for enforcing.

3. Transparency

Transparency means making decisions and enforcing them in a framework that complies with the law. In other words, information should be clear, open and accessible to those who contribute to decision-making and its implementation.

4. Accountability

Good governance requires processes and institutions that strive to serve all stakeholders in an appropriate and rational time frame.

5. Consensus

Good governance requires different interests and types of tact in the community that strives for a general agreement.

6. Justice and inclusiveness

An ideal society depends on building trust in its members that each member in the community has a share and value and if they do not feel that in such a manner they are out of the mainstream of society. This requires that all groups, especially the vulnerable

group, should have the opportunity to progress.

7. Efficiency and effectiveness

Good governance means that processes produce results that meet the needs of society, making the most benefit from the limited resources available. Additionally, the concept of effectiveness in good governance includes the use of natural resources and the environmental protection.

8. Accountability

Not only government agencies and departments, but also private sectors and civil society organizations must be accountable to the general public and their stakeholders. Accountability cannot be implemented without transparency and compliance with the law (EU Economic Commission, 2002, p. 196).

The UNDP, in part of its activities, has also set out the following indicators for imple menting good governance in the Arabian countries, emphasizing on elements such as transparency, the rule of law, participation and accountability. The United Nations' actions in the Arabian countries to exercise good governance are as follows (as shown in **Fig. 1**):

1. Expanding and achieving justice.
2. Improving legal processes.
3. Setting up efficient selective systems and mechanisms.
4. Accountability of public institutions.
5. Developing and facilitating the methods of achieving to justice.

In Iran, these centers have also begun their activities in the past few years and have been conducting various studies in different government and private sectors so as to establish good governance (Pierre & Peters, 2015).

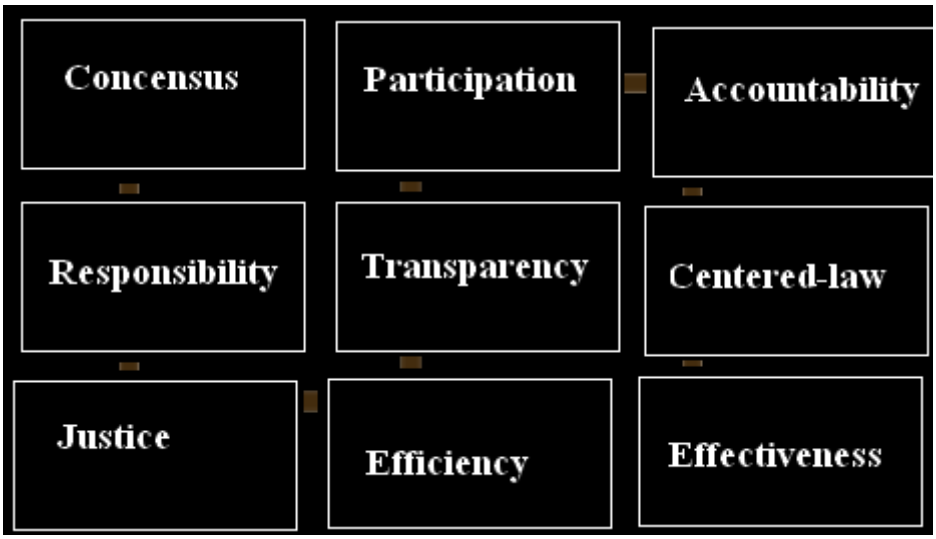

Figure 1. Characteristics and indicators of good governance for the UN

C) Good governance indicators from the perspective of the European Economic Commission

The commission summarized the indicators of good governance as follows:

1. Participation: The participation rate of all stakeholders.
2. Compliance with the law: The extent to which the law is adopted and monitored without harming the public.

3. Transparency: The amount of transparency and clarity of decisions made.

4. Accountability: The responsibility rate of political actors against those actions that they do or say.

5. Equity: The equality of persons against the law.

6. Efficiency: the method of using material and human resources without waste, procrastination or corruption in doing affairs (European Economic Commission, 2002).

D) Good governance indicators in government and service organizations

The Commission on Good Governance in Public Service, in co-operation with the UK (London) Finance and Accounting Authorities in 2004, published the principles, indicators and standards of good governance in public and service organizations in a statement as follows:

1. Conservatism

Having a clear organizational goal is a sign of good governance. If this goal is formulated effectively, it can guide and manage the activities and decisions of individuals at all levels in an organization.

2. Effectiveness of roles and duties

In good governance all governance functions, roles, and responsibilities associated with it are clear and that individuals act in accordance with their role.

3. Promoting Values

One of the main good governance features in the development of shared values is to transfer part of the organizational culture, policy, and behavioral infrastructure from agents to all employees and members of the organization.

4. Transparency

Transparency involves making and implementing decisions according to the agreed procedures. Information should be freely and directly available to the clients, service users and the general public. This task is undeniable not only in central and local governments but also in any other independent organization (Baland et al, 2010).

Assuming the world as a corporate, executives are the agents of owners that own the shares that without transparency these owners cannot know whether the company is administrated well or not. Furthermore, the recognize power of investors in buying the stock of company will be difficult. That is, if the executives of investment companies for their judgments do not have any other indication with the exception of the actions of other investors, then the lack of transparency leads to their inappropriate behavior. In the realm of politics, governments are citizens' agents, but the wave of financial scandals in the 1990s suggests that many government officials whenever anyone does not care them, rather than general purpose they have served private purposes. If the lack of transparency has such negative effects, the increase in transparency will apparently serve the public interests and is necessary for good governance and proper performance of markets. In a general principle in good governance decision makers must be accountable for their decisions, otherwise wrong decisions will lead to more wrong decisions and corruption will spread without any oversight (Heidari, Jahangirzadeh, Saeedpour, 2015).

5. Capacity fulfillment

Organizations need highly skilled people to effectively guide and control them. To find the competent people, the organization needs to employ people from the different classes

of community. Therefore, it will eventually synergize skills and help the organization in achieving individual goals.

6. Accountability

It involves the process of agreeing on activities performed by the individual for others. In this regard, a systematic approach is needed to implement this process. Actual accountability does not only involve reporting or describing past activities, but also engaging stakeholders to understand and respond to their points of view, called the organizational plans and implementation of those views (Moghimi & Aelaie Ardakani, 2011: 61).

