Analysis of the Impact of Smart Sustainable Cities on Social Well-Being

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ABSTRACT

The research aims to identify the relationship of indicators of sustainable smart cities with indicators of social well-being. It aims to study the most important strengths, weaknesses, opportunities, and threats facing the transformation of the city of Baghdad into a smart and sustainable city and measure the performance gap between the city's current reality and its ideal on the way to achieving sustainability to improve the community's quality of life and well-being. Social research started from a problem: Poor clarity in defining indicators of sustainable smart cities and studying their relationship with social well-being. The research assumes the research assumes that there are measurable indicators of smart cities, which lead to enhanced city services that improve the material conditions of the community to achieve well-being. The research relies on the descriptive analytical approach by conducting a questionnaire for workers and specialists in the departments of urban planning, reconstruction, and municipalities. The research concluded that there is a gap of 1.5 out of a scale of 5 to evaluate the city's current reality with the ideal. The research concludes that the city of Baghdad takes shy steps in the field of achieving sustainability and intelligence. The research also concluded that the most important indicators are the indicator of adequate income and the presence of job opportunities, which are among the indicators that most affect the level of social welfare and have the greatest impact on the level of social welfare. The research recommends setting a time plan during which the implementation of the indicators affects the level of social well-being.

1. INTRODUCTION

To a proper urban life, we must consider the city as more than just a location where people live. The built environment of the city includes things like roadways, shopping malls, and service facilities.

To produce sustainable living, the researcher [1] discussed smart city development goes beyond the simple application of intelligent technologies. Instead, it calls for the efficient integration of social landscapes, the built environment, and human well-being. Although it is believed to be the critical factor for sustainability, few studies have addressed happiness, a marker for people's quality of life, as a feature of smart urban planning. In this paper, the connections between smart cities and urban happiness are clearer. The results show that a series of regional (such as housing and population density) and global (e.g., the North-South divide) challenges would obstruct the preservation of happiness from the incorporation of green areas, air pollution control, and recycling services into smart, geographically dispersed cities. Faced with a challenge

of fulfilling the aspirations of sustainable development strategies by helping to fulfill the actual needs of cities, urban planners and governments must develop the global perspective but consider the local and cultural conditions [1].

In the article of Yu et al. [2], stress, convenience, and life satisfaction (LS) were taken into consideration when the research built a thorough model to investigate the mechanism underlying how people's perceived smart city advancements affected their emotional well-being. The study used a structural equation model (SEM) analysis to validate the conceptual model on a sample of 428 urban dwellers in a Chinese smart city. The findings show that: (1) Perceived smart public service (PSPS) can raise EWB by lowering stress; additionally, it can raise EWB through the mechanism of enhanced learning from experience (LS) as a result of this lowered stress. Perceived smart infrastructure (PSI) can lower EWB by decreasing LS, which is caused by higher stress, or it can lower EWB by raising stress levels. (2) By boosting convenience and consequently enhancing LS, perceived smart public administration (PSPA), perceived smart public safety

(PSPS), perceived smart environmental protection (PSEP), and PSI can all improve LS and bolster EWB. (3) This work offers suggestions for government policy-making in the building of smart cities and advances interdisciplinary research on citizens' perspectives of smart city development.

In the work by Geropanta et al. [3], the ambiguous nature of smart city projects has become evident in the last series of debates about the possibility of modern urban regions to solve global problems. This is especially significant in reference to the criteria defined by the Sustainable Development Goals (SDGs), which emphasize enhancing quality of life for all its citizens. In practice, well-being seems to be a segmented aspect of smart city initiatives across the globe; this chapter seeks to address this question through an analysis of the effects of this type of spatial planning tactics. The authors highlight the goals and merits of urban technology in public spaces by examining three European cities - Copenhagen, Vienna, and Barcelona - to highlight the current state of spatial planning and illustrate the effect of participatory approaches on the well-being of citizens. Combining a smart and sustainable city approach develops effective urban strategies that reveal several valuable insights that can promote well-being holistically.

This study by da Silva et al. [4] aims to examine the relationship between urban resilience and the state of the economy, society, and environment in smart cities in São Paulo (SP), especially in the wake of the 2008 financial crisis.

This study's objectives might be classified as descriptive. The research is documental in terms of data collecting and bibliographic from the perspective of technical techniques. This study has a quantitative approach because the statistical method is employed. Sixty-two of SP's smart cities comprised the sample. The study's time frame was from 2010 to 2015.

