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Designing a model for measuring the maturity of smart governance with the hybrid method

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Abstract

The current research was conducted with the aim of providing a model for measuring the maturity of smart governance with the meta-combination method. The research method is qualitative. The statistical population of the research is all scientific documents, research reports, databases, domestic and foreign publications regarding the maturity of smart governance published during the years 2000 to 2023. Research keywords was searched in Scopus databases; Science Direct; Sayyed; Emerald; Google Scholar. Using the meta-combination method, 99 qualitative articles were extracted in the field of electronic city, digital city, creative city, smart city; and by content analysis, dimensions, and relevant codes, and 101 codes were identified in 3 dimensions of smart policy, smart government, and smart city, and the degree of importance and priority of each was determined by Shannon's quantitative entropy method and the Kappa index, and based on the findings, and it was determined that the power codes of democracy; Smart businesses; social cohesion; policies and rules and regulations; Smart economic competition; Electronic proposal system for employees and citizens; citizens' use of virtual services; motivation of managers and employees; access to information and communication technology; the spirit of accountability; the general importance of environmental protection and climate change; Political participation of the open government, and cooperative governance have the highest coefficient of importance. Finally, after going through the steps of the research, the appropriate model of smart governance maturity was presented in two layers of feasibility and implementation structure, and the support layer of intelligent governance maturity design.

Keywords:
smart governance; Maturity of smart governance; Smart economic competition, smart businesses

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Extended Abstract

Introduction

Along with the emergence of new technologies, governments should have the ability to use them, adapt to new conditions and create innovation in the way of providing government services with its speed and quality. Technologies and strategies such as metadata, open data, social networks, blogs, mobile government, cloud computing, etc., have revolutionized the way of providing services. Technological advances facilitate the development of strategies and programs to improve people's quality of life (De Carolis et al, 2017). The inclusion of information and communication technology in the management of cities can facilitate the decision-making process of managers and, as a result, create improvements in the infrastructure and services provided to citizens, and can be used as a subsidy to create smart cities.

Smart cities can have several definitions and among them are communities that seek to change life and work effectively using information technology. City managers around the world say that their cities are smart just because they have ICT-based initiatives, which is not true. Although this has already emerged as a trend towards solving social problems, it is believed that there is still a limited understanding of how smart solutions can help cities evolve as safe and efficient urban spaces. Therefore, in order to measure the performance of a city, the classification feature must be broken down into indicators, because in this way, the city will be able to evaluate its performance based on it, adopt the reality and, as a result, the best solutions according to its own demand. According to this context, there is a great diversity in classification indices, because there are different views on how to classify, observe and evaluate cities by different people. Social actors (including companies, academics, political leaders and the population in general), but most of the indicators used do not follow a pattern, and are not comparable over time and with each other. Understanding how to measure smart city indicators is essential to avoid suspicion. Therefore, it is not surprising that these prospects have motivated many city governments to launch cooperation projects, although smart city strategies are often still focused on material facilities such as energy, dynamics or security (Sharifi, 2020).

Cultural and physical conditions that "interact with a series of political, administrative and technological choices regarding the use of new technologies for urban governance" are influential. They identify the structure and degree of autonomy of local governments as possible determinants of smart governance, which is shaped by transnational, international, national, regional and local levels of regulation. Another factor is related to the characteristics of society, for example, the willingness and ability of social actors to help solve common problems facilitated by technology. Due to insufficient theoretical and empirical research on this relationship, little knowledge is available about smart governance (Patrão et al, 2020). Therefore, the main goal of this research is to review past studies and identify the effective factors on measuring the maturity of smart governance, and by studying the models presented; finally, a comprehensive model for measuring the maturity of smart governance has been presented. Here, the important question is: what factors are effective in measuring the maturity of smart governance?

Theoretical literature

Smart city: A smart city is a city that is able to connect physical capital with social capital in order to develop services and infrastructures. This is how it is able to bring together technology, information, and political views based on a coherent plan, and improve urban services (Meijer & Rodríguez, 2013).