4 Concepts of smart city

The concept of smart city has been developed in three main areas: academic, industrial, government (Mosannenzadeh & Vettoratob, 2014). Academic literature has a holistic and comprehensive approach and given its interest in developing intelligent knowledge and information encompasses a wide range of characteristics such as self-configuration, self-restoration, self-protection and self-optimization (Nam & Pardo, 2011).

In industrial literature with a focus on business and industrial tools, the concept of smart refers to intelligent services and products, artificial intelligence and advanced devices (Nam & Pardo 2011).

Finally, in government documents aimed at managing the urban development the smart word is interpreted in conjunction with the Smart Growth Urban Planning Theory that emerged in the early 1980s to avoid sporadic spillovers.

Despite this diversity, the use of technology and social innovation seems to be a central theme in this concept. One of the most influential definitions in academic literature was presented by the Vienna University of Technology in year 2007. 'Smart City' is a city that is well on its way to move forward in six characteristics (smart people, smart mobility, smart living, smart economy and smart environment). However, it combines smart, independent assets and activities. Build a fateful, independent and informed citizenry (Mosannenzadeh & Vettoratob, 2014).

In spite of these facts, in industrial literature, including IBM's company idea on smart city, cities are considered as a system of systems. The company defines Smart City as a city that utilizes technology to modify its core systems and optimize the recovery of finite resource (Habitat, 2015).

But government literature focuses more on the administrative and financial aspects of smart city and on environmental goals such as emission of greenhouse gases. In general, academic literature has a holistic approach and covers a wide range of topics, focusing mainly on improvement in the three areas of governance, social development and environmental aspects. From an industrial point of view, smart cities have emerged mainly because of the interaction between competition and sustainable urban development. In addition, sustainable productivity and environment and social development are the main goals of smart cities. Finally, government literature has focused more on international challenges including quality of life, economic growth, environment, energy, sustainability, safety, health and mobility.

Mosannenzadeh & Vettoratob (2015) define smart city as: "smart city is a sustainable and efficient city with high quality of life that aims to meet urban challenges (such as improving mobility and resource use, improving health and safety, improving social development, supporting for economic growth, and participatory governance) through the use of

information and communication technologies in services and infrastructures of collaboration between key stakeholders and others (citizens, universities, government, industry and investors in social capital) " (Mosannenzadeh & Vettoratob, 2014).

A few scientists have defined smart city as a community that teaches learning, innovation and adaptation to the public (Sinkiene et al., 2014).

Table 2:

Smart City Definitions (source: Sinkiene et al, 2014 & Albino et al, 2015)

Reference	Definitions
Barrionuevo et al. (2012)	Smart City means using all available resources and technologies in a smart and harmonious way to develop sustainable, resilient and integrated urban centers.
Caragliu et al. (2011)	A city is smart when investing in social and human capital and strengthening the traditional (transport) and modern (ICT) communications infrastructures lead to sustainable economic growth and energy, high quality of life along with wisely resource management through collaborative governance.
Chen (2010)	Smart City takes advantage of the communications and capabilities of the sensor embedded in urban infrastructure to optimize transportation and electricity and other logistics operations that support daily life for improving the quality of life.
Harrison et al. (2010)	A city that links up physical infrastructure, information technology infrastructures, social infrastructures, and business infrastructures to enhance the city's collective intelligence.
Kourtit et al. (2012)	Smart cities are highly productive, as are the high proportion of people with higher education, knowledge-based jobs, output-oriented planning systems, creative activities, and sustainable-orientated initiatives.
Zigiaris (2013)	The smart city is understood as a particular intellectual ability that deals with various aspects of socio-economic and social-innovative developments (green and interconnected). These dimensions lead to the concept of smart city as "green" refers to urban infrastructures to protect the environment and reduce the emission of greenhouse gases. "Interconnected" is concerned with the evolution of the broadband economy. "Smart or being intelligent" expresses the capacity to produce value-added information through real-time urban data processing using sensors, while creative and knowledge-based cities resemble and refer to cities' ability to advance creative human capital and knowledge-based innovation.
Ida (2012)	Smart City refers to a local entity, department, city, district or small town that adopts a holistic approach to information technologies using real-time analysis and encourages sustainable economic development.
Lazaroiu & roscia (2012)	A society with a medium level of technology, interconnectedness, sustainability, comfort, attractively, and safety.
Lombardi et al. (2012)	The use of information and communication technologies (ICTs) with their effects on human, communication and socials and environmental issues is often illustrated by the concept of smart cities.
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5 Features and indicators of smart city

Many scholars have divided the concept of smart city into many features and dimensions, with the aim of clarifying what makes a smart city, and call its reason the complexity of the smart city as a holistic approach. Giffinger et al. [2008] have identified four components for the smart city: industry,

education, partnership, and infrastructure [Albino et al., 2015]. Giffinger et al. [2008] then listed the six key components at the Vienna University of Technology's Center for Regional Science and EU has ranked 70 cities based on these components (**Fig. 2** below for the smart city emphasized by many relevant authors).

1. "Smart Economy" refers to a city's competitiveness based on its innovative approach to business, research and development, entrepreneurial opportunities, productivity, flexibility of the labor markets, and the economic role of a city in the national and international markets.
2. "Smart people" means providing a high level of citizen-friendly education as well as describing the quality of social interactions, cultural awareness, open thinking and the collaborative level of citizens in social life.
3. "Intelligent Governance" specifically addresses citizen participation at the municipal level. The system of governance is transparent and allows citizens to participate in decision making. ICT makes it easier for citizens to participate and access information and data related to their city management. By creating a consistent and efficient governance system that can eliminate the barriers to communication and collaboration.
4. "Smart mobility" supports more efficient transport systems (e.g. non-motorized options) and promotes new social attitudes towards the use of vehicles that guarantee citizens access to public transport. Information and communication technology enhances integrated productivity. Smart cities seek to promote the transport of people, goods, and vehicles in an urban environment.
5. "Smart Environment" emphasizes the need for responsive resource management and sustainable city planning. The city's natural beauty can be enhanced by reducing pollution and greenhouse gas emissions and striving for environmental protection. Smart cities promote energy efficiency and the integration of technology innovations leads to productivity.
6. "Smart Life" seeks to improve the quality of life of citizens by providing safe and healthy living conditions. Citizens in smart cities have easy access to a variety of healthcare services, e-health management and social services.