In the study conducted by Belli et al. [5], the proliferation of IoT technology is creating new opportunities, with one of the most well-known uses being in connection with the dynamic smart city concept. It can be broadly characterized as the incorporation of ICT and the Internet of Things into city administration, to address the population and urbanization's exponential expansion and improve people's quality of life. Aspects of sustainability are also strongly associated with the smart city model; these include minimizing the environmental impact of urban activities, managing energy resources optimally, and creating cutting-edge services and solutions for inhabitants. Due to major investments made by stakeholders and the European Commission, several cities have committed to this new paradigm and initiated a process of strong innovation in various areas (e.g., mobility, transit, industry, health, tourism, and education). This article analyzes the key components of IoT infrastructure for smart cities, using Parma, Italy's Emilia-Romagna area, as a successful case study for the innovations put into place. One area that receives special emphasis is smart urban mobility.

From the literature review, we can identify multiple research gaps:

1. The need to comprehend how to build a sustainable smart city and what indicators have an impact on social well-being?

2. Smart cities were only partially and incompletely covered in earlier research, including happiness and satisfaction, and some studies even connected the state of smart cities to sustainable development objectives.

3. This research discusses the issue of cities that have not reached the stage of achieving the principles of sustainable smart cities, which is extremely important to identify the obstacles and capabilities that encourage or hinder access to the smart city, which therefore has a significant impact on the life and well-being of society.

4. There is no previous study that discusses indicators of sustainable smart cities in an Iraqi city and compares them to the ideal state of the future (see Figure 1).
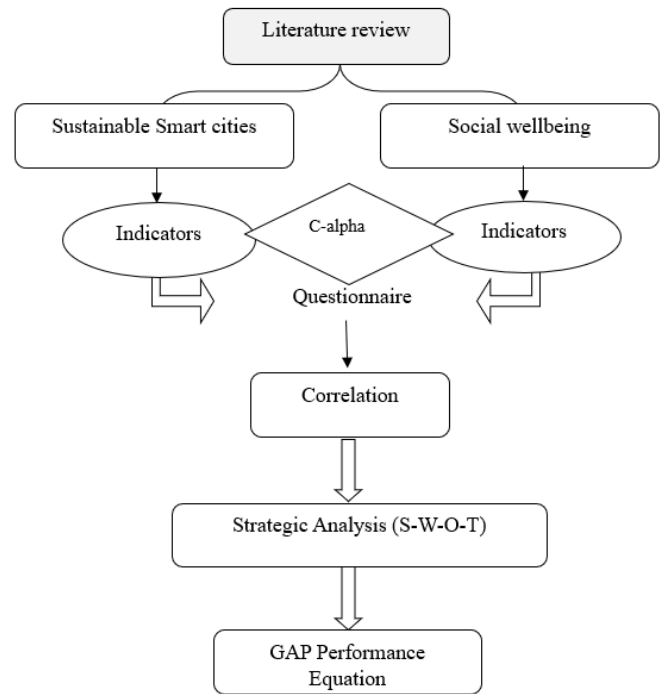
Figure 1. Flowchart of article design

The triple bottom line (TBL) concept is an important framework for assessing and integrating sustainability. Three related dimensions can be mentioned, including the economic dimension, which includes aspects related to economic dimensions such as achieving economic efficiency through job creation, efficient use of resources, stimulating the digital economy, etc.; the social dimension, such as justice, social welfare, and achieving a good quality of life; and the environmental dimension, which reflects the rational use of resources and the reduction of pollution in smart cities through the adoption of green technologies.

This concept enables an integrated assessment of urban performance and represents a key tool for measuring the extent to which smart cities contribute to achieving sustainable development and true social well-being [6, 7].

2. METHODOLOGY

After extracting the study indicators for both sustainable smart cities and social welfare, a survey was conducted. The sample type was random and consisted of 50 people, from specialists working in the planning, construction and housing departments in the city of Baghdad, in order to find out the relationship of those indicators for each of smart cities to social welfare.

3. SUSTAINABLE SMART CITIES

Sustainable Smart cities are defined as cities and towns that

use data and technology to improve sustainability, efficiency, and the general quality of life for their citizens. These cities use information and communication technology to automate procedures, enhance decision-making, and gather and analyze data [8].

Arab cities in general, and Iraqi cities in particular, face great challenges as a result of several factors that the research attempts to study and identify the most important obstacles and possibilities that encourage or hinder the adoption of smart city principles [9]. The effects of the pandemic have clearly shown that most cities around the world, including Arab cities through a lack of adaptability and frighteningly high-risk exposure, particularly in the context of the labor market [10, 11], financial and business arrangements, and economic governance—all of which are intricately linked. through a lack of adaptability and frighteningly high-risk exposure, particularly in the context of the labor market, financial and business arrangements, and economic governance- all of which are intricately linked. The use of smart digital solutions is not limited to cities that have begun to be smart and sustainable. Rather, the process of transforming into cities can benefit any city, although the degree of their application varies from one city to another depending on the economic and financial capabilities of the country in question and the extent of its technological readiness.

