The Role of Smart Libraries in Achieving Sustainable Development

Muna Hazim Yahya

Information Technology Management, Technical College of Management-Baghdad, Middle Technical University, Baghdad, Iraq

mhy@mtu.edu.iq

Abstract: The study aimed to determine the impact of smart libraries on achieving sustainable development. A descriptive-analytical approach was used, and a questionnaire was distributed to a study sample consist of 54 smart library employees in Iraq to collect data. The study reached a number of important findings, including that smart libraries are the primary driver of sustainable development economically, socially, and culturally, as well as providing access to information and communications technology and employing employees who help teach new digital skills. One of the most important recommendations is the need to unify an affiliated body for smart libraries. This body should be responsible for funding and developing libraries, training their staff, and developing a written policy for building and growing collections that ensures coverage of all interests and meets the requirements and needs of the local community.

Keywords: Sustainable development– Smart libraries – Information technology & Libraries. - Green libraries.

I. INTRODUCTION

The use of computers, automated systems, and information networks, especially the Internet, has led to the transfer of libraries from traditional methods to electronic methods in their procedures and the provision of their services. This has now extended to the application of smart technologies linked to our daily lives, such as the Internet of Things and artificial intelligence, which transform libraries into smart libraries. These libraries are known as centers for information and services directly linked to modern technologies and are in remarkable development. .

Sustainable development in this era is a cultural issue as well as a political, economic and social issue. Cultural institutions, especially libraries, are among the most important mechanisms for developing sustainable development, as they provide open services to all students and researchers. The field of libraries and information is also one of the pillars and requirements of sustainable development, as the right to access education and reading is a human right and is known to contribute to supporting sustainable development. .

II. STUDY PROBLEM

Sustainable development remains a multidimensional political, economic, social and cultural issue. Therefore, by defining sustainable development through the document provided by the Federation of Library Associations and Institutions (Declaration on Libraries and Sustainable Development), sustainable development faces many social, cultural and environmental challenges. The role of smart libraries as a model for environmentally oriented actors and

communities, institutions and information equipment can be seen as a process that aims to satisfy present-day demands without sacrificing the potential of future generations.

Based on this, we want to know the role that smart libraries play in activating and enhancing sustainable development. From this standpoint, the following question arises.

III. WHAT ROLE DO IRAQI SMART LIBRARIES PLAY IN PURSUIT OF SUSTAINABLE DEVELOPMENT?

To address the primary issue, the subsequent sub-questions were formulated.

➢ What is the level of application of Iraqi smart library technologies?

➢ What is the role of applying smart library technologies and achieving sustainable development?

➢ Is there a correlation between the application of smart library technologies and their relationship to achieving sustainable development?

IV. STUDY OBJECTIVES

The study seeks to elucidate the efficacy of smart libraries in fostering sustainable development in Iraq and to identify the diverse methods that empower the libraries and information sector to operate in a sound, adaptable, and sustainable manner within information societies..

V. SIGNIFICANCE OF THE STUDY

The significance of the study is apparent due to the originality of the subject it explores, focusing on smart libraries and their role in promoting sustainable development in Iraq., and the fact that this topic is one of the contemporary concepts that have emerged at the international level in interpreting development thought, and the fact that smart libraries, on the one hand, are among the most important cultural institutions that serve society and work for its development, and on the other hand, the importance of increasing opportunities for obtaining information in a fair and sustainable manner towards implementing the goals of sustainable development. Therefore, the importance of the study appears in revealing the pioneering role of smart libraries in society and is distinguished by being a new addition that benefits researchers and workers in smart libraries by shedding light on their pioneering roles in Iraqi society to implement sustainable development.

VI. STUDY TERMS

1) Role the mutual relationships between parts of a phenomenon or between a specific group of phenomena.

2) Smart libraries A new type of libraries that use devices, services and the Internet in a way that changes the interaction between the library and its users and leads to improving services, taking into account the needs of users who greatly influence the development of a smart culture in libraries, and the smart infrastructure based on the organization of library-based work.

3) Sustainable development refers to progress that satisfies current demands without jeopardizing the capacity of future generations to fulfil their own requirements, emphasizing involvement and equity among all individuals throughout generations to create a sustainable future.

