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Arabian Gulf Chapter فرع الخليج العربي

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المؤتمر والمعرض السنوي لجمعية المكتبات المتخصصة
28
فرع الخليج العربي

"Towards the Sustainability of Knowledge and the Preservation of Culture and Heritage: Managing Rare Documents, Manuscripts, and Heritage Materials in the Era of Emerging Technologies and Artificial Intelligence"

The Abstracts

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Abstracts

اليوم الأول

First Day

الثلاثاء 16 سبتمبر 2025

Tuesday 16 September 2025

Table of Contents

Session 05	Digitization Tools for Arabic Manuscripts Supported by Artificial Intelligence Technologies: An Analytical Study	Prof. Nadia Saad Morsi, Dr. El-Saeed Ezzat Gomaa Khaled
Session 05	Applying Metaverse Technology in Managing the Cultural Museum at the Royal Commission for AlUla in Line with Saudi Vision 2030: A Proposed Model	Sumayah Ahmed Al-Shamiri, Shahad Mohammed Basheer Al-Suhaimi, Dr. Salma Salem Al-Baladi
Session 05	Awareness of Employees at the Saudi National Museum of Hologram Technology and Their Attitudes Towards Its Use According to the Technology Acceptance Model (TAM)	Noora bint Mohammed Al-Raysiah, Areej bint Otyan Al-Hazmi
Session 06	A Future Vision for the Role of AI Applications in Protecting and Managing Cultural Records at Al-Azhar Library	Dr. Emad El-Sayed Fahmy Shehata, Prof. Hania Gad Abdelghali
Session 06	Integration Between Library and Information Specialists and Interior Designers in Using Smart Technologies for Museum Collection Management: A Case Study of Alexandria Museums	Dr. Abdelrahman Ibrahim, Dr. Ghada Mahmoud El-Sayed
Session 06	The Future of Libraries and Learning Resource Centers in the Era of the Fourth Industrial Revolution: A Foresight Study with a Proposed Model	Mohammed bin Salim Al-Mahrouqi, Braik bin Hamood Al-Maamari
Session 06	Technological Solutions to Protect Digital Content Circulation: A Foresight Perspective on Digital Archive Management Policies in Arab Information Institutions	Prof. Qamouh Najia, Dr. Atiyah Badruddin, Prof. Badi Souham
Session 06	Open Science as a Supporting Tool for Heritage Preservation	Dr. Mai Ahmed Shamandi Yaseen
Session 07	The Role of Social Media Platforms in Preserving Digital Cultural Heritage: The 'X' Platform as a Model	Dr. Nariman Khaled Hambishi, Samiha Ahmed Moaini
Session 07	Readiness of Information and Document Systems Used in Records Departments for Knowledge Management in the Sultanate of Oman	Mohammed bin Mansour Al-Habsi, Dr. Suleiman bin Salih Al-Rashdi
Session 07	How to Employ Artificial Intelligence to Advance National Museums: A Future Perspective	Dr. Nahed Nasr El-Din Ezzat, Dr. Dina Mahmoud Sadiq
Session 07	Using Smart Technologies in Managing Museum Collections: The Museum of Oman Across Ages as a Model	Kholoud bint Salem Al-Abriya, Dr. Faten Fathi Mohamed Hamad, Abdullah bin Salim Al-Hinai, Safaa bint Ali Al-Hashmiya
Session 07	The Role of iBeacon Wireless Guide Technology in Enhancing Museum Collection Management at the Educational Archaeology Museum, Faculty of Arts - Alexandria University	Dr. Amani Zakaria Al-Ramadi, Dr. Mona Farouk Shahwan

Intellectual Property Protection and Heritage Preservation in the Age of Artificial Intelligence: Safeguarding the Past and Shaping the Future

Prof. Hisham Mahmoud Azmi

Abstract :

The session explores the interconnection between cultural heritage and intellectual property, highlighting mechanisms for protection in the face of challenges such as digital dissemination, piracy, and technological forgery. It also emphasizes the role of international organizations in safeguarding cultural identity. Furthermore, the lecture sheds light on the opportunities offered by emerging technologies and AI—ranging from manuscript restoration and 3D digitization to virtual museums and data-driven heritage management—underscoring that preserving the past is a cornerstone for building a sustainable and innovative future.

Utilizing Artificial Intelligence Technologies for the Sustainability of Children's Libraries:An Experimental Study on Storytelling Services

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Abstract :

The adoption of artificial intelligence (AI) technologies is accelerating across various fields, including library and information services. The problem addressed in this study stems from widespread concerns that AI technologies might replace the human element in many professions, threatening the jobs of numerous specialists. According to a report by the International Labour Organization (ILO), AI may impact many jobs worldwide (ILO, 2018). Among the professions that feel this threat is the role of information specialists who provide storytelling services for children.

Therefore, the main objective of this study is to explore the extent to which AI technologies can substitute information specialists responsible for children in one of their key tasks: storytelling services. The study employed two main methodologies:

1. **Descriptive-Analytical Approach:** Conducted a review of the intellectual output related to the use of AI to convert children's stories into interactive digital formats.
2. **Experimental Approach:** Implemented a practical experiment with a sample of 24 children aged 4-7 years, divided into two groups (control and experimental) at the Children's Section of the Egypt Public Library. Storytelling was delivered to the control group by an information specialist using traditional methods, while the experimental group received storytelling through AI technologies.

Keywords: Artificial Intelligence Technologies – AI Programs – Children's Libraries – Children's Books – Text-to-Image Generation – Text-to-Video Generation.

The Use of the Strategic Documentation Center for Smart Technologies in the Establishment of a Documentary Museum on Egyptian Meteorology

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Ms. Zeinab Sayed Mahmoud Farmawy

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Abstract :

This paper seeks to explore the role of smart technologies in documentation centers and to assess the effectiveness of these technologies in supporting the field of documentation. The objective is to establish an information base derived from accumulated research and knowledge, thereby contributing to the development of a rich and up-to-date body of research in this area. It also aims to facilitate the advancement of documentation, archiving, and museum material management, while enhancing the efficiency of these processes in the future. The study applies this framework to the case of the Strategic Documentation Center's initiative in launching a documentary museum at the Egyptian Meteorological Authority.

The first part of the paper addresses the role of smart technologies in documentation and the management of museum materials. The second part presents the experience of the Strategic Documentation Center in employing smart technologies to establish a documentary museum on Egyptian meteorology.

Cataloging Arabic Manuscripts and Methods of Access and Organization in the Sultanate of Oman: The Experience of the Oman Memory Foundation as a Model

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Abstract :

Manuscript cataloging is a fundamental step in preserving cultural heritage and enhancing its utilization in future research and studies. It assists researchers in easily accessing manuscripts relevant to their topics, contributes to the creation of electronic manuscript databases for online access, increases opportunities to protect this valuable cultural heritage, and allows future generations to consult the original sources that shaped civilizations and cultures throughout history.

This study aimed to examine the experience of the Memory of Oman Center in cataloging Arabic manuscripts in private libraries in the Sultanate of Oman, and the ways of organizing and providing access to them. It focused on the objectives and stages of the Memory of Oman Center's manuscript cataloging project in private libraries, the cataloging procedures followed by the Center, the extent to which the Center's cataloging aligns with international manuscript cataloging standards, and the challenges facing the Center in this regard.

The study reached a number of key findings, including that the project covered 15 private libraries or collections, with approximately 2,273 cataloging records across 15 volumes of catalogs, each library having its own independent catalog. The project went through several phases: first, research, collection, registration, and documentation; second, data preservation and cataloging; and finally, heritage verification, studies, and publication. The Center relies on Anglo-American cataloging rules and resource description and access standards, with appropriate modifications required for Arabic manuscripts. These data are made accessible using the "Knowledge Horizons" program through its website, the Omani Repository.

Based on these results, the study recommended several measures, including adopting the concept of a unified national manuscript catalog that represents all information institutions related to manuscripts; organizing a joint working team among manuscript-related institutions to manage bibliographic records and author names, including data entry, review, updating, and quality control; establishing mechanisms to strengthen cooperation among information institutions in Oman through training programs and the exchange of bibliographic records; and developing the unified catalog further.

If you want, I can also make a slightly more concise, publication-ready version that flows smoothly for academic journals or reports. This version would retain all the essential details but read more naturally in English. Do you want me to do that?

Innovation in Libraries and the Use of the Metaverse as a Knowledge Management Platform: An Analytical Study

Dr. Yara Maher Mohamed Qenawi
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Abstract :

This study aims to identify the role of the Metaverse as an innovative platform in knowledge management within Academic libraries in Egypt. It explores various Metaverse platforms and their role in knowledge management, such as *Meta Horizon Worlds* and *The Sandbox*. Additionally, it examines the role of generative artificial intelligence in supporting innovation platforms within the Metaverse.

The study employed the content analysis method, and the main tool used was a questionnaire. Two questionnaires were prepared.

Among the key findings is that the creation of virtual training spaces significantly contributes to enhancing knowledge management, ranking first with a rate of 38.8%.

The study recommends addressing privacy risks by providing advanced mechanisms to protect personal data and raising users' awareness about how to safeguard their information on the platform and respond to security threats.

Keywords: Innovation in libraries, Metaverse, Knowledge Management, Generative Artificial Intelligence, Academic Libraries

Awareness of Records Management Specialists in Artificial Intelligence Technologies and Their Role in Enhancing Electronic Records Management Systems in Omani Institutions

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Abstract :

Recently, artificial intelligence (AI) has become one of the key technologies in developing operational mechanisms within various institutions, due to its ability to process massive amounts of data quickly and with exceptional accuracy. In the field of records management, contemporary AI applications demonstrate remarkable effectiveness in supporting tasks such as document classification, cataloging, archiving, and retrieval, in addition to ensuring document security and protection against tampering or unauthorized access. These capabilities have enabled institutions to enhance the efficiency of document management, reduce operational costs, minimize human error, and accelerate the document lifecycle, thereby positively impacting the quality of administrative services and institutional decision-making.

Within this framework, the current study aimed to investigate the level of awareness among records specialists regarding AI and its applications, the challenges associated with utilizing it, and its impact on the services of records departments in Omani institutions. A quantitative methodology was adopted for the study, given its provision of analytical tools that allow precise measurement of phenomena and exploration of relationships between variables using analyzable and generalizable statistical data.