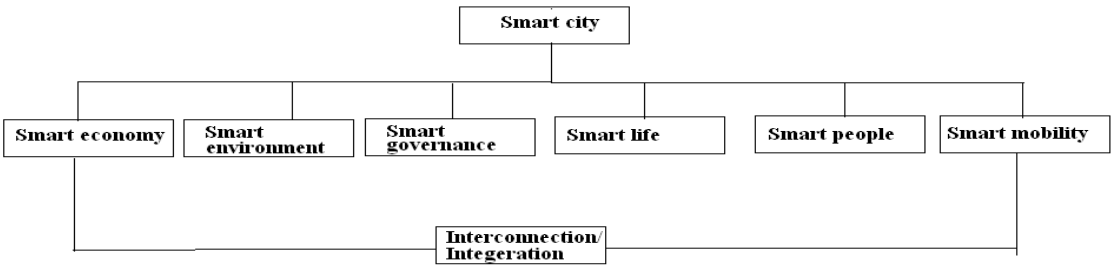

Figure 2. Key features of smart city [source: Giffinger et al., 2008]

Albino et al. (2015) have studied the Smart City Indicators cited by various authors since 2008 (**Table 3**).

Table 3:

List of smart city evaluation indicators in some scoring systems [source: Albino et al., 2015]

Smart city indicators	Index No.	Source
1. Smart economy: public spending on R&D and education, GDP for the city, unemployment rate, etc. 2. Smart people: percentage of high school students, foreign language skills, lifelong learning participation, individual levels of computer skills, patents, applications for each resident, etc. 3. Intelligent governance: number of universities and research centers in the city, easy access to online e-government, percentage of households with home Internet access, e-government use by individuals 4. Smart environment: strategy ambition, greenhouse gas emission reduction, optimal use of electricity and water, green space expansion, intensity reduction of greenhouse gas emissions from energy consumption, policies to limit urban sprawl and waste recycle.	60	(Lombardi et al, 2012)
1. Smart living: the share of area living from sports-leisure spaces, number of public libraries, total number of books borrowed and other media, number of museum visitors, attendance at theaters and cinemas, air pollution, spirit of innovation, emission of greenhouse gases, transparent governance, sustainable resource management, educational facilities and programs, innovative and safe public transport, pedestrian areas, bike lanes, green spaces, municipal waste generation, household broadband access, fuel, political views and strategies, access to ICT infrastructure, labor market flexibility.	18	(Lazaroiu & roseia, 2012)

The role of good governance in smart cities

Many cities have launched transformative projects and projects called Smart City Innovation to better serve their citizens and improve the quality of their lives that depend on the governance of these cities (Chourabi et al., 2013).

Several cities have already benefited from the emergence of ICT, which has improved the governance of these cities. This ICT-based governance is known as smart governance. This broadly reflects a set of technologies, people, policies, practices, resources and social and information norms that interact to support the city's governance activities. According to Forrester, Smart governance is the core of smart city plans and therefore represents an important challenge for smart city innovation (Caragliu et al., 2015). Smart governance is described as an important feature of the smart city that is based on citizen participation and public and private partnerships. According to Johnston and Hansen, "Smart governance depends on the implementation of smart governance infrastructures, which must be accountable and transparent." This infrastructure also facilitates authorized collaborations, information exchange, service and communication integration (Chourabi et al., 2013).

The major constituent groups of smart governance are people, government, and NGOs. Accordingly, three categories of relationship (Hughes On, 2003) can be identified as: 1.

government-citizen, 2. Government-government, and 3. Government-NGOs.

The research results of Navío & Anand (2018) show that interest in smart cities worldwide has increased significantly since 2013. During these advancements, most popular features of cities such as sustainable, healthy, vibrant, green and resilient have been intelligent as compared to other traits. The idea of smart cities has changed from the earliest times when low-level ideas have evolved to incorporate the use of ICTs with digital, citizen participation and the direction of a sophisticated management system involving local offices, governmental offices, companies, citizens and institutions in the first decade of the 21st century. These ideas have reached a climax, with government agencies, companies, citizens and associations. All this popularity comes at a cost, and in this case, the expectations of citizens and their tendency to use clever expression method without any proper vision for strategic planning towards advancing these ideas in a smart city are important. In some others the opportunities to use smart technologies to solve real problems that are important to citizens are lost, and instead addressed some other trivial issues. Optimistic advocacy for very popular government projects may help sell smart cities too much. Therefore, the current generation of smart cities are faced with numerous challenges such as legitimacy, citizen trust, financing, regulation, management and the urgent need to develop new solutions based on successful and effective partnerships between citizens, agents and institutions using sustainable, holistic and innovative business models and policies (Navío & Anand, 2018).

The concept of the smart city is evolving and still needs serious discussion (Caragliu, Del Bo, & Nijkamp, 2011) and at these days the issues raised by Hollands (2008) more prevalent. As noted by Soderstrom et al. (2014), the smart city model has been used as a brand until recently, and the vehicle is also used for company positioning, market capture, and technocratic weakening (reducing complex social and technical problems with the data needed to analysis). As Picon (2018) points out, smart cities seem that support events, occurrences, and scenarios, and as a result, they emphasize imagery rather than reality. Events can be acquired and destroyed based on what they are in transition, while the basic infrastructures and relationships between the social and technical worlds are often not transient. This fixation and attachment to the image and its process can lead to a significant advocacy of "fixing" the appearance of problems rather than "resolving" fundamental issues and challenges. While many smart city critics focus on the specific structure of a particular concept or way in which technology is used to solve social problems, others focus on smart measurement methods through the development of indicators. According to Navío & Anand (2018), the more fundamental need is to critically evolve 'intelligence in cities', the ways in which policies and models are integrated and prepared for new situations. Therefore, their potential role should be investigated in increase of citizen participation and welfare development.

Smart cities are an interface between social and technological dimensions. However, much of the technological debates have been largely due to the key role in the corporations such as IBM, Clasco, Intel and more recently the programs of GI, Microsoft, Oracle and Amazon. These initiatives tend to focus on Cloud-based technology services and operating systems as well as smart city

project solutions. The role of technology has been important for providing new production, distribution and management processes, organizational and institutional transformation as well as information on individual choices and behaviors (Ferro & Caroleo et al., 2013). Technically, an extensive body of previous researches on information technology initiatives and projects has identified these issues as key success factors or main challenges. However, creating a larger and more public discussion and investigation as a major challenge to better contextualize the role of technology has advantages and disadvantages in a human-centered environment (Gil-García & Pardo, 2005; Vasseur, 2010).