VII. THEORETICAL FRAMEWORK OF THE STUDY

The first topic smart libraries

The library is a highly regarded institution in society, contributing significantly to its communities through its various services and assets, and strongly influencing the development processes of individuals and society as a whole.

A. Smart Library Definitions

Smart libraries are advanced libraries in which technology manages the library using the Internet for management systems, collections, services, and smart buildings, making them accessible to library users without the need for library staff (Abdul Zahra, 2019, p. 15).

Smart libraries are the next generation concept of libraries that use advanced information and communication technologies to deliver information services. Smart libraries are equipped with new technologies to satisfy the information needs of local citizens and the society at large. Smart services are provided by developing knowledge convergence centers to meet various information requirements (Tripathi, Singh, Tripathi, 2016)

(Muslih and Hilal, 2021, p. 32) described the smart library as a combination of smart technology, particularly sensory technology, continuous education for librarians, interest in library users, and enabling the ability to self-adapt, to meet the different needs of users. The smart library is defined as a comprehensive approach to providing customized and multifaceted library services.

(Hamza and Raouf, 2019, p. 13) define the smart library as being always open to users, allowing employees to remotely control equipment, lighting, and automatic doors, in addition to controlling services for beneficiaries, and extending working hours after official working hours and at times appropriate for the beneficiary. It was defined as technology.

Smart libraries are Procedurally delineated as an innovative framework for intelligent services and library administration, this model facilitates interactive engagement between users and the library system by delivering essential resources and services to fulfil user requirements through the utilization of information technology and artificial intelligence systems..

B. The smart library's dimensions

1) Intelligent services The primary dimension involves implementing the "spirit of innovation" to create contemporary services in smart cities, subsequently introducing smart services as innovations including radio frequency identification, wireless navigation, unrestricted access, remote assistance, semantic web, artificial intelligence, Internet of Things, machine translation, speech and image recognition, natural language processing, and augmented reality. (Xiao, 2022, p. 12)

2) Intelligent individual's intelligent libraries are tailored for discerning individuals, with services prioritizing the user experience. It is predicated on the premise that intelligent library users are proactive creators of knowledge rather than mere consumers of information. (Desfarges, 2017, p.56)

3) Intelligent Location This component can be characterised as a "smart environment" and involves environmental monitoring. It encompasses two facets; the first pertains to the environment, akin to the notion of a green library, and encompasses adherence to sustainable construction categorisation standards, waste management, aesthetic natural conditions, minimal pollution, and sustainable resource management. The other aspect is environmental performance and management, which encompasses smart living in relation to buildings and facilities, monitoring and controlling structures, overseeing electrical equipment, ensuring personal safety, and promoting environmental health. Collectively, these elements signify the contribution of libraries to sustainable development and biodiversity.

4) Intelligent Governance The final facet of the intelligent library is the institutional and political dimension. It encompasses all the attributes of the library that align with the principles of smart governance. Smart governance refers to a community that recognises the potential of information technology to enhance libraries, thereby reintegrating them into a new institutional environment. Preparation and communal governance are vital for the success of intelligent urban communities. (Nam, Pardo, 2011).

C. Advantages of smart libraries

Many studies, research, and articles on the topic of smart libraries have stated that these libraries have several advantages, as follows (Dayawate, 2021, p. 25-26)

1) Capacity of Storage Conventional libraries have a limited amount of space, manual labour, storage capacity, and services. These restrictions do not apply to smart libraries, which have the capacity to hold vast amounts of digital or electronic information.

2) Reduction of expenses Conventional libraries have to invest a lot of money on staff, keeping a large collection of books, purchasing materials, etc., as well as purchasing several copies of the same book. On the other hand, a smart library does not need to buy several copies of books or invest a lot of money in book maintenance.

3) Absence of physical limits unlike traditional libraries, which are housed in distinct buildings, smart library users do not need to physically visit the library. Users can access books and other necessary information without physically visiting the library. Information on smart libraries can be accessed through an internet connection.

4) Conserve time since there is no need to attend the library, this library can save the beneficiaries' time by allowing them to access the smart library information whenever and wherever they choose.