The study population consisted of employees working in records departments across twenty Omani institutions. Data were collected through a questionnaire designed to systematically cover the main study domains. These domains included the level of awareness of records specialists

regarding AI technologies, the extent to which they actually employ these technologies in performing their assigned tasks, and an investigation of the main challenges they face when using these applications in the workplace. The questionnaire also addressed key aspects that should be emphasized to raise awareness of AI technologies among records specialists.

Among the most notable findings, the study revealed that the actual use of AI technologies in records departments within Omani institutions remains limited, despite records specialists recognizing the importance of integrating these technologies into the workplace. The study also identified a range of obstacles preventing the adoption of these technologies, including insufficient financial and technical support, inadequate professional training to handle emerging intelligent technologies, and the absence of clear internal regulations governing the use of AI technologies in the institutional context. Additionally, concerns related to information security and document privacy emerged, alongside negative perceptions among some records specialists regarding the potential replacement of their roles by these technologies, contributing to indirect resistance to digital transformation.

Keywords: Records specialists, Artificial intelligence, Records departments, Records management systems, Digital awareness

Oman Memory and Its Role in Preserving and Providing Access to Omani Digital Documentary and Intellectual Heritage: An Analytical Study of Current Trends and Future Perspectives

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Abstract :

The term "Oman Memory" refers to the sources of knowledge and history that are collected and documented about Oman and its past. This study aimed to identify the objectives of the Digital Oman Memory, the types of information sources it serves, the most significant achievements of the Oman Memory Center, the challenges it faces, and the prospects for improving the services provided from the perspective of the center's staff. The study relied on a qualitative approach, using semi-structured interviews to collect data from officials in the units of the Oman Memory Center. Additionally, content analysis was applied to study materials published by the center, including documents, digital platforms, and documentation initiatives, in order to extract the orientations and policies adopted by the center in building a comprehensive digital record of Omani heritage for its preservation and accessibility to present and future generations. The results of the study showed that the "Oman Memory" Center plays a pivotal role in enhancing national cultural identity by collecting, classifying, and making available documentary and intellectual content that reflects Oman's history and its civilizational diversity. The center also adopts a strategic approach toward digital transformation, aiming to digitize as many manuscripts, documents, and intellectual sources as possible; this contributes to their preservation from deterioration and expands access to them both locally and internationally.

However, challenges exist related to the shortage of specialized staff in digital archiving and document analysis, as well as the need to update digital infrastructure to ensure the quality and sustainability of the services provided. The study recommends developing a national strategy to coordinate efforts between Oman Memory and other cultural institutions, such as archives, libraries, and research centers, to ensure integrated work in digital documentation. It also advises conducting periodic evaluation studies to measure the extent to which researchers and interested parties benefit from the content of "Oman Memory" and the center's impact on heritage preservation and knowledge dissemination.

Keywords: Oman Memory, documentary heritage, Omani manuscripts, digital repositories, heritage documentation centers

The Role of Open Access Policies in Preserving and Promoting Cultural Heritage: An Exploratory Planning Study to Derive an Arab Policy

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Abstract :

Cultural heritage constitutes a fundamental pillar of national and civilizational identity, embodying the collective memory and accumulated experiences of nations. With rapid technological development, it has become imperative to develop strategies for preserving, sharing, and enhancing its sustainability by facilitating access to it. In this context, the development of open access policies has emerged as an effective tool to ensure the sustainability and enhancement of cultural heritage, as well as to broaden opportunities for its wide-scale utilization.

From this perspective, this study explores the role of open access policies in the preservation and enhancement of cultural heritage. It aims to examine and analyze policies and legislation related to open access to heritage resources, to review successful international and regional experiences in this field by focusing on their strengths and weaknesses. The study also identifies the challenges facing the implementation of these policies in the Arab world and proposing practical recommendations for formulating a unified Arab policy for open access to cultural heritage. Depending on the descriptive methodology and content analysis approach, ensures and analyzes the reality of policies and legislation related to open access to cultural heritage. Additionally, using observation as a data collection tool, the study examines international open access policies to heritage resources of these experiments, monitors their implementation stages, and analyzes their content. It also proposes a vision for developing a unified Arab policy for open access to cultural heritage that is appropriate to its content and enhances its sustainability.

One of the most important conclusions of this study is that that the Europeana initiative is one of the most prominent international models adopting open access to cultural heritage resources,

enabling their digital integration and widespread availability. Several major museums, such as the Rijksmuseum in the Netherlands and the Metropolitan Museum of Art in New York, follow similar paths. However, financial constraints remain a major challenge for cultural institutions seeking to implement open access to their collections.

The study also recommended that international and regional organizations concerned with cultural heritage should adopt open access policies that contribute to the documentation and preservation of cultural heritage, aligning with global efforts to promote equitable and open access to knowledge and culture. It further calls for the establishment of regional platforms to strengthen the digital presence of Arab cultural heritage, offering new opportunities for interaction, learning, and creativity.

Key words: Open Access, Cultural Heritage, Open Access Policy, Preserving cultural heritage.

Heritage Courses in Library and Information Science Departments at Universities in the GCC Countries: An Analytical Study

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Abstract :

The aim of this study was to identify the nature of library and information science programs at universities in the Gulf Cooperation Council (GCC) countries and the programs' approaches to heritage courses, the topics they cover, and the extent to which they address modern technological applications related to heritage sources, such as digitization. Based on a survey approach, library programs in the six member states of the GCC were identified. The curricula for these programs, which are available on their websites, were analyzed using a content analysis approach. The study found that library and information science programs exist in only three of the six GCC countries and that there are fourteen library and information science programs, half of which are for bachelor's degrees, while the rest are for master's and doctoral degrees. Saudi Arabia accounts for the largest share of these programs. The study also demonstrated the low number of heritage courses in these programs, and the absence of any courses addressing the digitization of heritage resources. The study presents some recommendations, including the need to launch library and information programs in all GCC countries and to establish interdisciplinary programs alongside libraries and information science that include specializations in archaeology and museums and information technology.

Key words: heritage courses, LIS education, GCC countries, library programs.

Guidelines for Arab Archivists in Handling Oral Archives in the Digital Environment: Proposed Perspectives

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Abstract :

Oral heritage is an authentic possession of the people, stored in their hearts and preserved through their practices. Accessing it and making it available for study and understanding can only be achieved through collecting, professionally preparing, and scientifically documenting it for users. An African poet emphasizes the importance of collecting oral heritage by saying: "When an African storyteller of folk tales dies, it is as if a library has burned down."

Based on this saying, oral archives are considered a fundamental component of intangible cultural heritage, carrying personal and collective testimonies and experiences. They play a vital role in preserving history, identity, and collective memory. In light of rapid technological advancements and the transition of many archives into digital environments, Arab archivists must adapt to new techniques and methods to manage and preserve this type of archive effectively, ensuring the expansion of its services and its accessibility for future generations.

Consequently, it has become necessary to guide Arab archivists on how to systematically handle, preserve, and enhance oral archives in digital environments. This underscores the importance of this study, as archives should not wait for specialists or institutions managing oral heritage projects to provide recordings. Instead, they must take initiatives themselves or in partnership with other memory institutions to launch projects for collecting oral heritage to fill gaps in their archival collections. Archivists are responsible for gathering oral heritage from individuals who are contemporaneous with the subjects of interest, processing the interviews as archival documents, and making them accessible to users after proper organization.

It is also essential to leverage artificial intelligence (AI) technologies, which can revolutionize the processing, analysis, and accessibility of oral archives. For instance, oral recordings can be converted into written text, saving time and resources using tools such as Otter.ai or Trint. AI can also transcribe and translate Arab oral heritage into other languages using tools like DeepL, thereby extending the archive's services from a regional to an international level. Additionally, these technologies can reduce background noise in audio recordings and enhance the clarity of low-quality recordings, ensuring their long-term usability.

This study proposes combining two approaches—the comparative method and the descriptive method—to develop a recommended framework for Arab archivists to enhance the management and preservation of oral archives in digital environments.

Cataloging Manuscripts at the Juma Al Majid Center for Culture and Heritage: Between Traditional Systems and Intelligent Systems

Sheikha Al-Mutairi

Abstract :

Manuscript repositories document and catalog their holdings with the aim of knowledge dissemination and accessibility. Cataloging manuscripts is considered the primary key for researchers and scholars, as it relies on the descriptive information provided for each manuscript. Given the importance of this work, these repositories continuously develop cataloging mechanisms and adopt modern methods, including artificial intelligence.

This paper is based on a case study of the Manuscripts Department at the Juma Al-Majid Center for Culture and Heritage, examining the current state of manuscript cataloging systems and the future vision for cataloging in the era of artificial intelligence. The study seeks to observe the phenomenon of technological integration in manuscript departments to facilitate cataloging processes, based on applied experiences in the field, and to identify suitable solutions for cataloging anonymously attributed manuscripts and correcting cataloging errors, by leveraging the vast knowledge resources available in manuscript libraries worldwide.

Transition of Information Institutions from Catalogs to Intelligent Assistants: An Experimental Study

Dr. Momen Saied Osman Elnasharty
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Abstract :

At present, information institutions and libraries are witnessing significant development due to technological advancements and smart transformations that have changed the patterns of research and access to knowledge. Traditional library catalogs are no longer sufficient to meet the needs of users who seek more intelligent and easily accessible information services. Users increasingly aim to access information without necessarily consulting the full source for reading or browsing. At the same time, another issue arises: the reliability of information and data. This highlights the importance for libraries and information institutions to move beyond merely providing catalogs and to establish smart assistants alongside them, leveraging the reliable knowledge resources these institutions possess compared to other search and retrieval tools, such as web search engines.

Accordingly, this study aims to develop a roadmap for information institutions and libraries in creating smart assistants, incorporating the knowledge assets these institutions hold (including textual, visual, and multimedia sources). The study relied on an experimental approach to develop a smart assistant for a sample of the knowledge assets owned and acquired by the Mohammed bin Rashid Knowledge Foundation, testing the assistant's efficiency in content generation, result accuracy, and response speed. The outcomes demonstrated the potential to enhance user experience by providing quick, accurate, and contextually relevant answers.

Keywords: Information institutions – Library catalogs – Smart assistants – Artificial intelligence – Generative AI.