Technologically, the combination of several socio-technical innovations such as IoT, mobile Internet access, smart phones, data analysis, free data access initiatives, and sharing economic models among others make the situations for interesting models in which citizens collaborate in the provision of services and research paths without the assistance of governments and local authorities (Navío & Anand, 2018).

Since technology is an important element of smart cities, there are evolutionary changes in which almost all smart cities succeed in combining innovation on policy, leadership, and collaboration intelligently. While technology is still an essential area (but primary), it is actually defined as creating space for innovation and participation of citizens in solving urban problems, examples of which can be seen in the cities of Amsterdam, Barcelona and New York. Therefore, the definition of appropriate policies and participation of citizens are the key to the success of smart city initiatives and the promotion of new digital citizenry where promotion and success are all-inclusive, transparent and open (Navío & Anand, 2018).

7 Good urban Governance in Tehran under the realization of smart city

Nowadays, the talk of urban development is spreading to the World Wide Web. New cities and towns are being built every day in cyberspace, whose materials are not clay, but computer bits. These electronic cities were known as virtual cities. At any given moment, thousands of people are using the facilities offered in these virtual cities to do their works from around the world, works like shopping, selling, traveling, resting, racing and even more. In the virtual city, information services are provided without any time and space constraints, the concept of city and government bound to office hours becomes a 24-hour city and government on 7 days of a week and citizens can benefit from municipal services during all minutes of the day. Cities are, in their general definition, the geographical centers for aggregating humans and setting up services, which is why urban layout and modern urbanization are so familiar to people. As a result, virtual cities can be a great model of all information and services available in real cities. These cities can be called electronic hubs that even depict aliens on the computer screen (Azizi et al., 2011).

The emergence of the virtual city primarily reduces "population mobility" as the most important issue in real cities and, secondly, enables simultaneous spaces without erosion and friction with a parallel geometry. In reality, having a two-space position in a city can indicate the real space and cyberspace are a kind of "urban population movement control management". This type of management seeks to rationalize the process of population movement and provide a more relaxed, less costly, and safer city for citizens. This new space on the one hand was the output of hardware and software development that enabled the creation of "virtual reality" and

on the other hand affected the "erosion of powers in the real world and the idea of living in another world" (Albino et al., 2015).

Since virtual city users must primarily have "computer knowledge" and access to the Internet ", the primary prerequisite for the emergence of virtual cities is to provide these two locations. In today's world with the advancement of science and technology, especially the widespread advancement in the field of ICT, we are confronted with a phenomenon called smart city that has many undeniable benefits, including its essential role in implementing provision 10 of the third Constitution Principle of the Islamic Republic of Iran. It is the creation of a proper administrative system and the elimination of unnecessary organizations. The goal is a city in which invested on the opportunities created by ICTs to enhance success and effectiveness. This city is a complex multidimensional concept that incorporates various elements and factors into those ICT contexts and is supported by governmental and private sectors (Mosannenzadeh, Vettoratob. 2014).

If increasing the population of cities and expanding cities means multiplying the issues in cities along with increasing demands for services, the first institution to address these issues is the urban management body. Indeed, urban development and its population around the world in the last two decades have created challenges for urban management policy that have not been faced before (UN Habitat, 2009).

When looking at the reasons of unsuccessful projects and true move of metropolitan municipality of Tehran towards sustainable development, it becomes clear that the municipal administrative and organizational structure does not have a transparent and accountable structure both internally and externally. Management is influenced by many variables and is rarely found in the decision making process of bachelor, teamwork, law enforcement, public interest, and so on. With all these challenges, citizens and social pressure require the municipality to take steps to develop the smarting operating and accelerate affairs access to usable and manageable information. But smart city is a city that relies on open data, information sharing, integrated and independent systems, transparency, privacy and accountability (Haghighi, 1977). In such circumstances, almost no one in the community of urban managers and scholars should doubt the usefulness and desirability of urban governance accomplishment. On the other hand, the move to urban smarting has become a new topic in various forms. Urban smart growth has many benefits, including:

Table 4:
Benefits of smart city

Benefits		
Economical dimension	Social dimension	Environmental dimension
-Decrease of development costs -Decrease of development costs -Supporting industries that depend on high environmental quality (tourism, agriculture, etc.)	-Developing transportation and mobility options, especially for non-drivers -Social solidarity -Setting up unique cultural industries (historical sites, commercial neighborhoods, etc.) -Increasing physical activities and health	-Preserving green spaces and habitats -Decreasing air pollution -Increasing energy efficiency -Reduces water pollution -Reducing the effect of heat islands

The very rapid changes in the technological age facilitated the necessary of coordinat-

ing among these changes and benefiting from the technology. Electronic governance is nowadays regarded as a powerful tool for accelerating and rapidly accessing good urban governance. Electronic governance and the use of public sector from the information and communication technologies is to streamline service supply, encourage citizens to more participate in decision-making and increase the components of accountability, transparency and effectiveness in government. According to the results of the research (Aryamanesh, 1977), smart city should be considered as a powerful tool for access to good urban governance and, if not the only way, at least, one of the most limited and effective ways of achieving good urban governance. Indicators of urban intelligent information that can influence good urban governance in Tehran can be shown in **Fig.3**:

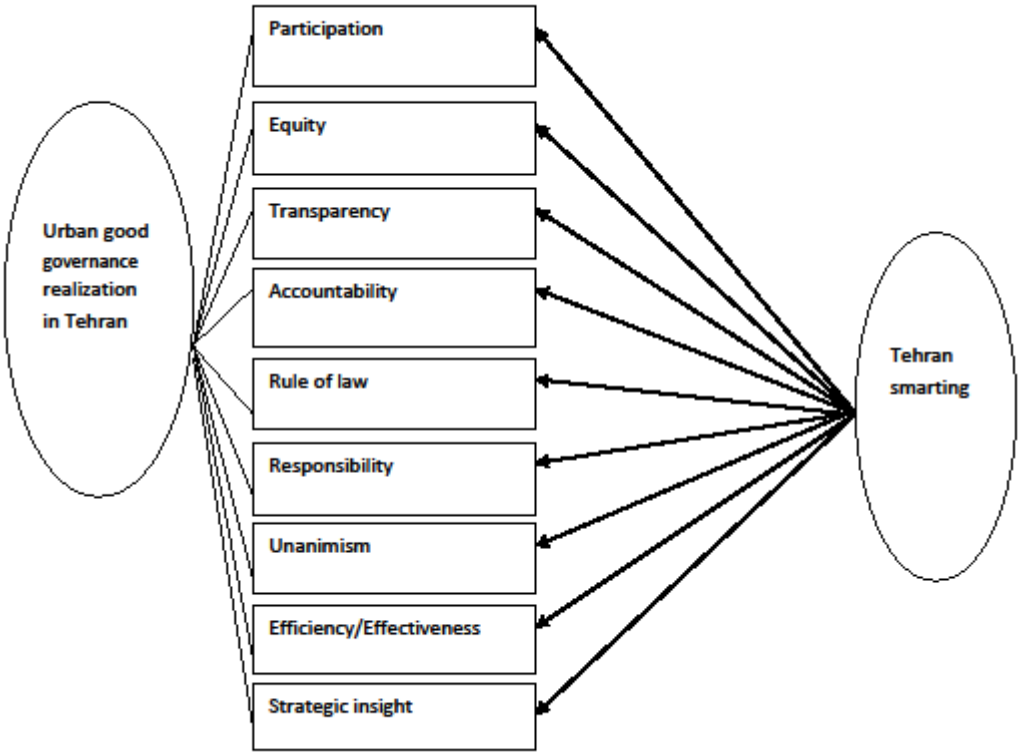

Figure 3. Urban smarting indicators for good urban governance in Tehran

Therefore, it is suggested that in order to achieve good urban governance as one of the foundations and principles of sustainable urban development in Tehran, as a model of urbanization in the Iran, urban management will be directed towards smart city. Tehran needs to have smart components including smart economy, smart transport, smart

environment, sustainable citizens, smart lifestyle and smart office management. Of course, this move will be a gradual and step-by-step plan, and of course, with the necessary infrastructure (legal, infrastructural, legitimate and cultural).

The results of the study by (Pourahmad et al., 2019) also show that all the necessities that have led cities to smart approaches in the world are also applicable in Tehran, so that have acquired all the requirements of the highest score (above 4 except of demographic variables with mean 3.81). On the other hand, statistics and information on objective investigations also confirm this claim. The following diagram illustrates the importance of four key criteria (namely accelerated urbanization, other factors, economic incentives, environmental impacts, and the importance of demographic changes) for moving Tehran toward being smarted. This indicates that in the city of Tehran for moving to intelligent environment must be attended to all the important criteria including (1) accelerated urbanization (due to high urbanization rate in Tehran, 93.85% urbanization), (2) other factors (due to low internet penetration compared to global standards, issues and problems in the field of transportation and traffic, the increasing trend of the output of brains from the country and the need to pay attention to these assets, waste of resources and ...), (3) economic crises (high unemployment in Tehran, especially among the educated individuals), (4) environmental impacts (due to Tehran being the most polluted city in the Iran) and (5) demographic changes (due to the ascending trend of population aging in Tehran in some areas with more than 12% of the total population) (**Fig.4**).

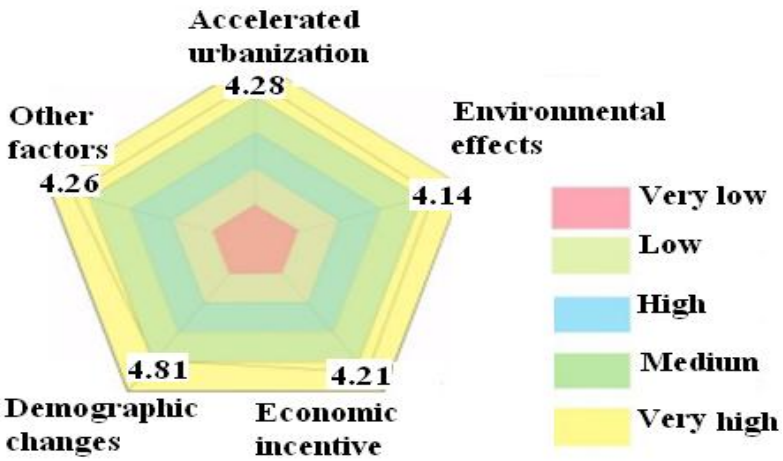

Figure 4. Status of the smarting needs and requirements (source: Authors, 2016)

Additionally, all the strategies and measures examined in the study conducted by Pourahmad et al. (2019) from the experts' point of view (formulation and implementation of integrated policies, legislation and integrated perspective respectively) were of great importance for smart city of Tehran (**Fig. 5**). The high score of necessities, requirements as well as strategies and measures in their research demonstrates the accuracy of identifying criteria and the similarity of metropolitan challenges, issues and problems.

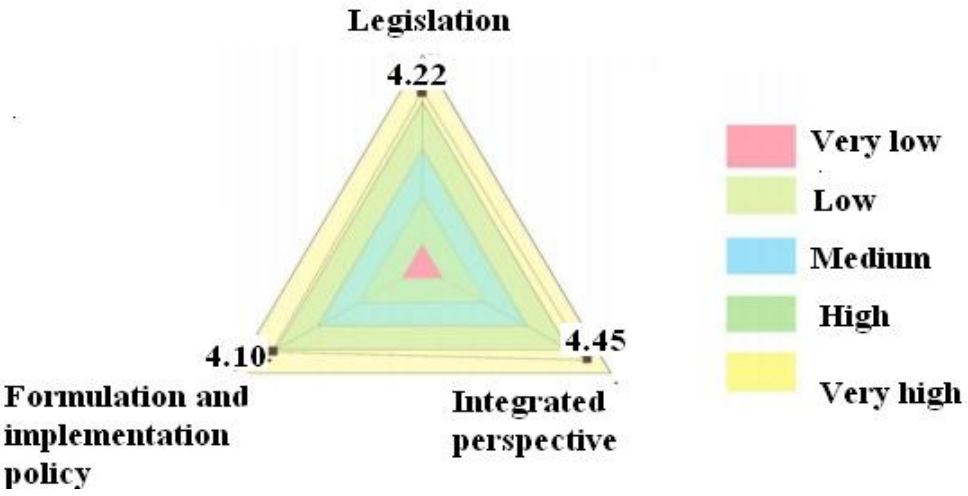

Figure 5. The status of smart actions and strategies from the experts' view (source: Authors, 2016)

In general, the results of Pourahmad et al.'s [2019] research show that in relation to smart city, attention is paid to the following:

1. The infrastructures for the smart city are pivotal. Technology is an enabling factor for a smart city, but it's not necessarily the most critical. The combination, interconnection and integration of systems and infrastructures are essential to make a city smart. The core systems are not discrete and have become a complex multidimensional network of diverse interconnected systems in a synergistic manner that delivers better and optimal performance.