5) Information Exchange when two or more libraries share information resources, it's known as resource sharing (modern library services). Because to information and communication technologies, there has been an explosion of information in our century. We now share information resources due to the quick expansion of information and the creation of new informational methods. A library cannot guarantee that all resources and information will always be available. To share online resources like databases, e-journals, non-paper books, etc., clusters and networks have been established. On the other hand, a typical library is unable to share information with other libraries. A library can acquire the necessary information by enlisting the assistance of another library that possesses it.

6) Remote Access It is now possible to access library information remotely. Smart library customers can obtain necessary information from anywhere, such as their home or workplace, at any time by connecting to the internet via their electronic or smart devices. There is a set time and natural boundaries. Users can access electronic materials and audiovisual information using their own devices.

D. Smart Library Services

Smart libraries provide many services, including the following (Diab, 2023, p. 23)

➢ Marketing libraries and promotion of services, news groups / newsletter services.

➢ Discussion forums, and the main web page.

➢ Electronic advertising services.

➢ We get feedback by contacting the library

➢ Information services and electronic resources

➢ Services that deliver documents electronically.

➢ Open access publishing and metadata framework.

➢ Selective electronic information broadcasting services.

➢ Electronic newsletters, and linking to various databases.

E. The types of smart library services are summarized as follows (Hindi, 2023, pp. 382-386)

1) Automated messaging service, chat bot.

2) Semantic machine translation to overcome language barriers that spread intellectual production

3) Smart information search service, including unified search, matching search, and voice search

4) Android applications (mobile applications) to communicate between beneficiaries

5) Geographic information systems are the use of geographic maps to reach places and determine distances

6) Using Google's smart applications to keep pace with the development of artificial intelligence technologies

7) Augmented reality and virtual reality services that project virtual objects and information into the real environment to provide additional information about them

8) QR code app is a quick response code reader.

9) Information encryption and security service

10) Collaborative content service

Section Two Sustainable Development

Today, sustainable development has become one of the issues that has witnessed wide and remarkable interest at the international level, as it has become an inevitable trend, especially after the United Nations declared sustainable development for the year 2030. Smart libraries are among the institutions that work to achieve the goals of sustainable development, to highlight their role as effective institutions. .

A. Definitions of sustainable development

Sustainable development have been mentioned, and they are discussed Many concepts and definitions of as follows

Definition of development that enables us to benefit from the available environmental resources without causing an imbalance in the ecosystem and its biological balance and without infringing on the entitlements of subsequent generations to these resources. We can only achieve this benefit by developing awareness of environmental problems and improving sustainable and environmentally friendly practices, in order to improve the standard of living in the present and the future (Al-Najjar, 2019, p. 57).

Sustainable development is sustainable and sustainable development in which the use of natural resources is sustainable, and it can occur through strategies in which environmental balance is an important focus (Khalidiya, 2018, p. 169).

Among the definitions is that it is "the idea that human societies have a duty to live while meeting their needs without sacrificing or risking the capacity to provide for the requirements of future generations. According to this official definition, sustainable development first emerged in the (Burntland) Report in 1987, this report which is a summary presented by the first International Commission on Environmental Protection and Development by the United Nations Assembly, and therefore the term sustainable development is a term of the United Nations that aims to develop the natural and human resources of the Earth and improve economic and social interaction with them, while ensuring that subsequent generations can also satisfy their own basic requirements (Hussein, 2022, pp. 396-397)

B. The different dimensions of sustainable development

There are multiple dimensions of sustainable development that can be included as follows

1) Urban dimension in this aspect, the highest priority is given to the following

➢ Improving the environmental and social conditions of urban areas by rehabilitating cities through environmental development strategies.

➢ b- Planning and designing new settlements in line with the principle of resource-conserving cities.

➢ Reducing rural-to-urban migration by generating new employment possibilities.

➢ Designing and implementing environmental development strategies with the help of human resources to achieve effective participation. These aspects have crystallized a positive vision for the sustainability of human settlements and the creation of sustainable urban centers based on the principle of participation, aiming to guide urban policies, achieve sustainable economic growth, alleviate poverty and improve the urban environment of cities.

2) The financial aspect Sustainable development can only be realised through the endorsement of a self-assessment policy and an economic system that eschews externally imposed development models that are incongruent with the community's cultural identity. A crucial prerequisite for achieving sustainable development and the efficacy of economic strategy is community participation in development-related decision-making.