The Role of ChatGPT Technology in Enhancing Users' Experience in Accessing Heritage Information in the Kingdom of Saudi Arabia

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Abstract :

The study evaluated the effectiveness of ChatGPT technology in improving the user experience of accessing heritage information in the Kingdom of Saudi Arabia, using the ISO 9241-11:2018 standard. The goal was to assess its effectiveness in accessing Saudi heritage information and to understand users' experience with the application. The study used a descriptive-analytical approach, and its results concluded that ChatGPT users search for Saudi heritage information when they want accurate, precise, and timely information. They are convinced that the heritage information they access is important and comprehensive. ChatGPT users also repeat attempts and rephrase questions multiple times to access Saudi heritage information. The application cannot answer highly specific questions, but rather provides general answers.

Keywords: ChatGPT Technology - User Experience - Heritage Information

Digitization Tools for Arabic Manuscripts Supported by Artificial Intelligence Technologies: An Analytical Study

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Abstract :

Efforts to digitize Arabic heritage manuscripts face numerous challenges related to preservation and accessibility. Digitization is considered the optimal means to ensure the protection of original copies while making their content available to current and future generations. With the rapid advancement of artificial intelligence (AI) technologies, there is increasing potential to leverage these technologies to improve digitization, preservation, and analysis processes for manuscripts. This study aims to explore the role of AI in enhancing the digitization of Arabic manuscripts, focusing on capabilities that contribute to preserving cultural heritage and ensuring sustainable access.

The study adopted a descriptive-analytical approach to achieve its objectives and reached several key findings. Most notably, AI tools used in processing Arabic manuscripts require the training of robust models that support the right-to-left (RTL) writing direction of Arabic text, with an emphasis on developing models capable of handling Arabic scripts in historical documents, as current models are unable to accurately read texts written in certain scripts.

Keywords: Artificial Intelligence – Manuscript Digitization – Natural Language Processing (NLP) – Optical Character Recognition (OCR).

Applying Metaverse Technology in Managing the Cultural Museum at the Royal Commission for Al-Ula Governorate According to Saudi Arabia's Vision 2030: A Proposed Framework

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Abstract :

The study aims to highlight the tourism and cultural dimensions through information management by employing Metaverse technology at the Royal Commission for AlUla. The case study method was adopted, as it is the most suitable scientific approach for describing the subject of the study and analyzing related research. The study relied on structured interviews as the data collection tool and selected a sample of officials from the Innovation Department at the Royal Commission for AlUla. Based on the analysis of the interview results, and in order to construct the proposed framework, the study concluded that there is a strong relationship between the exchange of cultural heritage and the economics of tourism in achieving sustainable development through global practices and international agreements aimed at preserving, protecting, and enhancing heritage. Moreover, virtual museums have imposed the need to develop new marketing strategies that contribute to the growth of the tourism sector.

The study proposed several recommendations, the most important of which are: enabling the use of Metaverse technology by establishing an Information Management Unit under the Innovation Department at the Royal Commission for AlUla to manage documentary heritage and periodically review its activities; benefiting from leading international experiences in Metaverse technology and studying mechanisms for its application across different sectors while measuring its impact on the principles of sustainable development and the achievement of quality of life.

Keywords: Metaverse Technology – Documentary Heritage – Sustainable Tourism – Tourism Marketing.

Awareness of Staff at the Saudi National Museum Regarding the Application of Hologram Technology and Their Attitudes Toward Its Use According to the Technology Acceptance Model (TAM)

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Areej bint Atiyan Al-Hazmi
Library Specialist – Knowledge Resources Department, University of Jeddah
Kingdom of Saudi Arabia

Abstract :

This study aimed to explore the level of awareness among employees at the Saudi National Museum regarding hologram technology and their attitudes toward its use in museums, based on the Technology Acceptance Model (TAM). The study employed a descriptive analytical methodology, using a questionnaire as the primary data collection tool. The sample consisted of 27 employees, representing approximately 50.9% of the total workforce at the museum.

The findings revealed a generally positive and relatively high level of awareness among employees about hologram technology, with recognition of its importance in enhancing the museum experience, preserving cultural heritage, and supporting the objectives of Saudi Vision 2030.

The results also indicated positive attitudes toward the perceived ease of use of the technology, despite a noted need for additional practical training and technical support. Furthermore, the employees demonstrated an awareness of the expected benefits of hologram technology at both professional and institutional levels, along with a high behavioral intention to adopt it in their work environment. These findings reflect a solid knowledge base and a receptive mindset toward modern technologies, suggesting a promising outlook for the implementation of hologram technology in Saudi museums.

The study recommended strengthening training and technological awareness among museum staff, providing institutional and technical support to facilitate the adoption of hologram technology, encouraging collaboration with international digital museums, and implementing ongoing evaluation and development processes to align the technology with the Saudi cultural context. Additionally, it called for enhancing visitor engagement through interactive holographic experiences and activating the role of researchers and academics in studying the application of this technology to maximize its potential in heritage preservation and presentation.

Keywords: Hologram technology, Saudi museums, Technology Acceptance Model, heritage, museums.

A Future Vision for the Role of Artificial Intelligence Applications in the Preservation and Management of Cultural Records at the Al-Azhar Grand Library

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Professor of Educational Foundations – Director of the Center for Measurement and Evaluation - Aswan University

Dr. Emad El-Sayed Fahmy Shehata
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Abstract :

The current research aimed to identify the role of artificial intelligence applications in protecting and managing cultural records at the Library of Al-Azhar Al-Sharif Sheikhdom, and then develop a future vision for this role. This was achieved by adopting the Delphi method, by presenting a set of open-ended questions to experts in the first round, arriving at the main themes of the questionnaire. A second round then developed a questionnaire on the role of artificial intelligence applications in protecting and managing cultural records at the Library of Al-Azhar Sheikhdom. The research found a high percentage of experts' agreement with the proposed questionnaire themes, which consisted of (3) main themes related to the expected role of artificial intelligence applications in (protecting - managing) cultural records at the Library of Al-Azhar Sheikhdom.

Keywords: Artificial Intelligence - Protection and Management of Cultural Records - Library of Al-Azhar.

Integration between Library and Information Specialists and Interior Designers in Using Smart Technologies for Museum Materials Management: A Case Study of Alexandria Museums

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Dr. Abdul Rahman Ibrahim

Dr. Abdul Rahman Ibrahim

Ass. Prof. in Library and Information Science, Faculty of Arabic Language,

Al-Azhar University

Abstract :

The study aims to explore the roles of both library and information specialists and interior designers in integrating and utilizing smart technologies for the management of museum materials. It seeks to identify the role of library and information professionals in developing intelligent cataloging systems for managing information related to exhibits in museums located in Alexandria Governorate. Additionally, it investigates the role of interior designers in creating smart museum environments that incorporate modern technologies into the exhibition of artifacts in Alexandria's museums. The study also aims to examine the degree of integration between the roles of library and information specialists and interior designers in employing smart technologies to organize and preserve museum collections and to enhance the interactive experience for visitors. To achieve the objectives of the study, the researchers adopted a descriptive survey methodology. A checklist was developed, and interviews were conducted with library and information specialists as well as interior designers. Several relevant elements were also observed during field visits to the museums included in the study sample. Traditional paper-based cataloging systems. The museum presents its collections through a classical interior design that reflects the historical development of the city from the Pharaonic era to the modern age. It was also found that the Museum of Fine Arts in Alexandria does not utilize a modern cataloging system; instead, it relies on paper records managed by librarians or museum staff to document the required data and information related to the museum's contents.

The study recommended that relevant museum authorities should develop specialized training programs for library and information specialists and interior designers on the use of artificial intelligence, the Internet of Things (IoT), and augmented reality (AR). It also recommended the establishment of joint units within museums to develop technical competencies and monitor innovations, in addition to allocating clear and sustainable budgets to support the implementation of smart technologies as part of museums' development and follow-up plans.

Key words: Smart technologies, museum materials management, libraries and information, smart museum environment design, technological interaction in museums.

The Future of Libraries and Learning Resource Centers in the Era of the Fourth Industrial Revolution: A Foresight Study of Future Trends with a Proposed Framework

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Abstract :

This study aimed to explore emerging technologies suitable for libraries and learning resource centers in the context of the Fourth Industrial Revolution, identify the challenges they face in adopting these technologies, and anticipate their future over the next decade while proposing a conceptual framework for their future roles.

The study employed two methodologies: content analysis to identify key emerging technologies and the challenges associated with their implementation through a review of the scientific literature, and the Delphi survey method to forecast the future of libraries and learning resource centers. A purposive sample of 36 experts and professionals with experience in applying emerging technologies was selected, and a questionnaire was distributed to them.

The findings revealed that libraries and learning resource centers can integrate a range of artificial intelligence and advanced technologies, including ChatGPT, Gemini, augmented reality, virtual reality, the Internet of Things, and the metaverse. The study also identified several challenges hindering the integration of these technologies, primarily human and financial constraints.

Furthermore, the study predicted the emergence of new roles for libraries and learning resource centers over the next ten years, such as transforming into support hubs for e-learning, platforms for community engagement, and centers for fostering creativity. Additionally, their functions are expected to evolve to include providing AI-powered research and discovery services and offering educational experiences based on augmented and virtual reality technologies.

The study concluded by proposing a conceptual framework for the future of libraries and learning resource centers in light of technological advancements, ensuring their sustainability as dynamic and evolving knowledge environments.

Keywords: Emerging Technologies – Libraries and Learning Resource Centers – Delphi Method – Artificial Intelligence – Digital Transformation.

:Technical Solutions for Protecting the Circulation of Digital Content A Forward-Looking Perspective on Digital Archive Management Policies in Arab Information Institutions

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Abstract :

The field of digitizing heritage and its circulation is experiencing constantly evolving scenarios due to rapid technological advancements. One of the most significant challenges facing the development of this field is piracy and the proliferation of illegal copies on the web. Copyright laws often fall short in preventing infringements on digital content. The circulation of digital literature, for instance, becomes uncontrollable as users can retain original copies and distribute them across various digital platforms. Consequently, it becomes difficult to regulate its spread, reducing the visibility of information institutions in general, and Arab institutions in particular.

This scenario necessitates that Arab information institutions keep pace with the latest technologies to serve and satisfy stakeholders (authors, publishers, and beneficiaries). Therefore, the research aims to explore how Arab information institutions manage digital archives and their future policies for leveraging emerging applications to regulate the circulation of their digital content, in a manner akin to methods used with printed literature. This is particularly relevant given the advent of Digital Rights Management (DRM) systems, which render digital content unusable after a specified period and prevent its copying or sharing across other devices or digital platforms.

keywords : Digital Archives, Copyright, DRM, Digital Information Circulation, Arab Information Institutions.