2. Processes (how is a smart city made) are important in business definitions. A key part of smart city is the fundamental change in the way delivering services, and smart city delivery is not primarily about technology but about improving services.

3. Prospects are important for a better future. A smart city must anticipate smart economy, smart governance, smart mobility, smart environment, smart people, smart lives and their interaction approach. But having the perspective of being smart is not enough alone, but legislation, policy, and organizational change are needed. On the other hand, the infiltration of intelligence into each subsystem of a city is not enough to create a smart city, but these dimensions must be considered as an organic whole.

Therefore, according to the research conducted by Pourahmad et al. (2019), to enter smart cities in Tehran it requires (1) necessary infrastructures, especially telecommunication infrastructure development in the first priority, (2) content production and applications tailored to the needs of citizens (subject to update) in the second priority and (3) attention to human capabilities (especially digital literacy) in the third priority in order to make equal use of them for reducing the digital divide and other issues and problems. In case of overlooking these issues in the long run it can be irreparable. As the world moves towards smart cities, cities citizens have to join these flows to engage and continue their lives in various dimensions and to play an

active role. On the on hand, this can negatively impact the development of city, global and transnational opportunities and unsuccessful reproduction without providing the necessary requirements and grounds for deploying a smart city. On the other hand, if it is not implemented properly and efficiently, it may marginalize segments of the population that cannot adapt to this new way of urban life.

In addition, it cannot jeopardize their ability to meet their needs within the city and make a kind of social polarization and digital divide. The key point is that cities must respond to the contextual changes in which they operate and what should be considered intelligent depending on the different conditions (text and context) such as political system, geographical conditions and technology diffusion. In fact, smart solutions simply cannot be duplicated and need to be valued for different contexts. In fact, there is no path to becoming smart, and different cities have adopted different ways that reflect their particular circumstances. Cities cannot easily copy good practices, but they must develop approaches that fit their circumstances. In the meantime, urban managers should not aim to solve all the problems of the city, but instead should strengthen the capacity of urban systems to deal with a wide range of problems. Therefore, given the importance of adopting the smart city paradigm for Tehran's urban management and the opportunities and benefits created, these problems have caused good governance to be achieved slowly through urban management in Tehran.

7. Background

A) Studies conducted in Iran

• Pourahmad et al. [2019] in the article "Smart City: Tehran a city for being smart" state that one of the new concepts to deal with the current challenges of urban planning is the development of smart cities that integrates physical and virtual abilities. According to the results of this study, infrastructures for the smart city are central. Technology is an enabling factor for a smart city, but it's not necessarily one of the most factors. The combination, interconnection and integration of systems and infrastructures is essential for smart cities, and a key part of smart cities is the fundamental change in the ways delivering services. Smart cities are not primarily about technology, but also about service improvement. A smart city must also anticipate smart economy, smart governance, smart mobility, smart environment, smart people, smart lives and interaction method. But having the vision to be smart is not enough alone, and legislation, policy and organizational change are needed.

This addresses with the most important factors of smart city realization and article deals the Tehran city in this regard. However, the relationship between good governance and smart city has not been considered as a subject of forward research.

• Pourahmad et al. (2018) in the article "Main Smart City Concept and Features" state that urban planners around the world are trying to develop models for 21st Century cities to meet today's new expectations.

According to the authors of this article, smart city is the pivotal dimension of the century development, which means opening up new concepts in urban planning for solving urban problems through combining real-world and virtual capabilities.

The results of this study show that technologies can be used in cities to empower citizens by adapting these technologies to their needs rather than adapting their lives to technology requirements. Cities must be responsive to the contextual changes in which

they operate, and what should be considered as intelligent agent, depending on diverse contextual conditions (text and context) such as political system, geographical conditions, and technology propagation. In fact, smart solutions simply cannot be copied and need to be evaluated for different contexts. This article also focuses on the realization conditions of smart city, including the development of new technologies and other aspects. Therefore, the component of good governance and in particular good urban governance as a present research topic and its relevant problems has not been evaluated.

• Rousti et al. (2018) in the article " structural role of good urban governance in the creation of smart cities (case study: Tabriz municipality)" states that an appropriate context should be created in urban management of a smart city. Without building appropriate contexts in urban management, which mayor's power as an executive head of whole city is not political, there is no emergence of the dominant phenomena of urban geography.

The results of this paper show that the precondition for creating a smart community, smart transportation, smart economy, smart living, smart environment, smart management, specialization of officials and modification of organizational processes in the municipal body. The success of a smart city is not through capital and technology, but through community leadership and intergroup collaboration under good urban governance. This paper, with a qualitative approach examines the smart city, emphasizes the components of urban geography and investigates the most important criteria of smart city realization with a case study of Tabriz. However, this study is limited to Tabriz and provides appropriate solutions for urban management in the major cities of Iran in the form of good urban governance.

• Heshmatzadeh et al. (2017) in the article "Obstacles to Good Governance Realization in Iranian Political Culture" state that the main challenge of good governance in Iran is because of its confrontation with the dominant political culture. As opposed to any good governance indicator, there are components of political culture that impede the realization of those indicators. In order to overcome these barriers, more attention should be paid to the category of political culture and actions taken to reform political culture by focusing on the role of the government.

One of the issues discussed in this article is the close relationship between the category of good governance and political culture which has been discussed in relation to politics and the political system. These two topics are intertwined and fully interconnected, so that one can firmly conclude that much of the reasons for the failure of good governance in Iran come from its political challenges, which are mainly in the field of political culture. According to the results of this article, the role of the government in the failure of good governance should be explicitly acknowledged and expected to serve as a major player in providing good governance.

• Molaei et al. (2016), in the article "the method of smarting cities in the context of effective key components and factors" state that attention and application of appropriate models are among the factors that should be considered for maximizing the benefits of e-government and smart cities, especially in developing countries.