3) Environmental dimension the principles of (sustainable development) are preserving the environment, without disturbing the environmental balance, and dealing fairly and properly. The concerns of (sustainable development) are in the emerging relationship between the dynamic human economic systems on the one hand, and the environmental system on the other hand, as the environmental system represents a dynamic system that changes at low rates, and in it life and human activity continue to flourish, and the resulting negative effects of this human activity so that the environmental system has the ability to absorb them, and reduce the negative effects on the capital of individuals in general.

4) Social dimension the social dimensions of sustainable development target the following

➢ Building local capacities by enhancing human resources, improving the education system at all levels, and transferring and sharing knowledge.

➢ Combating poverty, supporting civil organizations and the independence of the media.

➢ Improving the quality of life for the community's residents (Dozier, 2001, pp. 81-82)

C. Goals for Sustainable Development

1) Examining the accomplishments of the Millennium Development Goals in the domains of education, health, agriculture, and the environment.

2) Efforts to mitigate disaster risks at local, regional, and national levels.

3) Empowering libraries to fulfil their function in sustainable development, either by harnessing the boundless capabilities of information technology or through the inherent character of their jobs, activities, and services. (Abdullah, 2017, p. 13).

D. Information technology's role in sustainable development

One of the features of this era is that technology determines competitive traits, and information technology can play an essential part in sustainable development. This is owing to the fact that the endless possibilities afforded by information technology can be used to create sustainable economic, social and environmental development as follows

1) Promoting research and development initiatives to progress innovative materials technology and information and communication technology, while establishing sustainable processes.

2) Improving private enterprises through technology-based inputs and developing new institutional models, including technology cities.

3) Strengthening capacity building in the field of science, technology and innovation, with the aim of creating a knowledge-intensive economy. This is of particular importance because

capacity building is the only way to enhance competitiveness, increase economic growth, create new job opportunities and reduce poverty (Abdullah, 2017, 14).

E. The role of libraries in supporting and promoting sustainable development goals

This is clearly demonstrated by the IFLA Declaration on Libraries and Sustainable Development, one of whose articles highlights the role of libraries in promoting sustainable development by ensuring and guaranteeing free access to information. Access to information is a cross-cutting issue that supports all sustainable development goals, as the IFLA Declaration defines the relationship between these actors and public libraries and emphasizes that public libraries are an effective mechanism for implementing sustainable development programs and that they are the only place to do so (Mansell, 2020, p. 69).

Based on this and what smart libraries can offer in terms of tasks and roles to enhance sustainable development, these information institutions were placed as partners in achieving sustainable development, through the International Federation to determine the role of libraries within the United Nations goals, which came as follows

➢ Ensuring quality comprehensive education for all segments of society and promoting lifelong learning opportunities.

➢ Create a resilient infrastructure, promote sustainable manufacturing and encourage innovation.

➢ Making cities inclusive, safe and sustainable.

➢ Building healthy societies and establishing the concept of justice includes all categories of individuals (Ghazal, 2022, p. 37).

Providing smart libraries contributes to achieving sustainable development through the following

➢ Spreading literacy knowledge worldwide, digital literacy, media, cognitive literacy.

➢ Correcting perceptions in providing assisting government, public society, and the business sector in comprehending information requirements.

➢ Providing a network to create websites for government programs and services.

➢ Developing digital inclusion by means of the provision of information and communications technology.

➢ Libraries are now at the center of the academic and research community, as well as the preservation and accessibility of global culture and legacy. (Ben Jameel and Shabounieh, 2021, p. 70).

VIII. PREVIOUS STUDIES

The study variables were addressed as follows

A. Study (Al-Jassem, 2020)

The study aimed to reveal how to achieve sustainable development, and also aimed to provide the necessary information to achieve the goals of sustainable development. The study used the descriptive method, the survey method, and the statistical method. The study community consisted of the library of the Center for Urban and Regional Planning for Postgraduate Studies at the University of Baghdad / Al-Jadriya, Iraq. The results of the study indicated the following

1) The role of libraries in promoting sustainable development goals.

2) Some scientific and specialized libraries lack publications that introduce sustainable development and its future goals.