Open Science as a Supporting Tool for Heritage Preservation

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Educational Technology Consultant

Abstract :

The whole world agrees on the importance of building human capacity and empowering individuals with knowledge and skills that enable them to live better in a sustainable world and to compete amid rapid development. Among the most important areas of knowledge that members of society must acquire is awareness of their heritage, the protection of this heritage, the establishment of specialized programs and mechanisms, and the use of modern methods provided by advanced technologies and artificial intelligence applications to access, produce, publish, share, and reuse information. Open science, with its core components—open scientific knowledge, open dialogue with other knowledge systems, open participation of active societal actors, and the infrastructures of open science—represents a powerful tool that can be effectively employed in the preservation of heritage.

The Role of Social Media Platforms in Preserving Digital Cultural Heritage: Platform "X" as a Model

Samiha Ahmed Muayni Dr. Nariman Khaled Hambishi

Abstract :

Cultural heritage represents the memory, history, and legacy of the nation throughout the ages, and documenting and preserving this heritage is one of the important issues that contribute to preserving cultural identity and transmitting it to future generations. The rapid technological development and the changes imposed by information technology have resulted in the multiplicity of digital preservation methods and techniques. However, digital preservation processes have faced a number of factors and challenges that may affect the continuity of its preservation and dissemination. Social media platforms are an effective means of preserving cultural heritage digitally and presenting it in diverse and innovative ways. These platforms differ in their objectives, methods of use, and approaches to preserving digital cultural heritage. Platform "X" is considered one of the most prominent and widely used platforms by agencies, ministries, and individuals in various countries around the world. This study aimed to identify the role of Platform "X" in preserving digital cultural heritage and the capabilities it provides for sustaining the digital preservation of heritage. To achieve its objective, it adopted the descriptive approach using the standard content analysis method of the posts on the accounts specialized in preserving, documenting, and disseminating heritage on Platform "X", represented by the accounts of the Ministry of Culture and the Heritage Commission in the Kingdom of Saudi Arabia, through the preparation of a standard checklist based on intellectual production in both Arabic and English. The study concluded that Platform "X" has proven effective in preserving and documenting Saudi cultural heritage through multiple digital media, and in providing high-quality visual coverage that helped spread the content and raise awareness of its value among followers, as a result of its multiple capabilities represented in the interaction of individuals with the content in various ways,

in addition to its role in coordinating efforts between official entities in publishing and enhancing the credibility of cultural content. The study recommended the necessity of organizing participatory digital campaigns with the community, expanding partnerships with content creators and influencers in the cultural field, establishing a comprehensive digital archive of heritage-related posts on Platform "X" to ensure their preservation and sustainability as a documentary source for future generations, and launching a series of digital posts for each region of the Kingdom to highlight the cultural heritage available in each area.

Keywords: Cultural heritage preservation, social media platforms, Platform "X", Ministry of Culture, Heritage Commission

Readiness of Information Systems and Documentation Used in Documentation Departments for Knowledge Management in the Sultanate of Oman

Dr. Sulaiman bin Saleh bin Said Al-Rashidi

Mohammed bin Mansour bin Mohammed Al-Habsi

Abstract :

The study aimed to provide a comprehensive perspective on the readiness of information and documentation systems used in organizations and institutions in the Sultanate of Oman. This was achieved by examining the nature of the systems employed in managing information and documents within Omani documentation departments, assessing their readiness, exploring the potential use of these systems in institutional knowledge management, and evaluating the feasibility of leveraging artificial intelligence tools within information and documentation systems for knowledge management in Omani institutions. The study adopted a descriptive survey methodology to collect the necessary data through a questionnaire distributed to the study population, represented by personnel in the documentation departments across Oman. This was to investigate their perspectives on the readiness of the information and documentation systems used in their workplaces for knowledge management. The study sought to highlight the importance of enhancing knowledge awareness among personnel in documentation departments, the role of electronic systems in managing information and documents for knowledge management, and to answer the central question regarding the readiness of these systems for knowledge management in Omani organizations and institutions.

The study concluded with a set of findings, the most significant of which include: a positive awareness regarding the readiness of information and documentation systems and the tools used to improve institutional knowledge management; a relative concern about the use of smart tools due to security implications regarding information confidentiality; and a noticeable role of these systems in improving institutional performance. Additionally, there is an openness to the adoption and integration of artificial intelligence tools within these systems. Furthermore, the study

recommends developing the technological infrastructure of information and documentation systems, integrating artificial intelligence tools, training and qualifying personnel to build sufficient knowledge on using these systems for knowledge management, and strengthening security measures to address concerns related to information security and confidentiality.

Keywords: Knowledge Management, Information and Documentation Systems, Records Management, Sultanate of Oman

How to Employ Artificial Intelligence to enhance National Museums: A Future Perspective

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Dr. Dina Mahmoud Sadiq
Researcher – National Research Center

Abstract :

National museum will always remain the memory of the nation and the stronghold for preserving its heritage throughout the ages. Therefore, we must work on preserving our heritage and developing national museums by keeping pace with modern era mechanisms, which will attract the interest and participation of future generations to enhance Arab identity and deepen national belonging. This highlights the effective role that museums play in education and raising awareness among young people in particular. To achieve this goal, we must keep pace with the modern era with all its mechanisms, by having a new vision that helps us understand how to develop and advance national museums. This can be achieved by creating new designs with an architectural style that is compatible with the surrounding environment, preserving its aesthetic dimension and enhanced with modern technology, particularly artificial intelligence. This will enable museums to perform their future role successfully while being attentive and meeting the needs of the target audience, with success and distinction .

Keywords: National Museums - Heritage - Artificial intelligence

Using Smart Technologies in Museum Artifact Management: A Case Study of the Oman through Time Museum

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Abstract :

The study aimed to explore the extent to which smart technologies are used in the management and operation of the Oman Across Ages Museum, focusing on analyzing the benefits these technologies offer in enhancing the role of museums in presenting tangible and intellectual heritage and enhancing the visitor experience. The study also addressed the challenges the museum faced in implementing these technologies. A surveyed method based on semi-structured interviews was used as the data collection tool. Data was collected from a purposive sample of employees at the Oman Across Ages Museum, with the aim of gaining accurate insights into the smart applications used and identifying the most prominent challenges preventing their maximum utilization.

The study results indicated the importance of using smart technologies in the museums as one of the most prominent contemporary drivers for developing the museum sector. These technologies contribute to reshaping the visitor experience and enhancing museums' ability to perform their educational, cultural, and entertainment functions. The results also revealed several trends, most notably the deep integration between these technologies and museum content, and their transformation from traditional display tools to interactive means that transport visitors through a multi-sensory experience. The study concluded with a set of recommendations that would enhance the effectiveness of the use of smart technologies in the Oman Museum Across

Ages and provide a model applicable to similar museum contexts. The most prominent recommendations include: enhancing investment in technical infrastructure; continuing to update technical systems, particularly in the fields of virtual reality, holography, and artificial intelligence, to ensure they keep pace with global changes and meet visitor expectations; and organizing ongoing training programs to qualify staff to use and maintain these smart technologies.

Keywords: Artificial Intelligence, Museum, Oman Across Ages Museum, Modern Technologies, Smart Technologies.

The Role of iBeacon Technology in Developing Museum Artifact Management at the Educational Archaeology Museum, Faculty of Arts – Alexandria University

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Professor, Department of Library and Information Science

Alexandria University

Dr. Mona Farouk Shahwan

Lecturer, Department of Library and Information Science

Tanta University

Abstract :

The study aimed to discover the state of the art of the educational artifacts of the Faculty of Arts in Alexandria University, which is avital closed information institution, as well as to identify the importance of iBeacon technology for museums; with the aim of providing a proposal to activate the benefit of the museum, whether in the event of its closure, or its reopening to visitors, by utilizing this technology. The case study approach was used, with Standardized interviews being made with professors of the archeology departments at the faculty, as well as the museum's director, to obtain results and recommendations that benefit the study objective. One of the most prominent results of the study was that utilizing iBeacon technology would achieve the desired goal of activating the benefit of the museum under study.

Keywords: iBeacon technology, Museum Materials Management, Educational Museum of Antiquities, Faculty of Arts, Alexandria University.

اليوم الثاني

Second Day

الأربعاء 17 سبتمبر 2025

Wednesday 17 September 2025

Table of Contents

Session 11	Al-Warraq Center's Orientation Toward Cultural Sustainability and Its Future Aspirations for Preserving Omani Heritage	Noora bint Mohammed Al-Raysiah, Ruqayya bint Khalfan Al-Abdaliya
Session 12	The Role of Blockchain in Supporting Knowledge Management Processes: A Proposed Model	Wiaam bint Mohammed Manshawy, Horia bint Mohammed Hameeduddin, Shahad bint Magdy Nagy
Session 12	AI Applications and Their Role in Subject Analysis and Subject Heading Extraction for Arabic Manuscripts in the Iraqi Scientific Academy	Abdulqader Ahmed Ali Al-Shaabani, Yas Khudair Ali Khudair Al-Ghanimi
Session 12	The Impact of Applying Blockchain Technology in Managing and Preserving Cultural Heritage	Mohy Eldin Koko Bakhit Mersal, Hassan Hussein Mohammed Hassan
Session 12	The Effectiveness of Generative AI as an Innovative Tool in Automating Cataloging Processes in School Libraries: A Comparative Experimental Study	Iman Saeed Mahrous El-Sayed, Amal Hassan Saeed Abdeljaleel
Session 13	Toward Knowledge Sustainability in Saudi University Libraries: A Framework for Enhancing Resource and Service Quality	Dr. Shatha Mohammed Ayoub Qazzadr
Session 13	A Plan to Develop the Manuscripts Department at King Abdulaziz University Library Using Generative Tools and Experts	Dr. Doha Hassan Al-Suraihi
Session 13	The Role of Bayt Al-Tarmeem Foundation in Oman in Preserving and Sustaining Documentary Heritage	Nawal bint Ali bin Abdullah Al-Balushi
Session 13	Evaluating the Impact of Electronic Services on Service Quality at Zayed Central Library: A Case Study	Oshbah Lafi Al-Muhairi
Session 14	Investing in the Metaverse in Digital Libraries in the United Arab Emirates	Iman Saeed Salem Al-Hammoudi
Session 14	Utilizing Computer Vision and Machine Learning to Enhance Management and Retrieval of Archived Digital Documents at Okaz Newspaper: A Proposed Model	Noha Faris Al-Mohammadi, Razan Hossam Al-Ahmadi, Asmaa Jumaan Al-Maliki
Session 14	Endowment Libraries and Artificial Intelligence: Toward Innovative Management and Digital Preservation of Heritage and Knowledge	Ne'ma Mohammed Ahmed Jami'
Session 14	The Role of Blockchain Technology in Preserving and Managing Manuscripts: A Theoretical Study	Asayel Abdullah Al-Fahmi, Nada Hamdan Al-Maliki, Dr. Nariman Khaled Hambishi
Session 15	A Multisensory System for Arabic Manuscript Classification	Abdelazeem Sobhy Abdelazeem Saqr

The Arab Union Catalog Initiative for Transition to BIBFRAME: A Quantum Leap in Organizing and Providing Access to Arabic Bibliographic Data

Dr. Saleh Almusned
Director, Arab Union Catalog Center

Abstract :

The library and information field is facing rapid technological transformations that require libraries to adapt their services and standards to a dynamic digital environment. With the rise of semantic web technologies, linked data, and artificial intelligence, traditional bibliographic models such as MARC have become increasingly limited in supporting user discovery and integration with the open web.