While no fully integrated urban systems and services are a reality yet, many cities are moving towards being environmentally sustainable and smart. Using information and communication technologies (ICTs) to increase energy efficiency, optimize waste management, enhance housing and healthcare, improve traffic flow and safety, monitor air quality, notify law enforcement of street crimes, and refine water and sanitation systems, these cities are making great strides. Smart and sustainable cities further encourage the use of cycling and walking as transport modes. Key indicators that represent the success of different smart sustainable cities are featured in the research.

When talking about smart sustainable cities, we talk about the city of Oslo, which has made rapid strides in its urban trends. In that context, one of the most important indicators that can be talked about in Humanitarian cities: Streets Suitable for Pedestrians, Environmental monitoring: Air and traffic data quality monitoring, Sustainability Culture: making environmentally friendly decisions, Sustainable Transportation. Singapore: One of the most prominent things that the city of Singapore has worked on Waste management system, Remote sensing devices are used to monitor the performance of waste containers, resulting in significant positive impacts such as pollution reduction and energy efficiency. in Canada, Vancouver, Green Areas: maintaining vegetation and natural beauty even in the middle of a busy city. Green Building: Vancouver is known for its strict enforcement of green building regulations. By 2030, it wants all new construction to be carbon-neutral to ensure that the city's skyline reflects its commitment to sustainability. Smart energy, one example that can be mentioned regarding Arab cities is the city of Dubai which focused on achieving good governance concerning resource management. electronic complaints system for citizens to regularly provide their opinions about public services Converting government services to electronic. clean energy: Generating clean electrical energy using solar panel technology installed on the roofs of buildings, environmentally friendly sustainable buildings, and Smart Transportation, the implementation of

smart building management systems can, in part, improve the efficiency of building's energy. On the other hand, these smart buildings can lessen waste and the consequent release of offensive odors that are harmful to the environment and the health of occupants. It is projected that the globe will save 20% of water and 22% of energy when it comes to water use, not to mention expenditures, by making the best use of water and striving for increased operational efficiency and resident satisfaction, whether living within or adjacent to structures or Building Upkeep. In the context of the Middle East, in Cairo and Riyadh, several studies were addressed that work on integrating the urban planning process with digital infrastructure and the impact of governance on the adoption of smart and sustainable city principles to improve societal well-being. In the study of urban quality of life, key contributions include Veenhoven [12], who introduced urban happiness as a measure of societal well-being, and the Florida study, which connected the innovation economy with livability to explore how smart city indicators relate to social well-being [13]. These studies confirm that smart city initiatives are not limited only to technological efficiency, but also to social satisfaction and local values of society [14, 15].

We can derive Final indicators for both sustainable smart cities and social well-being in Table 1.

Table 1. Final indicators of sustainable smart cities & social well-being

Sustainable Smart Cities	Social Well-Being
Encouraging walking and sustainable transportation	Owning a housing unit with guaranteed security of tenure
Adoption of green energy	Good social relations for residents
Smart infrastructure (housing, water, waste management)	Living in a safe environment free of accidents, crimes, and anything that threatens the security of residents
Governance	Participation in decision-making
Social interaction	An acceptable economic level (sufficient income for a good quality of life - availability of job opportunities)
City planning incorporate innovation	Recreational areas suitable for all segments of society (elderly - children - women - youth)

4. SOCIAL WELL-BEING

Social well-being is one in which everyone's basic requirements are satisfied and there are chances for people to live in communities peacefully and grow. In addition to providing basic and secondary education, this final state will see the return or resettlement of those displaced by violent conflict, the restoration of the social fabric and community life, and equal access to and provision of basic needs services like water, food, housing, and health care.

Welfare enables members of society to participate in working life, contribute to political and economic decision-making, and ensure gender equality [16].

Prioritizing social welfare indicates that a nation cherishes its people and upholds their fundamental right to a happy life. Governments may create an inclusive atmosphere where everyone has an equal chance to prosper and advance the country by funding social initiatives designed to combat

poverty and inequality. In addition to increasing productivity, this also strengthens social cohesion and lessens social unrest brought on by the stark differences in wealth and poverty [17].

Access to good health and well-being is a human right which is why sustainable development plans offer a fresh chance to guarantee that everyone has access to the best medical care and standards [18].

Access to education is a basic right that every individual should have access to. It is essential to promote equality, social mobility, personal growth and development, and reduce poverty. By recognizing the importance of access to education. Also, People's physical and emotional health are enhanced by

easily accessible and well-kept public areas. Parks, gardens, and other green areas offer chances for physical activity, leisure, and getting in touch with the natural world. Studies have indicated that spending time outside raises mood, lowers stress levels, and improves general health [19].