B. Study (Al-Maftum, 2020)

Sustainable development has become an important issue that receives attention from cultural institutions, especially university libraries, which are considered among the most important cultural entities working to develop sustainable development due to their open services to all students, researchers and faculty members, as the right to access information is a human right that contributes to supporting sustainable development. The study aimed to identify the role of university libraries in achieving sustainable development, and the study used the content analysis method. The results of the study indicated the following

1) Libraries play a fundamental role in providing information and services necessary for sustainable development.

2) Libraries are the main driver of sustainable development economically, socially and culturally.

3) Sustainable development in the field of libraries contributes to various components of sustainable development.

4) The relationship between sustainable development in the field of libraries and the various components of sustainable development..

C. Study (Muhammad, 2020)

The study aimed to describe and analyze the efforts, activities and services provided by Mansoura University Libraries, as a model for Egyptian public universities, in order to achieve the seventeen goals of sustainable development of the United Nations 2030 and Egypt's Vision 2030, and then come up with a proposed vision that enhances the role of these libraries in achieving the goals of sustainable development. The survey method was adopted, and the questionnaire and the standardized interview were used as tools for collecting data. The study reached many results, including that 53.8% of the respondents indicated that Mansoura University Libraries contribute to achieving the goals of sustainable development 2030. It also concluded that Mansoura University Libraries contribute to achieving more than one goal of the United Nations 2030 Sustainable Development Goals. It also helps in achieving Egypt's Vision 2030, in its various dimensions. The respondents also acknowledged that Mansoura University Libraries suffer from several problems, the most important of which are the shortage of qualified workers, material problems and budget shortages, and other problems. .

D. Study (Murad and Rabeh, 2022)

The study aimed to highlight the role of modern technologies such as artificial intelligence and the Internet of Things in libraries with the aim of shifting towards smart libraries, given the huge increase and flow of information we are experiencing, with the aim of providing services to beneficiaries with high quality and great professionalism and contributing to the advancement of library services as well as the methods of providing them. The study used the descriptive approach, and the study community consisted of employees of the Central Library of Ibn Khaldoun University.

The results indicated the following

1) Libraries are working to introduce modern technologies such as artificial intelligence and the Internet of Things in order to keep pace with the technological development taking place.

2) The Central Library provides decent electronic services with the massive spread of information and communication technology, but they do not rise to the level of modern, advanced technologies.

3) Material and human resources are a major reason for the ability of Algerian university libraries to keep pace with technological development and reach smart libraries..

E. Study method

The researcher used the descriptive analytical approach based on describing the problem, collecting data about it, classifying it, analyzing it, linking its implications, and expressing it to reach conclusions and generalizations that contribute to understanding and interpreting its dimensions; to develop the reality studied.

F. Study community and sample

The current study community consisted of a sample of smart library employees in the State of Iraq, numbering (70) male and female employees distributed across Iraqi smart libraries. The study sample was selected randomly and numbered (54) male and female employees.

G. Study tool

After reviewing In order to gather information for earlier research on smart libraries and sustainable development in libraries, the researcher created a questionnaire. There were two sections in the questionnaire.

The first section demographic data such as (work experience, educational level, job position), and the second section included two dimensions, the first is the application of Iraqi smart library technologies and consists of (19) paragraphs, and the second dimension is the role of smart libraries in achieving sustainable development and consists of (7), and each paragraph is answered through the five-point Likert scale (strongly agree - agree - do not know - disagree - strongly disagree).

H. Tool validity

The dimensions and paragraphs of the questionnaire were presented to arbitrators from the faculty members of Information Technology. In light of the arbitration results, the initial version of the questionnaire was reviewed, and then modifications were made to some paragraphs in terms of the accuracy, clarity, and correctness of the wording of the paragraphs; so that none of them had more than one meaning, and were appropriate for the purpose for which they were prepared. Then modifications were made based on the feedback that was provided to us.

I. Tool stability

After the arbitration process, the questionnaire was distributed to a survey sample other than the study sample, and their number was (30) employees. The reliability coefficient was calculated using Cronbach's alpha coefficient, and the value of the total reliability coefficient was (0.923). This value is reassuring and statistically significant at the confidence level (0.01), which made the tool scientifically valid for application to the study sample.