This paper presents the pioneering initiative of the Arab Union Catalog (AUC) to transition toward the BIBFRAME model, marking a milestone in restructuring and providing access to Arabic bibliographic data. It highlights AUC's efforts in converting its bibliographic database from MARC 21 to BIBFRAME, and in offering specialized services (via the ABL service) to support Arab libraries in adopting this new framework. The paper further outlines the technical and strategic requirements for this transformation and envisions its role in enhancing the visibility and impact of Arab libraries in the digital era.

An AI System for Document Summarization

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Eamon Smallwood
King Abdullah University of Science and Technology (KAUST)

Mohamed Ba-Essa
King Abdullah University of Science and Technology (KAUST

Abstract :

Generative AI (GenAI) tools like ChatGPT took the world by storm. The possibility of querying for information in a conversational way instead of searching the web with a service like Google was revolutionary. This can be seen by the fact that ChatGPT set the record for the fastest user growth by reaching 100 million users in just two months. Although very impressive technology, people immediately noticed at least two problems with tools like ChatGPT: first, the system would become outdated very quickly because the data used on the training of the model got outdated, and secondly, and maybe even more importantly, the answers were generic or wrong, that is, the model hallucinated. A way to overcome those limitations is to include newer or domain specific user data to make the answers more relevant. This way is known as "retrieval augmented generation," or RAG.

The Library Archives receive a lot of documents, which go through a process of appraisal to determine if the document should be archived or not. The appraisal of several documents can take a long time; therefore, we want to automate the summarization of those documents to facilitate the appraisal process.

Our paper will explore how the models from Microsoft, IBM and Google compare against each other by summarizing documents considering the quality of the output and the size of the model. We found that Google's Gemma model, while smallest, produces poor summaries. In contrast,

IBM's Granite and Microsoft's Phi-4 models generate similar high-quality outputs, but IBM's model achieves this performance at nearly half the size of Microsoft's, enabling deployment on consumer-grade GPUs and providing a cost-effective solution for institutions.

Our approach is based on open source tools and runs on a local computer. This should make it easier to comply with data governance and privacy requirements since no user data needs to be uploaded to a cloud provider..

Sustainability of Heritage and Language Institutions in the Arabian Gulf Countries

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Chief Library Administrator
Sharjah Library

Abstract :

Cultural heritage and language institutions in the Arabian Gulf contribute to preserving identity amid globalization and digital transformation. However, they face significant challenges such as limited funding, low public awareness, and rapid urban expansion, which may threaten their sustainability. Therefore, this study employed a multi-method approach to analyze these challenges, explore the role of digital technologies in enhancing sustainability, and propose practical recommendations and a strategic plan for policymakers and cultural institutions. Data were collected through surveys with local communities and interviews with stakeholders. Significant obstacles were observed, including financial constraints and lack of skills, despite the potential of modern digital tools, such as virtual reality and digital archiving, which can enhance preservation and engagement. Accordingly, the study recommends increasing funding, providing professional training, and fostering public-private partnerships.

Keywords: Cultural heritage management, language institutions, digital technologies, Arabian Gulf.

Employing Technological Innovation to Achieve Sustainability in Documenting Heritage: A Case Study of the Omani Studies Center at Sultan Qaboos University

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Sultan Qaboos University

Halima bint Suleiman Al Balushi
Head of the Library Department
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Abstract :

The study aimed to explore the role of technological innovation in achieving sustainability in the preservation of documentary heritage at the Omani Studies Center at Sultan Qaboos University in the Sultanate of Oman. This was examined through the use of a range of modern technologies, such as digital archiving and the employment of artificial intelligence for documenting and preserving heritage documents. The study also highlighted the modern methods adopted by the cultural center in restoring and maintaining historical documents using advanced technologies, as well as the challenges and opportunities faced by the center in adopting these technologies, including issues of privacy and intellectual property protection. Furthermore, it assessed modern technologies that enhance the sustainability of cultural heritage and facilitate easy access to it both locally and internationally. The study employed a descriptive-analytical approach and collected information through interviews with seven staff members at the Omani Studies Center. The study's findings revealed the following:

1. The Omani Studies Center at Sultan Qaboos University currently does not use modern tools or technologies in the field of documentary heritage preservation, nor are there active initiatives or projects aimed at integrating innovation and technology concepts in this vital field.
2. The main challenges facing the center in preserving heritage include the involvement of multiple stakeholders in documentary heritage, which leads to fragmented efforts and lack of coordination.

This necessitates the establishment of a unified central authority to organize work and standardize related policies.

3. There is a shortage of specialized human resources and weak technical skills required to handle heritage documents according to the latest global standards and practices.

In light of these findings, the study recommended unifying policies among stakeholders involved in documentary heritage preservation, providing financial support to introduce modern technology at the Omani Studies Center, qualifying and training human resources, enhancing partnerships with local and international entities, and conducting a future applied study to assess the impact of using technology in this field.

Keywords: Innovation, Sustainability of Documentary Heritage, Omani Studies Center, Sultan Qaboos University.

The KAUST Repository: Evolving Beyond Traditional Publications

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Mohammad, Baessa
King Abdullah University of Science and Technology (KAUST)

Abstract :

The KAUST Repository serves as the foundation for scholarly communication at KAUST, collecting, preserving, and disseminating the research output of faculty, researchers, and students. This paper explores the evolution of the repository beyond traditional publications (conference papers, journal articles, dissertations, and theses) to include a broader range of research-related works, including valuable data collections.

Recognizing the evolving needs of research, a flexible approach to managing scholarly information is essential to support the mission of research institutions. As cross-disciplinary research becomes increasingly data- and software-intensive, traditional library services and infrastructure, primarily designed to handle textual documents, are inadequate.

The KAUST Repository has developed a process to collect and register information about KAUST-affiliated datasets and software, including machine-readable relationships with publications. The workflow tracks both datasets and code related to KAUST publications and standalone materials, updating active publication tracking procedures. It also queries external services such as DataCite, Crossref, GitHub, and GenBank to retrieve KAUST-affiliated work.

This paper will focus on two case studies that exemplify our collaborative efforts in curating and making such valuable data discoverable. These projects were achieved through close collaboration with KAUST researchers, faculty, and community members.

1. Local Birds Observations Collection: This project aimed to convert unstructured bird observation data into a standardized, structured format using the Darwin Core metadata standard. By integrating this data with the eBird global citizen science platform, we facilitated the collection of new observational records. We will discuss the tools employed, including KNIME for data extraction and conversion, and explore how this project serves as a foundation for future biodiversity information curation efforts within our institution.

2. Coral Specimen Collection: This project focuses on archiving information of coral specimens maintained by researchers at the KAUST Red Sea Center. The collection contains a comprehensive range of data, including the taxonomic classification of the coral (species, genera, subspecies, varieties, etc.), geographic location data, and images of both live animals and coral skeletons. Furthermore, we capture the links between specimen records and relevant publications, as well as GenBank accession pages.

This paper will highlight key lessons learned from these projects and outline strategic next steps and priorities to facilitate the collection, curation, and dissemination of a broader range of research materials. By embracing collaboration and utilizing innovative approaches, we aim to strengthen the KAUST Repository's role as an important hub for scholarly communication within our institution.

Keywords: Special Collections, Institutional Repository, Scholarly Communication, Research Data, Citizen Science.

KAUST Strategy Toward Open Access: Policies, Publishing Models, and Transformative Agreements

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Patiswa Zibani .
King Abdullah University of Science and Technology (KAUST)

Mohamed Ba-Essa
King Abdullah University of Science and Technology (KAUST

Abstract :

This paper examines the comprehensive strategy and journey of King Abdullah University of Science and Technology (KAUST) Library in pioneering Open Access (OA) within the Middle East, a crucial endeavor for a leading graduate research institution.

Despite KAUST's significant research output (12,231 academic works from 2021-2024, with 14 researchers in Clarivate's 2024 Highly Cited list), ensuring the global accessibility and impact of this scholarship faced challenges inherent in traditional publishing models and a lack of institutional mechanisms for tracking and promoting open access publishing.

This paper aims to:

1) Document KAUST Library's multi-faceted OA support journey, encompassing its institutional repository and publishing initiatives
2) Articulate the strategies developed to empower the research community in OA publishing
3) Share the invaluable learning curve experienced by librarians in navigating this complex ecosystem
4) Highlight the critical importance of fostering a strong community among academic libraries to enhance collective negotiating capacity

The paper employs a case study approach, drawing on KAUST Library's direct experience and operational data. It details the phased development and implementation of key OA infrastructure, including the institutional repository (launched in 2010), the proactive compliance model enabled by the Institutional Research Tracking System (IRTS), and the strategic negotiation of transformative agreements. It also incorporates qualitative insights from the Library's engagement with the research community and its active participation in global initiatives like OA2020 and the ESAC Community of Practice.

KAUST's commitment to OA, exemplified by its 2014 Green OA policy adoption and early OA2020 signatory status, has resulted in a highly successful institutional repository achieving over 5 million downloads and 85% policy compliance (ranked among the top 20 globally for OA compliance by Leiden Ranking).