Smart government: Smart government is the proper provision of services and information by the government to the public, using smart tools (mirsarraf et al, 2022.)
Maturity of the smart city: The concept of the maturity of the smart city was created in order to give a framework to the goals and planning of the smart city, which, in addition to focusing on regional problems, also takes advantage of global experiences and increases the possibility of cooperation between cities (Mora et al., 2019).
Sustainable Smart City: A sustainable smart city is an innovative city that uses ICT and other tools to improve quality of life, optimize city operations, services and competitiveness, while ensuring that the city will be able to meet the needs of the present and future generations in economic, social, environmental and cultural fields (Viale et al, 2017).
Measuring the level of intelligence: Measuring the level of intelligence is one of the challenges that exist in the field of smart city development. Key performance indicators are important for measuring and comparing the degree of maturity of a smart city (mirsarraf et al, 2022).
Qairwani et al, (2023) in a study with the aim of presenting a smart governance model with a focus on the development and training of human resources in the public sector, reported that all the components of smart governance in the public sector were identified and confirmed in the research; and by examining the themes, concepts and quantitative and qualitative research, the smart governance model was explained with a focus on the development and training of human resources in the public sector.
Ghaffari et al, (2023) in a study with the aim of designing a model of smart urban governance using a hybrid approach reported that by presenting a smart governance evaluation model including dimensions and categories, government-related departments are able to ensure the effectiveness of the actions taken and to be aware of the improvement areas of their devices. By presenting an integrated model of smart governance in a hybrid way, governments will be able to assess the performance of their dependent departments while ensuring the progress of establishing smart governance.

Research methodology

The main purpose of the research is to explain the conceptual dimensions of the maturity of smart governance in order to be used in the development programs of the smart government; therefore, this research is developmental and applicable based on the purpose. In the current research, original and unmanipulated data have been used, so it is considered as a descriptive (non-experimental) research. Various articles in this field have been used to calculate the dimensions; therefore, a meta-combination approach has been used. In this research, Sandelowski and Barroso's (2003) seven-step metacombination method was used.

1- Organizing the research questions,
2- Reviewing the texts in a systematic way,
3- Searching and choosing suitable articles,
4- Extracting article information,
5- Analysis and combination of qualitative findings,
6- Quality control and
7- Presentation

In the end, with the Shannon entropy ranking method, the characteristics identified in each maturity dimension of smart governance are ranked according to previous studies.

Research findings

As indicated in the results, the power of democracy; Smart businesses; social cohesion; policies and rules and regulations; Smart economic competition; Electronic proposal system

for employees and citizens; citizens' use of virtual services; motivation of managers and employees; access to information and communication technology; the spirit of accountability; the general importance of environmental protection and climate change; the political participation of the open government and cooperative governance are the most important and have obtained the highest ranks in general, that is, in the discussion of the feasibility and establishment of maturity of smart governance, these issues have been studied more. They have more repeatability than other codes. Therefore, it can be said that paying attention to the dimensions of smart entrepreneurship; Smart society; Smart tourism; Smart economy and smart branding; management of intelligent organizational reward and accountability system; intelligent organizational performance; justice and equality; intelligent response; Smart institutions and smart political environment have been important influencing factors.

Discussion and conclusion

As the findings of this research showed, in order to verify the feasibility and establish the maturity of smart governance in institutions and the government; the dimensions of a smart city; Smart government and smart policy should be paid attention, and the model presented in this research can be considered as a suitable road map for the feasibility and effective establishment of smart governance maturity in the institutions and government of each country, and based on previous studies and the extraction of 101 specific codes; it was clarified that the power of democracy; smart businesses; social cohesion; policies and rules and regulations; smart economic competition; electronic proposal system for employees and citizens; citizens' use of virtual services; motivation of managers and employees; access to information and communication technology; the spirit of accountability; the general importance of environmental protection and climate change; political participation of open government, and cooperative governance are the most important and have the highest coefficient of importance. And it shows that it is important to pay attention to these factors for the feasibility and establishment of maturity of smart governance. Accordingly, organizations should first pay attention to plans for (open) structure and allocation of resources in institutions and the government. According to the model of feasibility and establishment of maturity of intelligent governance, suggestions are made, to be more familiar with the talents of technologies of each region in order to cultivate it in line with the feasibility and establishment of maturity of intelligent governance. It is suggested that special attention be given to infrastructure institutions to cultivate talents of new technologies for the feasibility and establishment of smart governance maturity. It is suggested to develop a strategy for establishing the maturity of smart governance at the level of leading institutions and governments in the field of smart governance.

According to the results of previous researches and their comparison, it can be said that the results and dimensions of the feasibility and establishment of maturity of smart governance discussed in the past researches were included in the final model of this research, and were used in developing the final model, but none of the previous studies (Tomor et al, 2019), (Ruijer et al, 2023), (Novian & Mat, 2022), (Khamseh et al, 2023), and (Hashemi, 2019) on model of the feasibility and establishment of maturity have not provided a comprehensive smart governance; and the current research has provided a suitable model in this field. For future research works, topics such as: evaluation of the presented model of this research in different industries, as well as providing evaluation mechanisms for the feasibility process and establishing the maturity of smart governance are suggested.