J. Statistical methods

Descriptive and analytical statistics methods were used to answer the study questions. For this purpose, the researcher entered the extracted data into the computer to conduct statistical processing using the SPSS program. The following statistical methods were used

➢ Cronbach's alpha equation to calculate the reliability coefficient of the study tool.

➢ Arithmetic means and standard deviations to answer the first question (What is the reality of applying smart library technologies?) and the second question (What is the relationship between smart technologies and achieving sustainable development).

Pearson correlation coefficient to determine the relationship between study variables

IX. STUDY RESULTS AND DISCUSSION

What is the reality of applying smart library technologies?

To answer this question, the arithmetic means and standard deviations of the first dimension consisting of (19) paragraphs of the questionnaire were extracted, and Table (I) shows this

TABLE I. FIRST QUESTION RESULTS

C	Phrase	The arithmetic mean	Standard deviation	Relative importance index	Level	Arrang-ement
9	The Iraqi Smart Library provides a service to locate a book on the shelf using a phone.	4.55	0.723	0.978	too high	1
3	Smart libraries provide a flexible way to access library content	4.52	0.823	0.968	too high	2
19	Smart Library Application Enterprise Architecture Practices.	4.48	0.732	0.952	too high	3
8	Smart libraries are keen to provide research data search services	4.47	0.789	0.959	too high	4
4	The Iraqi Smart Library building was built according to green building specifications	4.46	0.819	0.978	too high	5
2	Iraqi smart libraries analyze big data to make decisions	4.45	0.782	0.977	too high	6
12	Smart user in smart library shares knowledge	4.44	0.779	0.951	too high	7
14	The Smart Library is keen to provide innovative and creative librarians	4.41	0.718	0.956	too high	8
17	The smart library is managed based on collective intelligence	4.39	0.823	0.936	too high	9
11	The digital smart library provides training for the smart user	4.37	0.754	0.940	too high	10
7	The Iraqi Smart Library provides tools for knowledge	4.33	0.879	0.933	too high	11
13	The Smart Library is keen to provide training for smart librarians to keep pace with developments	4.27	0.816	0.923	too high	12
6	The Iraqi Smart Library is keen to implement social responsibility.	4.25	0.900	0.923	too high	13
10	The Smart Library is keen to provide the geographic location service	4.25	0.818	0.934	too high	14
1	Iraqi smart libraries are	4.23	0.817	0.961	too	15

No.	Phrase	The arithmetic mean	Standard deviation	Relative importance index	Level	Arrangement
	keen to provide smart technologies				high	
16	The Smart Library is keen to clarify the library's vision for the future.	4.22	0.723	0.932	too high	16
18	Smart Library identifies funding sources for new digitization projects	4.19	0.813	0.910	too high	17
15	The Smart Library clearly demonstrates the vision for the digital transformation of the library	4.18	0.834	0.912	too high	18
5	The Iraqi smart libraries building is equipped with automated systems and sensors.	4.17	0.901	0.905	too high	19
Total score		4.59	0.813	0.978	too high	

Table No. (I) shows the opinions of the study sample on the first question, which is the reality of applying smart library technologies. By analyzing the sample's answers, we notice that all statements have an arithmetic mean higher than (3), which means that there is a trend and agreement by all study categories indicating their agreement that smart library employees apply its technologies to a degree higher than average, as we notice that statement No. (9) obtained the highest mean, which is (4.55), which indicates that the Iraqi smart library provides a service to locate the book on the shelf using the phone , while we find that statement No. (5) Obtained the lowest mean, which is (4.17), which indicates that the Iraqi smart library building is equipped with automated systems and sensors.

What is the role of smart library technologies in achieving sustainable development?