KAUST Library has strategically expanded its reach beyond green OA from 2019 onwards, by signing a number of "read and publish" and APC discount deals with major STEM publishers, including the top ten most relevant to KAUST authors. These agreements have facilitated free or discounted OA publishing for KAUST researchers while delivering substantial savings to the university budget. This journey underscores the evolving role of academic librarians as expert navigators of scholarly communication ecosystems, adept managers of diverse business models, and indispensable supporters of researchers in the dynamic OA landscape. The paper concludes by sharing lessons learned, offering a practical guide and inspiration for other librarians to adapt and thrive amidst the ongoing transformation toward Open Science.

Investigating the Impact of Misinformation between Government Ministries and Agencies on Official Document Processing Delays in Kuwait

Ahmed, Wadhhah

AL Abdulhadi, Munira

Buraki, Hanadi

Mohammad, Esraa

Abstract :

The study aimed to discover the state of the art of the educational artifacts of the Faculty of Arts in Alexandria University, which is avital closed information institution, as well as to identify the importance of iBeacon technology for museums; with the aim of providing a proposal to activate the benefit of the museum, whether in the event of its closure, or its reopening to visitors, by utilizing this technology. The case study approach was used, with Standardized interviews being made with professors of the archeology departments at the faculty, as well as the museum's director, to obtain results and recommendations that benefit the study objective. One of the most prominent results of the study was that utilizing iBeacon technology would achieve the desired goal of activating the benefit of the museum under study.

Keywords: iBeacon technology, Museum Materials Management, Educational Museum of Antiquities, Faculty of Arts, Alexandria University.

:Digital Preservation Strategy at KAUST University Library
A Regional Template

Eamon Smallwood
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Mohamed Ba-Essa
King Abdullah University of Science and Technology (KAUST

Abstract :

The KAUST University Library, established as a born-digital library, launched a digital preservation initiative to ensure the long-term preservation of the university's unique digital records. Building on its early records management mandate, the Library conducted two foundational assessments (DPCMM and DPCRAM) to evaluate current capabilities and inform its strategy. A five-point digital preservation strategy was developed, emphasizing automation, documentation, and alignment with international best practices. Key components include prioritized appraisal workflows, comprehensive metadata, UUID-based file tracking, and authenticity assurance through fixity checks. The implementation of KAUST's first digital preservation solution in 2020 marked a major milestone in advancing preservation services at the university.

Toward a Data Driven Library Decision: Library Services Dashboard

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Mohamed Ba-Essa
King Abdullah University of Science and Technology (KAUST

Abstract :

In today's digital world, most services are delivered online or in digital formats, generating vast amounts of data. This data holds immense value when effectively analyzed and transformed into actionable knowledge. Libraries, as service-oriented organizations, produce extensive data through traditional services such as acquisition, circulation, collections, and cataloging, as well as emerging areas like digital repositories, digital preservation, online reference services, and research data management. These data streams present unparalleled opportunities for libraries to shape strategies, optimize operations, and enhance services.

The KAUST Library has a well-established commitment to leveraging data for the continuous enhancement of its services and operations. This commitment was significantly reinforced by the university-wide launch of a comprehensive Lean Six Sigma program in 2011, an initiative designed to systematically improve process efficiency and service quality across the entire institution.

Building directly on this foundation of data-driven improvement, the Library strategically embarked on the development of its Library Services Dashboard in 2017. This innovative dashboard was conceived as a centralized, integrated tool specifically designed to document, rigorously monitor, and effectively control the vast array of library services. By providing a unified platform for data collection and analysis, the

Dashboard empowered the Library to gain deeper insights into performance, identify areas for optimization, and ensure that its offerings continually meet the evolving needs of the KAUST community. This proactive embrace of Lean Six Sigma principles and analytical tools underscored the Library's dedication to operational excellence and user-centric service delivery.

Building on its established foundation of data-driven improvement and the pre-existing Library Services Dashboard, the KAUST Library found its foresight particularly validated during the unprecedented COVID-19 pandemic. This global crisis underscored the critical importance of robust data infrastructure.

The dashboard, functioning as a central hub for library operations, enabled real-time monitoring of crucial resources and services. With physical access to the Library often restricted, the ability to instantly track trends in electronic resource usage, remote reference queries, and virtual program attendance became indispensable. This continuous, centralized stream of insights directly informed critical decision-making, allowing the Library leadership to swiftly pivot strategies. For instance, data from the dashboard revealed immediate shifts in demand for specific digital collections or online support, prompting rapid adjustments in licensing agreements, content acquisition priorities, and the deployment of remote assistance. This agility ensured the uninterrupted continuity of essential services to the KAUST community, minimizing disruption to teaching, learning, and research. The dashboard's capacity to provide actionable data in times of crisis not only demonstrated its immense value but also solidified the Library's reputation as a resilient and adaptable partner in supporting the university's mission, even under extreme pressure.

In this paper, we will explore in depth:

- Identification of Service-Related Systems and Processes. We will detail the methodologies employed by the Library to systematically identify and assess its diverse range of internal systems, operational processes, and user-facing services. This foundational step is crucial for establishing the necessary parameters to enable truly data-driven decision-making.
- Mechanisms for Data Collection and Integration. The paper will outline the Library's strategic approach to establishing consistent and reliable data collection practices. This includes the complex process of integrating disparate data sources from various library systems into a unified framework, overcoming technical and conceptual challenges to create a holistic data landscape.
- Development of the Library Services Dashboard. We will illustrate the creation of this centralized, powerful tool, demonstrating how data from diverse systems and processes—ranging from resource usage to service interactions—was consolidated and visualized. Furthermore, we will detail the implementation of advanced monitoring capabilities that provide real-time insights into the Library's web presence, underlying systems, and the performance of key services.
- Impact During the COVID-19 Pandemic. A significant portion of the paper will be dedicated to analyzing how the dashboard directly influenced library management and strategic decision-making throughout the unprecedented challenges posed by the COVID-19 pandemic. We will highlight compelling examples demonstrating the critical value of having centralized, actionable insights at hand during a global crisis, showcasing the dashboard's role in maintaining service continuity and adapting swiftly to evolving user needs.

This detailed exploration underscores the profound and transformative potential of leveraging data within academic libraries. By embracing a strategic, data-driven approach, institutions like KAUST can not only enhance operational efficiency and

resource allocation but also proactively address emerging challenges, seize new opportunities, and consistently evolve as innovative and responsive pillars of the academic community.

Additionally, the paper presents foundational case studies—including a Lean Six Sigma textbook acquisition project and the development of the Institutional Research Tracking System (IRTS) to support Open Access initiatives—that laid the groundwork for the Library's current data-driven strategy. The paper outlines future directions, including integrating resource usage analytics further to enhance budgeting, service optimization, and evidence-based decision-making.

Keywords: Digital Transformation, Library Services, Data Analytics, Library Services Dashboards, Data-Driven Approach, Data-Driven Decisions

Employing Augmented Reality (AR) and Virtual Reality (VR) Technologies in the Preservation and Documentation of Heritage in the United Arab Emirates

Dr. Hadeer Kamel

Assistant Professor of Library and Information Science

Library Director – Al Wasl University

Abstract :

Amid rapid technological advancement, **Augmented Reality (AR)** and **Virtual Reality (VR)** have emerged as innovative tools used across various fields, including the **preservation and documentation of cultural heritage**. These technologies enhance the preservation, presentation, and accessibility of cultural heritage in more interactive and effective ways, thereby increasing users' **cultural and national awareness** and transforming their experience in heritage institutions into a more **engaging and innovative journey**.

The **United Arab Emirates** is considered a leading country in preserving its cultural and heritage identity. The UAE Ministry of Culture has classified heritage—of all kinds—as a key component of the **cultural and creative industries** that contribute to the national economy, in line with the **National Strategy for Cultural and Creative Industries 2021–2031**.

Accordingly, this study aims—using a **survey methodology**—to investigate the **practical applications** of AR and VR technologies within various information institutions in the UAE, such as different types of libraries, the National Archives, and archaeological and heritage museums. It also explores the role of these technologies in enhancing cultural awareness among users.

The study found that **AR/VR technologies are only partially and minimally used** in information institutions, with **no systematic integration** into services. Their use is mostly limited to virtual tours and exhibitions within the institutions. The study recommends developing a **national plan** to integrate AR/VR technologies into information institutions, alongside allocating **independent budgets** to support the effective implementation of these technologies.

Keywords: Virtual Reality – Augmented Reality – Heritage Preservation and Documentation – Information Technologies in the UAE

The Use of Augmented Reality (AR) and Virtual Reality (VR) Technologies in Information Institutions: A Case Study of Mohammed Bin Rashid Library, Dubai, United Arab Emirates

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Assistant Professor of Library and Information Science Former Dean, College of Community and Development Studies Former Dean, Deanship of Libraries – Bahri University, Sudan

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Public Services and Outreach Information Specialist Public Services and Outreach Unit, Medical Library-United Arab Emirates University

Abstract :

This study examines the current use of AR and VR technologies at the Mohammed Bin Rashid Library, highlighting the most important technologies employed to facilitate access for researchers and library users. The primary objective of the study is to explore the library's efforts in providing effective information services that satisfy its users through the implementation of AR and VR technologies. It also seeks to understand users' attitudes towards using augmented reality as a tool for accessing information.

The main research problem addressed in this study is: How are AR and VR technologies used at the Mohammed Bin Rashid Library to develop and enhance services provided to users? This central question leads to several sub-questions:

- What efforts are being made to provide effective information services?
- What are the key AR and VR technologies currently in use?
- What are the main obstacles to utilizing AR and VR technologies?

To achieve its objectives, the study employs a case study methodology, focusing on the practical application of AR and VR technologies in the library. Data was collected using traditional and electronic intellectual output sources, as well as through interviews with library staff as part of the case study.

The findings indicate that the use of AR and VR has improved user experience by facilitating easier access to information, offering self-checkout services, providing interactive content through AR, and guiding users via digital maps. The study recommends enhancing institutional capacities and developing the skills of library personnel. It also emphasizes the importance of training both staff and users to ensure optimal utilization of AR and VR technologies, thereby strengthening the library's role in serving the community and fulfilling its cultural and informational mission in the digital age.

Keywords: Augmented Reality Technologies; Virtual Reality Technologies; Mohammed bin Rashid Public Library; Virtual Reality in Libraries; Artificial Intelligence in Information Institutions.