Urban security also represents social and economic well-being, the cornerstone on which progress is based to achieve the goals of society, the ability of a person to pay for necessities like food, housing, and medical care is influenced by their income, which has a direct impact on their happiness and general well-being. Table 2 represents the summary of the most important previous studies.

**Table 2.** Comparative analysis of the previous studies

| Study	Focus	Key Finding	Area
Yu et al. [2]	Integration between smart services and social well-being	Smart infrastructure reduce stress	Asian context
Geropanta et al. [3]	Sustainable cities strategies and well-being	Importance of human participation	European context
Al-Jawari et al. [19]	QOL and digital transformation	Governance and ICT to enhance services	Middle East
This study	Well-being within the specific socio-urban context	Importance of intelligence and participation in service management	Baghdad

5. BAGHDAD CASE STUDY

The city of Baghdad is one of the most prominent cultural and historical cities, and its external borders represent the borders of the Baghdad Governorate, while the borders of the basic plan are called the borders of the Baghdad Municipality [20], Baghdad Municipality is the governing body tasked with overseeing the city of Baghdad and carrying out infrastructure development, municipal service provision, and urban planning. The entire capital city is included in the limits of the

Baghdad Municipality. The Baghdad Governorate encompasses the regions around the capital and goes beyond the limits of the Baghdad Municipality. The Baghdad Governorate is made up of numerous districts and encompasses a large region, including small cities and rural areas that surround the city [21, 22] (see Figure 2 (a) and (b)).

Baghdad is one of the cities characterized by its increasing population, and its population density appears high, especially in the city center. This is what makes the issue of providing a good quality of life there extremely important.
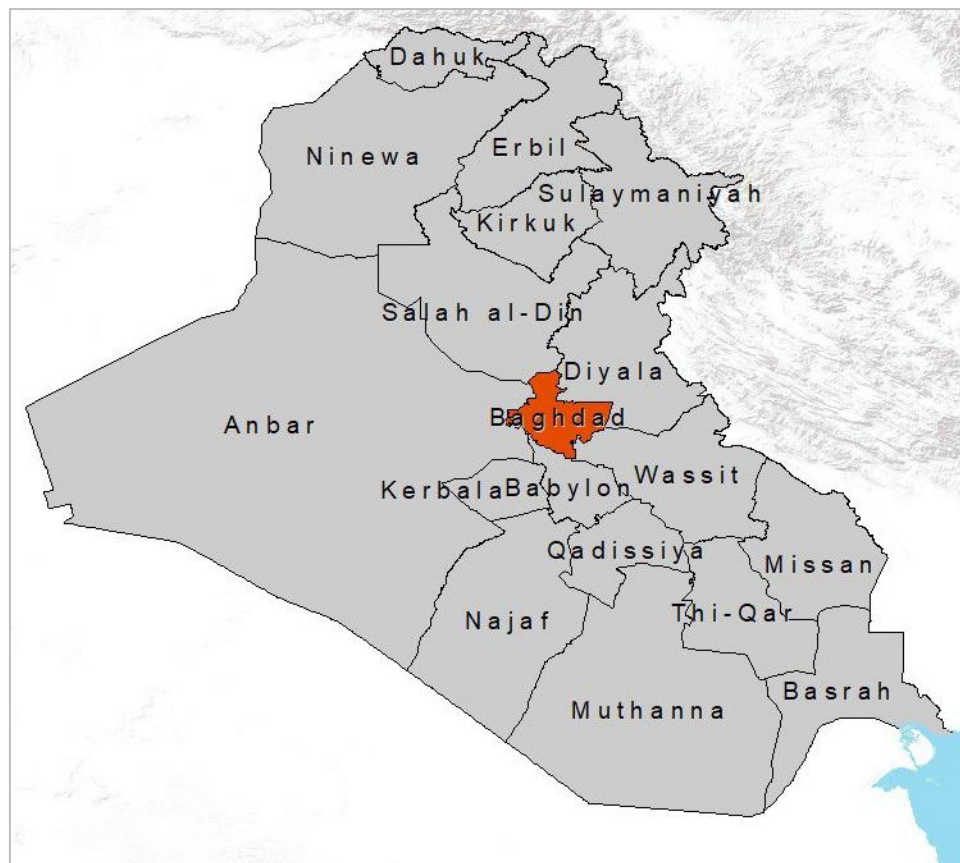
(a) Location of Baghdad governorate from Iraq
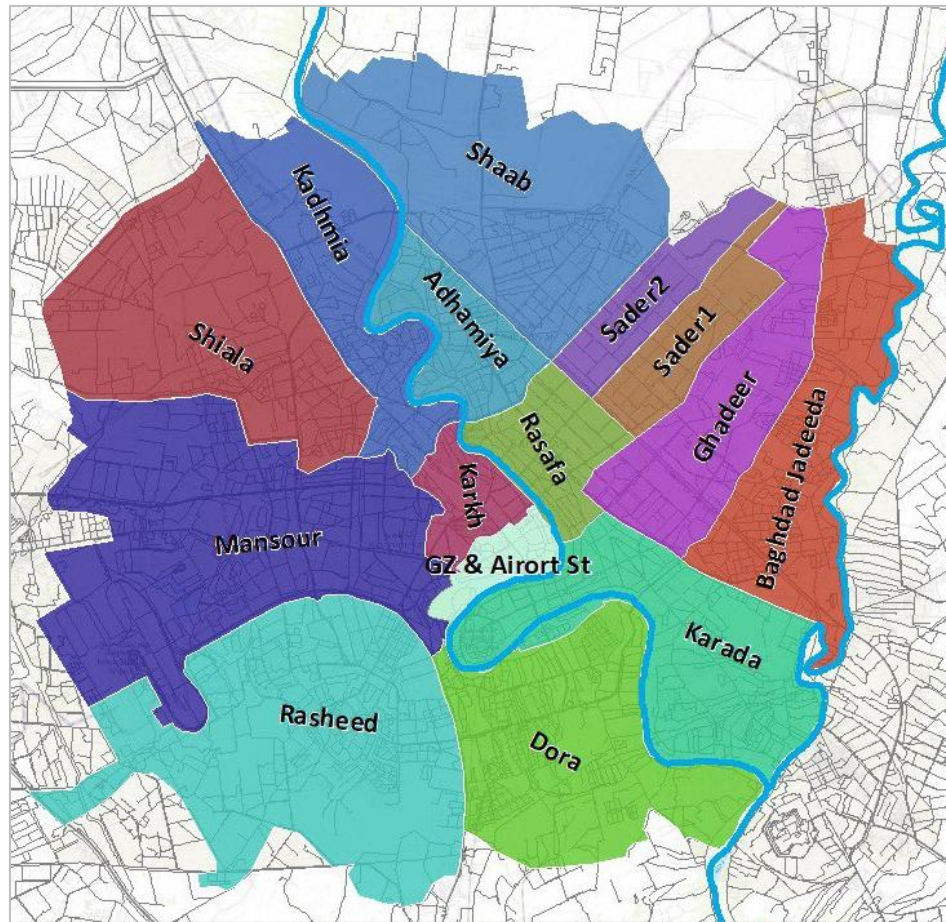
(b) Map of Baghdad City