To answer this question, the arithmetic means and standard deviations were extracted for the second question consisting of (7) paragraphs in the questionnaire, and Table (II) shows this

TABLE II. SECOND QUESTION RESULTS

No.	Phrase	The arithmetic mean	Standard deviation	Relative importance index	Level	Arrangement
7	Smart libraries act as engines for stimulating science, technology and innovation	4.82	0.563	0.988	too high	1
6	Smart libraries are concerned with addressing climate change	4.71	0.634	0.976	too high	2
5	Smart libraries care about preserving the environment and natural resources	4.66	0.654	0.966	too high	3
3	Smart libraries are interested in spreading the idea of democracy	4.48	0.754	0.956	too high	4

	and human rights.					
2	mart libraries are concerned with enhancing healthcare	4.44	0.763	0.952	too high	5
1	Smart Libraries strive to ensure quality, equitable and inclusive education for all.	4.36	0.812	0.932	too high	6
4	Smart libraries are keen to protect national culture.	4.35	0.687	0.938	too high	7
	Total score	4.76	0.532	0.988	too high	

Table No. (II) Shows the opinions of the study sample on the second question, which is the role of smart library technologies in achieving sustainable development. By analyzing the sample's answers, we notice that all statements have an arithmetic mean higher than (3), which means that there is a trend and agreement by all study categories indicating their agreement that the application of smart library technologies achieves sustainable development, as we notice that statement No. (7) Obtained the highest mean, which is (4.82), which indicates that smart libraries work as engines to stimulate science, technology and innovation. As engines to stimulate science, technology and innovation, while we find that statement No. (4) Obtained the lowest mean, which is (4.35), which indicates that smart libraries are keen to protect the national culture

Is there a statistical relationship at the statistical significance level (0.01) between smart library technologies and their relationship to sustainable development?

To verify this, Pearson's correlation coefficients were calculated between smart library technologies and their relationship to achieving sustainable development. The data were analyzed using Pearson's correlation coefficient, as shown in Table (III)

TABLE III. RESULTS OF PEARSON'S CORRELATION COEFFICIENT TEST IN APPLYING SMART LIBRARY TECHNOLOGIES AND ACHIEVING SUSTAINABLE DEVELOPMENT

The axis	Correlation coefficient
The reality of applying smart library technologies.	0.823
The relationship between the application of smart library technologies and achieving sustainable development	0.839

The correlation values were statistically significant and expressed a strong positive relationship. This can be interpreted as meaning that the smarter library technologies are applied, the more sustainable development goals will be achieved in Iraqi society.

X. THE RESULTS INDICATED THE FOLLOWING

1. Smart libraries play an important role in providing information and services necessary for sustainable development.

2. Smart libraries are the main driver of sustainable development economically, socially and culturally.

3. The relationship between sustainable development in the field of smart libraries and the various components of sustainable development.

4. Libraries contribute to better outcomes for the Sustainable Development Goals by promoting global literacy, including media literacy and information literacy.

5. There is a positive correlation between the application of smart library technologies and the achievement of sustainable development goals.

XI. RECOMMENDATIONS AFTER THIS PRESENTATION, THE STUDY RECOMMENDS THE FOLLOWING

1. The necessity of unifying a body affiliated with smart libraries, provided that this body is responsible for financing and developing libraries, training workers, and developing a written policy for building and developing collections that ensures covering all interests and satisfies the requirements and needs of the local community.

2. The necessity of working to increase the budget of smart libraries, in order to develop their performance and achieve their cultural, social, educational and environmental goals.

3. Taking into consideration the appointment of employees, the development of collections in smart libraries, and the efforts to implement the unified Arab standard for libraries issued by the Arab Federation for Libraries and Information 2013.

References

A. Arabic references

1. Ben Jameel, Ramisa and Shabounia, Omar (2021) Omar Requirements for Activating Libraries and Information Centers for Sustainable Development Goals, Vol. 3, No. 11, Bibliophilia Journal of Library and Information Studies, November 2021, p. 70.

2. Al-Jassem, Suad Muhammad (2020) The Role of Libraries in Promoting Sustainable Development Goals Library of the Center for Urban and Regional Planning for Graduate Studies, Ramah Journal of Research and Studies, Center for Research and Human Resources Development, Ramah, Issue 41, pp. 161-177.

3. Hussein, Ahmed (2022) The role of law in achieving sustainable development goals, Journal of Law and Political Science, University of Khenchela, Vol. 9, No. 1, pp. 396-397 .

4. Hamza, Lajjal, and Raouf, Muwaffaq (2019) the trend towards smart libraries An orientalist study of future library systems, Bilophilia Journal of Library and Information Studies, Issue 02, pp. 166-178.