Employing Metaverse Technology to Enhance and Sustain Heritage in the Kingdom of Saudi Arabia

Haifa Mashal Al-Harbi
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Abstract :

This study aimed to explore the current status of employing Metaverse technology to enhance and sustain heritage in the Kingdom of Saudi Arabia. The study involved understanding the Metaverse technology and clarifying the differences between Virtual Reality (VR), Augmented Reality (AR), and the Metaverse. It also examined applications of the Metaverse, highlighted key supporting technologies, and identified the role of the Metaverse in the cultural sector. Additionally, the study reviewed practical examples of Metaverse technology utilization within Saudi Arabia to promote and sustain heritage.

To achieve these objectives and answer the research questions, the descriptive method with content analysis was used. The study concluded several key findings: Metaverse technology is employed in Saudi Arabia to enhance and sustain heritage through platforms such as the **"Kon Cultural Platform"**, the world's first national cultural Metaverse platform, and the **Al-Ula Historical City** in the Al-Ula Governorate, which has been digitally recreated using Metaverse technology. Al-Ula is also the first Saudi site listed on UNESCO's World Heritage List.

Metaverse technology is recognized as a modern innovation employed in the cultural sector to make heritage accessible to audiences, thereby supporting its sustainability by transcending the limits of time and space. The study recommends enhancing research efforts in the field of modern technologies related to cultural heritage, with a focus on exploring mechanisms for employing these technologies in heritage protection and sustainability. This includes studying practical applications of emerging technologies such as Virtual Reality, Metaverse, and Artificial Intelligence, aimed at developing innovative solutions to preserve and activate heritage.

Keywords: Metaverse, cultural heritage, Metaverse in heritage, Metaverse in the Kingdom of Saudi Arabia.

The Experience of the Coordination and Follow-up Department at Sultan Qaboos University in Managing Electronic Correspondence Using the National Archival System (Wusool): Advantages and Challenges

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Sultan Qaboos University

Safaa bint Ali Al-Hashimiya
Medical Librarian – Al-Sultan Qaboos Hospital

Abstract :

The archive is considered the living memory of the nation, as it contributes to shaping the identity of society and preserving its history. Institutional archives contain a collection of correspondence, documents, and agreements that document their activities and reflect the workflow within them. The present study aimed to present the experience of the Coordination and Follow-up Department at Sultan Qaboos University in utilizing the "Wasl" system, by identifying the benefits it provides, as well as observing the challenges faced by users during its implementation. Based on the study's objectives, a survey methodology was adopted, and interviews were used as the data collection tool. A total of eight interviews were conducted with Wasl system users in the Coordination and Follow-up Department at Sultan Qaboos University. The results showed that the system sufficiently meets the users' needs to accomplish their work tasks. Most of the participants reported receiving training from the National Records and Archives Authority on how to use the system.

The main advantages of the system highlighted by the study sample included: fast communication with internal and external parties, centralization of mail (as all correspondence related to the institution is added in a single system), and savings on printing costs and the delivery of external correspondence. Conversely, the main challenges were sometimes slow system response and unclear permissions for some employees. The study concluded with a number of recommendations, the most prominent being: the necessity of conducting training courses for employees to enhance their understanding of the subject classification mechanism and to accurately define each employee's permissions, ensuring easy access to related topics.

Keywords: Electronic documents, records management, document management systems, archiving system, archive, electronic documents.

Trends of Al-Warraq Center Towards Cultural Sustainability and Its Future Aspirations for Preserving Omani Heritage

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Librarian
Main Library, Sultan Qaboos University

Noura bint Mohammed Al-Raisi
Librarian
Learning Resource Center, Sohar University

Abstract :

This study aimed to explore the attitudes of the Al-Warraq Center towards achieving cultural sustainability, identify the challenges it faces, and examine its future aspirations in preserving Omani heritage. The study employed a qualitative methodology, which allows for the collection of in-depth data related to the center's experiences and future directions. Data were collected through a semi-structured interview with the center's founder, as the study is a case study of an independent cultural initiative concerned with preserving local and national memory.

The findings revealed that the Al-Warraq Center contributes to cultural heritage preservation by promoting awareness of heritage's importance and its role in strengthening national identity; collecting and preserving manuscripts and documents; documenting intellectual heritage; organizing cultural and community events; employing technology for digital preservation and accessibility; and engaging the local community in documentation and preservation efforts. However, the center faces several challenges, most notably the lack of institutional support and stable funding, weak legislation supporting independent cultural initiatives, and difficulties in attracting specialized human resources due to limited resources. Additionally, the center struggles with weak coordination with official institutions and the absence of clear legal mechanisms regulating document circulation and intellectual property protection.

In terms of aspirations, the center plans to launch an interactive website to provide digital access to its materials, expand its programs to include children using tools such as artificial intelligence, establish a cultural endowment for financial support, and develop its technical and human infrastructure.

Based on the findings, the study recommends the development of flexible legislative frameworks to support independent cultural initiatives, the activation of partnerships between governmental institutions and community-based heritage centers in the fields of archiving and documentation, the enhancement of financial and technical support for heritage preservation centers, and the expansion of community awareness programs on the importance of documents and manuscripts in building national cultural identity.

Keywords: Cultural sustainability, cultural awareness, Omani heritage, Omani manuscripts, Al-Warraq Center.

The Role of Blockchain in Supporting Knowledge Management Processes: A Proposed Model

Shahd bint Magdy Nagy Weam bint Muhammad Menshawy

Hurriya bint Muhammad Humayd Al-Din

Abstract :

This paper go deep into Blockchain technology in terms of its concept, characteristics, components, working mechanism, and the challenges facing this technology as requirements for its activation, with the aim of reaching the role of this technology in supporting knowledge management and its operations as one of the tools for enabling knowledge management in an era in which knowledge dominates as an important vital resource, which enhances the sustainability of knowledge and heritage and harnesses the use of Blockchain technology to manage manuscripts and heritage.

The researchers used lecture review for 26 previous studies and articles to come up with important results, including highlighting the importance of the support that this technology provides for knowledge management processes in determining the source of knowledge, transparency in the knowledge creation process, protection, accuracy in the storage process, protection of intellectual rights in the generation process, and support for secure decentralized knowledge sharing in the knowledge sharing process.

One of the most important results of the study was to come up with two proposed models, one of which was activating and supporting Blockchain technology in creating and generating knowledge, and the other model was using knowledge management to activate Blockchain in the organization and its procedures in a way that ensures achieving sustainable development, significantly reducing costs and risks, and enhancing efficiency.

The study also found that Blockchain is one of the emerging technologies that requires understanding and accuracy in dealing, and taking into account all considerations and challenges when applying it because of its impact, most notably the ability to increase and expand in size, in addition to preserving the privacy of sensitive information, protecting it, and providing a degree of transparency in a balanced manner.

The study concluded that it is necessary to enhance the use of the Blockchain in knowledge management and activate this technology to preserve intellectual property rights, document references, and use the models proposed in the study to support cooperation and interaction between knowledge management and Blockchain technology in various directions.

Applications of Artificial Intelligence and Their Role in Subject Analysis and Extraction of Subject Headings for Arabic Manuscripts at the Iraqi Scientific Academy

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Karbala Technical Institute

Abdulqader Ahmed Ali Al-Shaibani
Assistant Lecturer – Northern Technical University
Technical Administration Institute – Nineveh

Abstract :

The study explores the potential of artificial intelligence in subject analysis and extracting subject headings for Arabic manuscripts. The researchers selected ChatGPT as the application model, considering its widespread popularity. The study sample included 50 Arabic-language manuscripts. The descriptive-analytical approach and statistical methods were employed. The findings revealed that ChatGPT demonstrates the capability and potential for subject analysis using Supervised learning based on the input data, making it a reliable tool for subject analysis. The study recommended adopting ChatGPT as a guiding tool for extracting subject headings and conducting more in-depth research on the role of artificial intelligence in subject analysis.

Keywords : Intelligent Artificial – Objective Analysis – Subject Heading – ChatGPT

The impact of applying blockchain technology in the management and preservation of cultural heritage

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Mohy Eldin Koko Bakhit Mersal
Professor, Department of Library and Information Science
Alexandria University

Abstract :

The current study aimed to examine the impact of applying blockchain technology in the management and preservation of cultural heritage. The research sought to understand blockchain technology and how it can be implemented within Arab societies to enhance the preservation and management of cultural heritage. It also aimed to identify the challenges hindering Arab communities from adopting blockchain technology to safeguard their heritage, study the requirements for applying blockchain as a technical tool to secure cultural heritage and protect it from loss or theft, and propose a practical model and framework for employing blockchain technology in Arab cultural heritage institutions. The study relied on a descriptive-analytical approach by administering a questionnaire to a sample of 95 university professors and specialists in computer science. The results indicated that blockchain technology can be applied to preserve cultural heritage within Arab societies by creating a transparent digital cultural registry for each artifact that allows tracking and tracing, issuing blockchain-based digital ownership certificates for heritage items, and establishing open-source digital archives. The challenges facing Arab communities in implementing blockchain for cultural heritage preservation include a lack of qualified experts and specialized programmers in blockchain technology, weak digital infrastructure, the absence of advanced data centers to support blockchain implementation, and the complexity of the technology, which makes it difficult for staff in Arab cultural institutions to understand and use. The study also identified the requirements for maximizing the benefits of

blockchain in heritage preservation: building advanced digital infrastructure, establishing data centers to efficiently operate blockchain, designing smart contracts to generate NFTs for documenting heritage items, assigning unique data for each heritage element, developing advanced APIs to enable integration between blockchain technologies and existing heritage institution systems, establishing partnerships with international institutions to adopt advanced preservation technologies and transfer necessary expertise, and implementing an economic system for NFT trading linked to heritage preservation projects so that revenues support maintenance and restoration programs. The study concluded by proposing a scientific model based on blockchain technology that can be applied within Arab societies for preserving Arab heritage.

Keywords: Digital ownership certificates, cultural heritage, blockchain, heritage collections, Arab societies, smart contracts.