According to the authors of this paper, in explaining the method of smarting cities, three components of people, institutional factors and infrastructures, and three factors of intelligence, innovation and integration were considered as key factors. Urban intelligence is the integration of personal intelligence,

collective intelligence and artificial intelligence. In the meanwhile, infrastructures and digital technologies, however, also act as facilitators of human and collective intelligence and play a key role in the intelligent process of cities and communities.

In this paper, which has been done by qualitative method, the most important factors affecting the realization of smart cities have been studied and the components of smart city have been explained, but the relationship between good urban governance and these components as well as their ratio in realization of the Iran's major cities has not been addressed.

• Adinehvand and Aliyan (2015) in the article "Good Urban Governance in Iran: Prioritization of Components and Tariffs" have stated that in order to achieve good governance, the rule of law component takes precedence over other components. After the rule of law component, participation is ranked next. The components of justice, transparency, accountability, responsibility, efficiency and unanimous decisions or consensus are next. This illustrates the emphasis on the rule of law and participation components are more important than other components. The lack of rule of law and low participation is the main challenge for good urban governance in Iran. As a result, city management must begin with the idea that maximum community participation should be created to reduce political preferences. The priority of the rule of law component to participation among the components of good urban governance is visible because it is in a legal context that a municipality can provide for the improving situation. As a result, the component of the rule of law is in priority over the other components.

In this descriptive-analytical study, the most important components of good urban governance in Iran have been studied, but only a prescriptive approach has examined these components, and the relevant obstacles and difficulties as well as the urban management doctrine in Iran is neglected.

• According to the results of Fallah and Esteghlal (2014), in the article "A Review of Smart City Concepts, Indicators and Criteria", eight important factors of smart cities include: smart governance, smart energy, smart construction, smart displacement, smart infrastructure, smart technology, smart citizenship and smart healthcare. These factors form the basis of an integrated framework that can be used to examine how local governments initiate in smart city formation.

Accordingly, this study has attempted to explain the concept of smart city and ways of its realization in societies. In this qualitative paper, only the most important criteria and concepts of smart city have been studied, and these dimensions have not been examined in Iranian metropolitan areas and their relationship with good urban governance.

• Nubari and Rahimi (2010) in a study for the Tehran Center for Studies and Planning called "Good Urban Governance" state that: Good urban governance is a linking factor between governance principles and values and modern and adaptive organizational approaches. It counts and utilizes the concepts of partnership, rule of law, transparency, flexibility, unanimism, fairness, efficiency and responsibility, and provides the basis for sustainable development. But the only issue of sustainability in this sense is not about the focus and keeping the city alive is the main goal. To this end, good urban governance emphasizes citizenship, leading interactions between individuals, institutions, and the public and private sectors. Among them,

mayors as the chief executive officer of the city, with the participation of network members play a important role. Therefore, the mayors provide the basis for achieving the goals of good urban governance by entering into the three areas of coordination, guidance and cohesion. This is one of the tools for achieving sustainable development of civil society and quality of urban life.

Electronic governance creates opportunities for reconstruction, by realizing closer ties with citizens and closer alliances with them, partnership with various trade, professional and religious groups and interactions with institutions. These opportunities including: new ways of discourse and strategic decision making, new ways of accessing services and transactions, new ways of communicating with citizens and different professional groups, and new ways of organizing information exchange.

In the article "An Introduction to Good Urban Governance in the Analytical Approach", Taghvaie and Tajdar (2009), while examining the problem of good urban governance, its realization requirements and possible consequences and obstacles, state that in the present era "good urban governance" has been accepted as the most effective, cost-effective sustainable management practice in cities and especially metropolitan areas. Given the problems of urban management in developing countries, including Iran, the application of the principles of good urban governance is an indispensable necessity and future prospects of urban management. Based on the results of this study, components such as transparency, accountability, participation, rule of law, efficiency, unanimism, justice, strategic insight and decentralization can play a central role in resolving current problems and optimizing future prospects in Iran's urban management plans. This paper concludes that a proper explanation, institutionalization, and strategic outlook on the topic of "good urban governance" will help to establish sustainable urban management more quickly and hopefully in Iranian cities. In this paper, qualitative method has been considered the most important aspects of good urban governance, but the relationship between such governance with smart cities and its realization in Iran and problems and solutions in this field has not been presented.

• Middar (2006) in his article "Introduction to Good Governance Theory" examines the patterns of governance in Iran during the years following the victory of the Islamic Revolution in Iran and comparative study of the model of governance in Iran and other countries. According to the results of this paper, after the end of the eight-year Iraq-Iran war, the proposed model of economic experts was the minimal government standards. The first and second development plans of the Islamic Republic of Iran tried to implement this pattern, and the third and fourth plans more or less fit into the same pattern. Unlike Iran, which has been deficient at acceptance and implementation of the pattern of minimal government standards, Eastern European and former Soviet countries and many other developing countries have quickly implemented this pattern and faced adverse economic consequences. According to the results of this study, the application of good governance theory differs from one society to another and the only general rule of good governance theory is to employ two mechanisms of accountability and competition to improve governance. This article also describes the theory of good governance in a descriptive way, but the issues of smart cities and the ways of their realization in the big cities of Iran, barriers and solutions have not been examined.

• Mostafa Behzadfar (2003) in his article "The Necessities and Barriers of Creating a Smart City in Iran" states that the concept of smart city implies the structure, system and identity of the populations that benefit from the telecommunications technology. In these biological complexes, common and actual communication and activities are mostly virtual type. Based on the results of this research to realize smart city in Iran, urban designers face new issues and phenomena in the process of urban planning, especially designing residential neighborhoods, road network and public places. This paper concludes that the application of smart city software and hardware mechanisms for a country such as Iran whose cities are straying between the transition modes from the traditional to the modern patterns is necessary, but the grounds for moving along this path have many shortcomings. This article focuses solely on the obstacles facing the smart city in Iran and the issue of good urban governance and its relation to the realization of the smart city has not been addressed.

B) Studies conducted out of Iran

Mottiara (2018), in a study entitled "Smart Governance for the Smart City", aims to determine the status and conditions of electronic governance by measuring the metrics of a smart government. These metrics include: transparent governance, and public access to information. By measuring government transparency, the results of the research can be used to assess the effectiveness of the information liberalization law and to determine the state of e-governance in the local government that is part of an intelligent city.

• Anthopoulos et al. (2016), in a study entitled "Smart City and Smart Governance: Synonymous or Complementary to each other?" state that the purpose of the research is to examine the term smart government and determine its meaning in relation to smart city. In this regard, he has done an overview of the research literature and concluded that smart government is not synonymous with smart city.