5. Khalidiya, Bin Awali (2018) Prospects and dimensions of sustainable development in light of the use of renewable energy for economic and financial studies, Vol. 2, No. 2, p. 169 .

6. Dozier, Bernard (2001) Keys to a New Strategy for Development, UNESCO Egyptian National Library, Cairo, p. 81.

7. Diab, Miftah Muhammad (2023) Smart Library Concept, Dimensions, Elements, and Technology, Arab International Journal of Information and Data Technology, Arab Knowledge Management Foundation, Vol. 3, No. 4, pp. 15-48 .

8. Hindi, Hindi Abdullah (2023). Smart Library and Information Services in International Academic Libraries (A Descriptive Study). Journal of Research in Library and Information Science. Cairo Faculty of Arts, Damietta University, pp. 382-386.

9. Abdul Zahra, Ahmed Majed (2019) The Internet of Things and its Role in Library Intelligence A Descriptive Study, Working Papers of the Twenty-Fifth Annual Conference of the Special Libraries Association, Arabian Gulf Branch, Internet of Things The Future of Interconnected Internet Communities, Abu Dhabi, Special Libraries Association, Arabian Gulf Branch and Department of Culture and Tourism, pp. 20-42.

10. Abdullah, Nawal Muhammad (2017) Arab libraries as a partner in achieving sustainable development Egyptian public libraries as a model, Cybernetics Magazine , Cairo, Issue 48, 2017, pp. 1-28 .

11. Ghazal, Adel (2019) Public Libraries and Promoting Sustainable Development 2030, a Survey Study of the Reality of Arab Countries, Bibliophilia Journal for Library and Information Studies, Vol. 1, No. 1, Algeria, p. 37.

12. Mohamed, Nadine (2020) University libraries and their role in achieving sustainable development Mansoura University libraries as a model - Master's thesis, Department of Libraries and Information - Faculty of Arts - Mansoura University .

13. Murad, Karkov and Rabah , Shakri (2022) "The Path Towards Smart Libraries A Prospective Study of the Future of Algerian University Libraries - The Central Library of Ibn Khaldoun University in Tiaret as a Model", Master's Thesis, Faculty of Humanities and Social Sciences, Ibn Khaldoun University, Tiaret, Algeria.

14. Musleh, Wissam; Hilal, Raouf (2021) A proposed model for a smart library A case study of the Abdulaziz Public Library in Riyadh, International Journal of Library and Information Science, Vol. 6, No. 1, 174-211.

15. Al-Muftum, Nadia Masoud Abu Al-Qasim (2020) The Role of University Libraries in Achieving Sustainable Development A Theoretical Study, Research in Ibis Com, Egypt, pp. 6-18 .

16. Mansel, Murad (2020) Public libraries and their contributions to promoting sustainable development goals according to the United Nations Agenda 2030, a field study of the main reading libraries in Algerian shopping, doctoral thesis, L.M.D., in Library and Information Science, Management and Administration of Libraries and Information Centers, Tebessa, University of Arab Tebessi, p. 69.

17. Al-Najjar, Fatima (2019) The effect of a training program in sustainable development practices on developing awareness of environmental problems and volunteer work skills for female students at Sattam bin Abdulaziz University, Journal of Educational and Psychological Sciences, Vol. 2, No. 3, pp. 52-78.

B. Foreign references

18. Dayawate, B. (2021) Features of smart library, library scholar. Vol.1, No.1.

19. Desfarges , P. (2017) The distributed library Creating together a territory of common knowledge. In Knowledge Commons and Libraries; Dujol, L., Ed. Electre—Editions du Cercle la Librairie Paris, France, p.171-183.

20. Nam, T.; Pardo,T.(2011) Conceptualizing smart city with dimensions of technology people and institutions. In Proceedings of the 12th Annual International Digital Government Research Conference Digital Government Innovation in Challenging Times, Park College, MD, USA, 12-15 June 2011.

21. Tripathi, S.; Singh,M.; Tripathi, A. (2016) Smart Library for Smart Cities. Journal of Information Management, Vol. 53, (6), p.439-446.

22. Xiao, N. (2022) The Construction Path of University Smart Library Based on Digital Twin, 2022nd International Conference on Consumer Electronics and Computer Engineering (ICCECE), Guangzhou, 2022,p.35-38.