Figure 2. Baghdad location from Iraq and from Baghdad governorate

**Table 3.** The area and population of Baghdad Municipalities

ID	Municipalities	AREA	Population	Ratio
1	AL-Ghadeer	45325098	110012	1.00
2	New Baghdad	63840469	1430776	13.04
3	AL-Dura	85682317	1811042	16.50
4	Al-Mansoor	126104775	513360	4.67
5	Adhamiya	27158468	1366502	12.45
6	Al-Karkh	23735201	133875	1.22
7	Alkarada	68140575	376148	3.42
8	AL-Rusafa	23914538	2056265	18.74
9	AL-Sadr1	30980688	805007	7.33
10	AL-Sadr2	21015060	572130	5.21
11	AL-SHaab	98623326	972802	8.86
12	AL-SHuala	89201033	307708	2.80
13	Al-Kadhimiya	56037086	496984	4.52
14	Al-Rashid	130598650	18409	0.16
∑		890357284	10971020	100

Table 4. The results of the questionnaire

No.	Strongly Agree	Agree	Neutral	Disagree	St. Disagree	Mean	Standard Deviation	T Test	Sample Orientation	Q. Rank
5	29	13	4	4	0	4.4	0.9	11	S. agree	1
1	18	12	7	8	5	3.6	1.4	3	agree	2
4	26	1	1	13	9	3.5	1.7	2.1	agree	3
2	19	11	8	7	5	3.4	1.6	0.3	middle	4
6	13	15	8	9	5	3	1.3	0	middle	5
3	19	5	13	4	9	2.5	1.1	-3.3	disagree	6