Our research results show that smart city is not synonymous with smart government. The smart city is a dimension of the smart government, and the smart government uses the smart city as the domain of action. The authors conclude that Smart City is a complementary component and part of the Smart Governance movement.

• ARmia et al. (2016), in a study entitled "The Concept of the Smart City in the 21st Century", summarize the evaluation of the smart city and identifies its characteristics. The intense industrialization and increasing population growth in urban areas has created a challenge for city officials, engineers and planners.

• Ali (2016), in a study entitled "Good Governance and Governance: A Conceptual Perspective" states that good governance has been the subject of many theoretical and practical debates over the past three decades. Recently, good governance and governance have alternately been used in political sciences, administrative sciences and development studies. It has become clear that good governance is a legitimate, accountable and effective way of achieving and using public powers and resources in pursuit of socially acceptable goals. Based on existing literature on this topic, this research shows that good governance is linked to the institutional and political processes that are essential to achieving sustainable development goals.

• Albino (2015), in a study entitled "Smart Cities: Definitions, Dimensions, Performances, and Innovations" states that as the term smart city comes up, the ambiguity

about the nature of smart city is increased. The purpose of this research is to determine the meaning of smart word in the context of cities through an in-depth interview based approach. The study also considers the main dimensions and components of smart city. Different metrics of smart city are reviewed to illustrate the needs for a common definition of a smart city, its specific features, and its differences in contrast to traditional cities.

• Meijer (2015), in his study "Governing of Smart City: Reviewing the Literature on Smart City Governance" focuses on the existing academic debates on this topic to analyze 51 publications and categorize their variables. These publications analyze (1) smart technology, smart people and small collections as the defining features of smart cities, (2) a transforming view on changes in urban governance and (3) better results or more open processes that demonstrate the high legitimacy of a smart city's governance.

Baharaj (2014), in a study entitled "Cooperative Social Responsibility and Good Governance", investigates the applications of the concepts of corporate social responsibility and good governance to the Indian economy. The first part argues that the two components are related, and the second states that changes in lawful norms should be pursued by cooperating associations and highlighting the needs for good governance.

• The World Bank Institute (2013), in a report entitled "Good Governance and Its Benefits for Economic Development: Review of Current Trends", states why good governance is optimal? It states that because of poor governance costs as well as lack of transparency, and lack of accountability result in inappropriate decisions and ultimately ineffective outcomes.

• Walmus (2012) in the study "Good Governance and Economic Development" states that good governance has become an important topic in international development since the late 1980s. However, since then in the context of development studies, development policy and development cooperation we are faced with the question of how we can improve governance systems. In this regard, the most important issue is the relationship between government and civil society, or in a more general sense, the relationship between government and the private sector, which question examined in this research.

• In a research titled "Good Governance as a Tool for Implementing the Sustainable Development Concept", Jockenwissen (2012) states that this study analyzes the role of governance in implementing sustainable development at the institutional level.

This section reinforces the use of good governance in sustainable development policy and introduces the implementation of good governance as one of the essentials of sustainable development.

Good urban governance, based on the results of this research, leads to the appropriate conditions in the form of rule of law, responsibility, development in different political, social and economic sectors and in general sustainable development.

Considering the research literature on the concept of good governance, it can be stated that, despite the abundance of resources in the analysis of events, so far, there has been no comprehensive effect and hindrance on the effects of good governance in Iran and in particular the metropolis of Tehran. As noted, each of these works independently examines one of the concepts of smart city, good governance, or their relationship to one or more aspects of good governance and its results in smart city as the economic dimension. However, good governance in the form of urban governance has been neglected in the pre-

vious research, unlike what analyzed in the present study. On the other hand, a case study in the context of Iranian metropolis and the necessity of smart city realization in them and examining the areas of smart city in the framework of laws and regulations as well as reviewing the doctrines of urban management and their problems are among the most important research topics. This study lacks a similar sample so far and is innovative in terms of the subject and dimensions of the samples under study.

9. Conclusion

As the process of urbanization around the world has been growing at an accelerating pace, the urban management strategy has changed. In this regard, the most fashionable ideas and styles on city management strategy are presented as Smart City. The smart city in the present era can be explained in line with the development and growth of economic, social and cultural foundations and so forth in urban societies and in the form of good urban governance and Iran is no exception. In recent years, the topic of smart city in Iran has always been raised and even 5 cities of Uremia, Isfahan, Tehran, Mashhad and Tabriz have been introduced as smart cities of Iran. Experts, however, believe that these cities are still at odds with new benchmarks, and need to upgrade technology and build infrastructure. Meanwhile, smart city realization within the framework of good urban governance is one of the most important concerns of Tehran metropolis in metropolitan management. The dimensions of Tehran as smart city can be explained in terms of economy, people, mobility, environment, smart life and rule of law. To achieve the desired urban governance as one of the foundations and principles of sustainable urban development in Tehran, as an urbanization model in the country, urban management should move to the smart city. Tehran needs to have the components of smart city that include smart economy, smart transport, smart environment, smart citizens, smart lifestyle and smart administration. Of course, this move will be a gradual and comprehensive plan with the initial legal, cultural and lawful infrastructures. Therefore, to enter the arena of smart cities in Tehran requires the necessary infrastructures, especially the development of telecommunications infrastructure in the first priority, the content production and applications tailored to the needs of the citizens (subject to the update in the second priority and the focus on human capabilities (especially digital literacy)). The third priority is to make equal use of all abilities in order to reduce the digital divide and other issues and problems. As the world moves towards smart cities, if this case is ignored in the long run the city will have irreparable risks. Cities and citizens to the interaction and continue of their live in different dimensions and fulfillment of their active roles are bound to join the process. On the on hand, without the necessary requirements for deploying a smart city it can play a negative role in the city development, the loss of global and transnational opportunities and unsuccessful reproduction. On the other hand, if not implemented properly and efficiently, in addition to technology dependency, it may marginalize sections of the population that are unable to adapt to this new way of urban life. Consequently, this can hamper the ability of citizens to meet their needs in the city, and actually create a kind of social polarization and a digital divide.

10. Recommendations

This article focuses solely on the obstacles facing the smart city in Iran and the issue of good urban governance and its relation to the

realization of the smart city has not been addressed.

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