Table 5. SPSS correlation calculation table

	Model Summary			
Std. Error of the Estimate	**Adjusted R²**	**R²**	**R**	**Model**
1.022	0.721	0.78	0.88ª	1
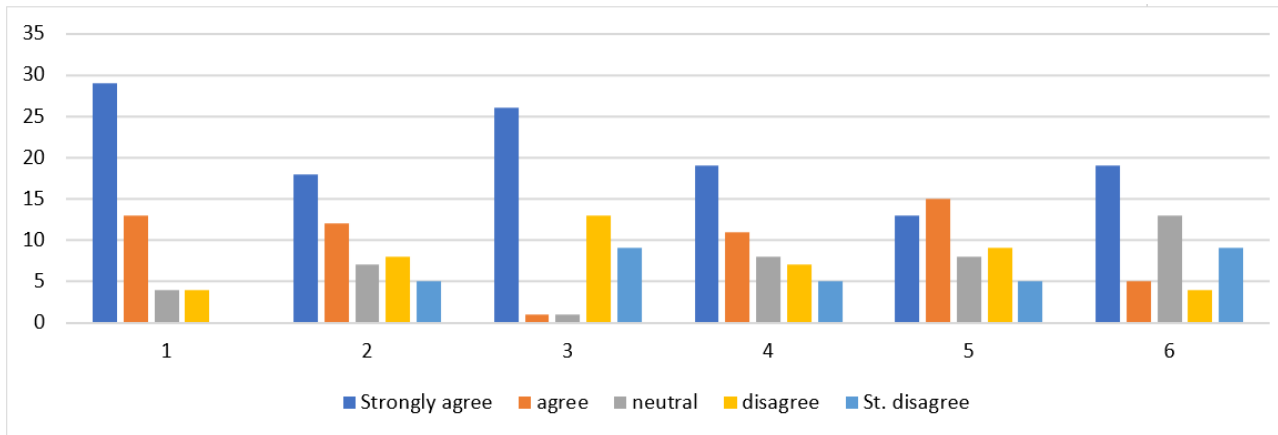
Figure 3. Questionnaire results according to the Likert scale for all questions

From the Table 3, it is clear that the municipalities of New Baghdad and Al-Mansour are the largest in area, and the municipality of Al-Sadr 2 is the smallest in area. The highest percentage of the population is in Al-Rusafa and the lowest percentage of housing is in Al-Ghadir municipality. The results of the questionnaire were as in Table 4 and Table 5 and Figure 3.

To ensure the validity of the analysis before applying the parametric statistical tests, the data did not deviate from the normal distribution, as the p-value was greater than 0.05, which supports the use of parametric tests. According to the recommendations of Norman, Carivio and Perla, the five-point Likert scale can be used through parametric methods if the distribution is symmetric and no repeated surveys were conducted. Therefore, by fulfilling all the conditions, we were able to use the parametric tests [23, 24].

The internal consistency test of the questionnaire, Cronbach's alpha, was conducted for six items and its value was α = 0.81. Question No. (5), which is (sufficient income and the presence of job opportunities). Respondents agreed by 84% that the issue of achieving sufficient income to meet the requirements of living and the presence of job opportunities is one of the matters that most make the citizen feel a state of well-being, with an arithmetic mean of 4.4 and a standard deviation of 0.9. The T-test confirmed that there was statistical significance in the respondents' responses. The question came in first place compared to the other questions.

Question No. (1) (Owning a housing unit) Respondents agree by 60% that a citizen's possession of a housing unit is one of the most important indicators of societal well-being. Slums spread chaotically, accompanied by poor provision of services and unlivable environments that do not live up to the citizens, and therefore owning a housing unit means stability for them. with a mean of 3.6 and a standard deviation of 1.4, which was confirmed by the T-test that there was statistical significance in the responses of the respondents. The question came in second place, which means that it has priority compared to other questions.

Question No. (4) (about community participation and the extent to which it achieves well-being, according to the respondents' opinions). About 60% agreed with this, with a mean of 2.5 and a standard deviation of 1.7. This was confirmed by the T-test that there was statistical significance in the responses of the respondents. The question came in third place compared to the other questions.

Table 6. SWOT analysis for smart sustainable city

Threat	Opportunities	Weakness	Strength
External Environment		Weakness Strength	
Cost: The high cost of smart and sustainable systems. **Investment environment:** The environment is repulsive to investors resulting from weak political stability and guarantee of rights. **Privacy issues:** Data security concerns for citizens and government departments.	**Public- Private Sector:** Private sector engagement with the public sector facilitates the implementation of smart and sustainable applications for cities. **Training centers:** The possibility of establishing training and innovation centers. **Tourist attraction:** The tourist attraction of tourist cities, especially religious tourism, encourages the implementation of smart solutions and investment	**Weak financial allocations:** Weak infrastructure services in general and the presence of many slum areas. **Awareness:** The presence of sufficient expertise, awareness, and insufficient education hinders the adoption of sustainable and smart technologies in the city. **Culture and community acceptance:** The society's culture accepts smart systems and their confidence in the security of their information	**Urbanization:** Rapid population growth encourages the use of smart and sustainable technologies to manage this growth. **Government role:** There is a high governmental readiness on the part of the country to adopt sustainable smart city technologies. Sustainability goals **Sustainability goals:** There is respect for the commitment to achieving SDGs, and annual reports on the annual progress of those goals are issued by the Ministry of Planning.

Table 7. Factor of success and the operation

	Factors of Success / Operations	Adequate Financial Allocations	Participation of Citizens	Implementing Intelligent Infrastructure	Adopting Renewable Energy	Multi-Partnership Cooperation	Work Experience in Systems and Information	Average	Priority
1	Planning aspects	3	3	4	5	3	3	3.5	2
2	Technology aspects	4	2	4	4	2	4	3.3	3
3	Community aspects	3	2	3	3	1	3	2.5	4
4	Governmental aspect	5	4	4	4	3	4	4	1
	Average	3.8	2.8	3.8	4	2.3	3.5		
	Priority	2	4	2	1	5	3		

Question No. (2) about the social relations of residents and their relationship to social well-being. Respondents agreed by 56% on the importance of achieving it in cities, with an arithmetic mean equal to 3.4 and a standard deviation of 1.6. This was confirmed by the T-test that there is statistical significance in the responses of the respondents. The question came in fourth place among the questions surveyed. Neutrality is the direction of the researched sample.

Question No. (6) about the presence of recreational areas suitable for all groups of society (the elderly - children - women - youth). The respondents agreed by 54% with an arithmetic mean of 3 and a standard deviation of 1.3. This was confirmed by the T-test that there is statistical significance in the responses of the respondents, but the question came in fifth place among the surveyed questions, which means the preference and importance of the previous questions for the surveyed questions.

Question No. (3), which represents the social relations of the residents by 48%, with an arithmetic mean equal to 3 and a standard deviation of 1.1, which was confirmed by the T-test that there is statistical significance in the responses of the respondents. The question came in last place, and this is what shows the residents' orientations. Their aspirations and immediate desires revolve around providing Material services that are more important to them than having social relationships, see Figure 3 represents the results of the questionnaire.

5.1 Strategic analysis of smart and SC

To analyze the reality of the city of Baghdad and its strengths, weaknesses, opportunities, and threats to its transformation into a smart and sustainable city, researchers resorted to the strategic analysis represented by Table 6.

Through the previous analysis, the authors identified the factors for the success of the transition to a smart, sustainable city and the most important processes affecting this- factors of success include (Adequate financial allocations, Participation of Citizens, implementing intelligent infrastructure, adopting renewable energy, Multi-Partnership Cooperation, Work experience in systems and information technology) Versus implementation processes leading to success It relates to (Planning, Technology, Community, Governmental aspects) Weights were set with the participation and consultation of specialists on each of the factors under study to derive priorities, see Table 7.

By using the success factor matrix, we can get the conclusion that each of the elements listed below contributes

significantly to the success of the government's most crucial operations and aspects (Adopting renewable energy - Implementing intelligent infrastructure - Adequate financial allocations - Work experience in systems and information technology).

5.2 Analyzing and measuring the performance gap

In planning studies and sustainability issues, the concept of the performance gap is used, which is derived from strategic management and performance evaluation to measure the current situation with the assumed. It is a measuring tool between realistic performance indicators and ideal standards for sustainable smart cities. As for the concept of success factors, the cognitive roots of the concept of success factors appear in the literature of urban governance and strategic management.

The success factors for transforming the city of Baghdad into a smart, sustainable city will be determined according to the priority extracted from the matrix of success factors related to planning aspects.

An optimal state is defined as a state which matches the prerequisites and aspirations that the city has of the future for developing towards a smart and sustainable urban environment when the present success factors are compared with the ideal scenario. The formula gives an idea of each gap for each component by taking the difference from its current state value to the value of its ideal state, multiplying this by its level of significance and dividing the outcome by ten as follows.

$$Baghdad = \frac{\sum_{i=1}^{n}(\text{Ideal}_i - \text{Actual}_i) \times \text{Weight}_i}{10} \quad (1)$$

The best case (Ideal) in the above equation for the success factors is the evaluation scores resulting from the intersection between the success factors and processes in the success factors matrix for the most important processes represented by the government dimension. That is, the scores for the row that represents the priority for the processes are the best for the success factors.

$$Baghdad = \frac{(4-1)*4 + (2-1)*3 + (2-2)*3 + (3-3)*2}{10} = 1.5 \quad (2)$$

The (actual) situation in the above equation represents what

weight between ideal and actual.

Table 8. GAP weight between Ideal and Actual

Factors	Priority Level	Ideal		Actual		Gap	G-Representing
		Evaluation Score	The Weight	Evaluation Score	The Weight		
Adopting Renewable Energy	4	4	4	1	6	1.2	
Implementing Intelligent Infrastructure	3	2	6	1	3	0.3	
Adequate Financial Allocations	3	2	6	2	6	0	
Work Experience in Systems and Information technology	2	3	6	3	6	0	

Table 9. Multiple analysis model

	An Assessment of the Internal Environment	
Evaluation of Internal Performance / Evaluation of External Performance	**S**	**W**
	Urbanization: Rapid population growth encourages the use of smart and sustainable technologies to manage this growth. **Government role:** There is a high governmental readiness on the part of the country to adopt sustainable smart city technologies. **Sustainability goals:** Sustainability goals: There is respect for the commitment to achieving SDGs, and annual reports on the annual progress of those goals are issued by the Ministry of Planning.	**Weak financial allocations:** Weak infrastructure services in general and the presence of many slum areas. **Awareness:** The presence of sufficient expertise, awareness, and insufficient education hinders the adoption of sustainable and smart technologies in the city. **Culture and community acceptance:** The society's culture accepts smart systems and their confidence in the security of their information.
O — **Public- Private Sector:** Private sector engagement with the public sector facilitates the implementation of smart and sustainable applications for cities **Training centers:** The possibility of establishing training and innovation centers **Tourist attraction:** The tourist attraction of tourist cities, especially religious tourism, encourages the implementation of smart solutions and investment	(S-O) - Private sector participation in smart infrastructure, such as the use of sustainable energy - Creating self-motivated and independent activities carried out by active citizens to achieve everything A development characterized by permanence and continuity. - Apply wise management methods and encourage their adoption to preserve natural resources, with - Working to develop the tourism sector sustainably.	(W-O) - Recycling waste with the least possible environmental impacts - Providing sufficient financial allocations to embrace industrial and technological change and focus on the tourism aspect of this - Making lifelong learning available to all with a commitment to implementing it, to maintain free access to information while bridging the digital divide, while also working to confirm and encourage social integration
T — **Cost:** The high cost of smart and sustainable systems **Investment environment:** The environment is repulsive to investors resulting from weak political stability and guarantee of rights. **Privacy Issues:** Data security concerns for citizens and government departments.	(S-T) - Planning to develop a strategy that helps transition to the principles of sustainability - The necessary legislative and legal amendments that are required to be made to develop proposals to change current policies - Constantly striving to raise the level of quality of life by enhancing the pace of achievement and investing in human and social capital	(W-T) - Change the prevailing political systems by making them compatible with the reality of the city and in economic tools and governance -Working to encourage and enhance investment in all traditional infrastructure, especially in the field of transportation, as well as accelerating the pace of investment in modern infrastructure, so that we can achieve sustainable economic growth

5.3 Multiple analysis model

The dual model for the external-internal environment analysis is shown in the Table 9. As per the strategic analysis process, the study was able to ascertain Baghdad City's situation in the strategic analysis matrix concerning its transformation into a sustainable smart city and provide suitable strategies for it based on the identification and analysis of the strategic gap.

6. DISCUSSION

While this study discusses that adequate income and job opportunities are two factors that have the greatest impact on social welfare, and this does not contradict classical welfare economics, if we look at this in the case of smart cities, we find that these factors are not isolated, but rather are enhanced by the sustainable design of smart cities and their performance of services that are related to functions such as the smart

transportation system, digital governance, or infrastructure that depends on digital networks, and may have a great impact on employment such as remote work, e-commerce, and e-services. When the efficiency of smart transportation increases, this will reduce its environmental impacts, travel time, and costs, which improves income. This indicates that the path of these economic indicators may not necessarily be in its financial form, but rather is formed during the planning and organization of the urban environment and its orientation towards intelligence and sustainability through design.

7. CONCLUSIONS AND RECOMMENDATIONS

1. There is a positive correlation between indicators of sustainable smart cities and indicators of social well-being.

2. The value of R^2 (0.78) in Table 4 means that the indicators were extracted and able to interpret (78%) of the sustainable smart city and its relation with social well-being, while This shows that there are indicators that were not studied, representing 22%.

3. The performance gap was measured at 1.5 out of a scale of 5 between the current reality and the ideal. This means the need for great and intense efforts to transform the city of Baghdad into a sustainable city that relies on intelligence in managing its services.

4. Adopting the strategies stated in the multiple analysis model and under the priorities determined by the competent authorities.

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