The Effectiveness of Generative Artificial Intelligence as an Innovative Tool for Automating Cataloging Processes in School Libraries: A Comparative Experimental Study

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Faculty of Arts, Mansoura University

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PhD Researcher, Department of Library and Information Science

Faculty of Arts, Benha University

Abstract :

School libraries face increasing challenges in automating cataloging processes using traditional paid systems, which are often unable to meet the rapidly evolving needs in the number of library materials and the growing volume of data. Key challenges include: the high financial costs associated with providing these systems, limited budgets for school libraries, the need for training library specialists, insufficient performance in processing large amounts of data periodically, in addition to the heavy workload on library specialists, which leads to excessive time and effort spent on manual operations. Against this backdrop, the study aims to explore the effectiveness of using generative artificial intelligence, such as ChatGPT, in automating cataloging processes in school libraries. The study seeks to compare the performance of AI with traditional paid systems in cataloging library materials in terms of accuracy, consistency, and flexibility in handling different types of data. It also aims to offer an economical alternative that can improve the efficiency of school libraries and make them more adaptable to the challenges of the digital age. The study relies on a comparative experimental approach to evaluate the practical effectiveness of generative AI compared to traditional systems. A representative sample was collected from various information sources in a school library that achieved a national ranking in a model library competition. This library uses an updated automated system for cataloging its collections, ensuring cataloging accuracy and quality through paid tools. The same sample was then re-cataloged using ChatGPT to

measure the ability of generative AI to improve the cataloging process compared to the traditional paid system. Results were analyzed based on key criteria, including accuracy (indicating the correctness of cataloging operations), consistency (reflecting the uniformity in cataloging various materials in the same manner), and flexibility (the ability to handle multiple categories of library materials, such as books, articles, and multimedia).

The study results indicated that generative cataloging using ChatGPT excelled in qualitative aspects such as subject analysis, flexibility, and ease of presentation, while the automated system was distinguished by consistency and stability in organization. The study recommended creating a generative chatbot for the technical operations database in libraries and developing a specialized generative chatbot to assist libraries in performing technical operations such as classification, cataloging, and referencing. This chatbot can rely on a comprehensive database of library needs.

Keywords: Effectiveness – Chatbots – Cataloging – Artificial Intelligence – Generative AI – ChatGPT – Automated System

Towards Knowledge Sustainability in Saudi University Libraries: A Framework to Enhance the Quality of Resources and Services

Dr. Shaza Mohamed Ayoub Qazdar
Researcher in Knowledge Management

Abstract :

This study highlights the importance of knowledge sustainability as a strategic component in developing services and resources in Saudi university libraries. The study employed a survey methodology to examine the current state of knowledge sustainability and to analyze the key factors and challenges affecting the implementation of its practices in Saudi university libraries. The researcher used observation and document analysis methods, in addition to a questionnaire administered to a sample of library leaders, administrators, and university librarians in Saudi Arabia, as the main tools of the study. The aim was to gain a deeper understanding of current practices and different perspectives, ultimately leading to the development of a comprehensive and practical framework. The results revealed fragmented practices that require an integrated framework to ensure their continuity and quality. Accordingly, the study proposes a practical model that supports the integration of organizational, human, technological, and environmental dimensions into library policies. The recommendations emphasize the need to activate partnerships, promote a culture of sustainability, and adopt performance indicators to measure the effectiveness of these practices.

Keywords: Knowledge Sustainability – Knowledge Sustainability Practices – Knowledge Sustainability Framework – Saudi University Libraries – Sustainable Development.

A Plan for Developing the Manuscripts Department at King Abdulaziz University Library Through Generative AI Tools and Experts

Dr. Duha Hassan Alsereihy

Director of the General Administration of Libraries,

King Abdulaziz University

Abstract :

Manuscripts are vital sources of information and heritage, reflecting scholars' contributions across different eras. This study introduces the Manuscripts Department at King Abdulaziz University Library in Jeddah and proposes a framework for its development. It also examines the role of generative research tools in shaping such a development plan. Using a case study approach, the department was analyzed from multiple perspectives, and AI tools including DeepSeek, ChatGPT, ThinkAny, Perplexity AI, and Google Gemini were employed to extract actionable insights. The findings were reviewed by two experts, resulting in a practical, staged development plan. The study demonstrates that generative tools can effectively assist in summarizing ideas and supporting strategic planning.

The role of the Restoration House Institution in the Sultanate of Oman in preserving and sustaining documentary heritage

Nawal bint Ali bin Abdullah Al-Balushi
Learning Resources Specialist

Abstract :

The study aimed to explore the role of Beit Al-Tarmeem Institution in the Sultanate of Oman in preserving and sustaining documentary heritage, identify the main challenges it faces in this work, and understand the institution's key future aspirations regarding heritage preservation and its modern requirements. The study employed a qualitative approach, specifically the case study method, with structured interviews as the primary data collection tool. These interviews were conducted with the founder of Beit Al-Tarmeem, who is also the head of the institution and responsible for its operations, in addition to consulting some of the institution's internal documents.

Among the main findings of the study is that Beit Al-Tarmeem undertakes a variety of roles and practices to preserve documentary heritage, including the maintenance and restoration of various types of containers and heritage and historical materials such as manuscripts, documents, artifacts, and stone prints. The maintenance process consists of six stages: sterilization, cleaning, treatment, restoration, binding, and preservation. The institution also provides training in this field, offers consultancy services for exhibitions and museums, and supports manuscript preservation centers. It manufactures some materials and tools, such as paper, storage boxes, and museum display tools, and collaborates with individuals and institutions both within Oman and abroad.

The study highlighted that the main challenges faced by Beit Al-Tarmeem are financial and human-resource related. As for its key aspirations, the institution aims to expand its product offerings, develop the tools used, adopt modern technological methods, and lead in the maintenance and restoration of documentary heritage in the Middle East.

Among the key recommendations of the study is the need to focus on the marketing aspect of Beit Al-Tarmeem to raise awareness of the institution and its work in preserving documentary heritage. It is recommended to leverage modern technologies to promote the institution and showcase its services and products in innovative and appealing ways, such as employing augmented reality (AR) and virtual reality (VR). Additionally, appointing a staff member to manage and activate the institution's social media accounts is advised. Participation in exhibitions associated with conferences, forums, and related events both inside and outside the Sultanate, establishing sales points for the institution's products to support its budget, expanding and diversifying collaborations with individuals and institutions, and focusing on training were also recommended.

Keywords: Cultural heritage, documentary heritage, Beit Al-Tarmeem Institution, heritage preservation initiatives, modern technologies, Sultanate of Oman

Evaluating the Impact of Electronic Services on Service Quality at Zayed Central Library: A Case Study

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Senior Reference and Instruction Specialist

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Abstract :

The public libraries of Abu Dhabi, under the Department of Culture and Tourism – Abu Dhabi, have witnessed a significant digital transformation that reflects their commitment to providing advanced knowledge services tailored to community needs. Their digital journey began with the early development of electronic services such as digital catalogs and automated lending systems, which facilitated easier access to information resources.

In subsequent stages, the libraries expanded their offerings by launching integrated electronic portals that allow users to browse books, reserve resources, and access global databases remotely, including ProQuest, Ma'arefa, EBSCO, OverDrive, Dar Al-Munthoma, Nile & Furat, Taylor & Francis, and PressReader. These advancements contributed to enhancing service quality by enabling rapid access to information and reducing reliance on paper-based procedures.

The impact of these improvements has been measured through increased engagement with digital services and higher user satisfaction rates. Among the successful case studies is the digital library platform launched during the COVID-19 pandemic, which provided thousands of free e-books and audio-visual materials to diverse user groups.

Looking ahead, the digital transformation is expected to incorporate artificial intelligence technologies such as personalized recommendations and usage data analytics, alongside augmented reality to deliver more interactive learning experiences. This will position Abu Dhabi Public Libraries as a pioneering model of cultural innovation.

This study was conducted to evaluate the strengths and weaknesses of the electronic services offered to the public, with a focus on identifying user needs and proposing constructive recommendations for management. To achieve this, a questionnaire consisting of 12 questions was distributed to a sample of 50 library users between January 5 and January 10, 2025.

Investing Metaverse Technology in Digital Libraries in the United Arab Emirates

Iman Saeed Salem Al-Hamoudi
Board Member, Emirates Association for
Libraries and Information

Abstract :

The idea of the current research emerged around studying the reality of using the metaverse in digital libraries in the United Arab Emirates. It aimed to answer research questions related to the current use of the metaverse in digital libraries in the UAE, the challenges facing the use of the metaverse in these libraries, and how to invest the metaverse technology in digital libraries in the UAE. The study employed a descriptive survey methodology, primarily using questionnaires and interviews conducted during visits to selected models. The findings revealed a limited actual spread of metaverse technologies in digital libraries, with current uses concentrated mainly in a few academic and commercial libraries, despite the national trend towards digital transformation. The study recommended increased awareness, support, and development efforts to enhance the integration of metaverse technologies in digital libraries.

Employing Computer Vision and Machine Learning Techniques to Improve the Management and Retrieval of Archived Digital Documents in Okaz Newspaper: A Proposed Framework

Noha Faris Al-Mahmadi

Razan Hussam Al-Ahmadi

Asma' Jamaan Al-Malki

Abstract :

This study addresses one of the most discussed and widespread topics in the age of information, aiming to propose a conceptual framework for employing computer vision technology in Okaz newspaper. This technology, based on artificial intelligence, contributes to enhancing the management and retrieval of archival documents in general and archived journalistic materials in particular, given the wealth of information these materials represent as a national heritage. The researchers adopted the descriptive methodology and utilized personal interviews as a tool, encompassing three main themes for the study's focus group, represented by the Head of the Okaz Information Center in Jeddah. This approach aimed to gain a clear understanding of the current challenges facing the newspaper and the strategies employed in digitally managing the journalistic archive. The researchers explored several concepts related to digital archiving, computer vision technologies, the latest technological advancements, and their associated ethical considerations, as well as the challenges faced by both archivists and researchers .

They also reviewed recommendations and research proposals from previous studies, integrating these insights with the latest developments in artificial intelligence and machine learning fields. The study's findings demonstrated the effectiveness of computer vision technology in improving the methods of archiving digital journalistic materials at Okaz newspaper by enhancing their management and facilitating better access to their content.

Keywords: computer Vision, Visual AI, Archive, Digital Archive, Digital Documents.

Waqf Libraries and Artificial Intelligence: Towards Innovative Management and Digital Preservation of Heritage and Knowledge

Neama Mohammed Ahmed Jameh

Abstract :

This study aims to identify the impact of artificial intelligence on the management of endowment libraries. It also discusses the possibility of transforming endowment libraries into interactive centers that attract visitors by leveraging artificial intelligence to display rare collections and manuscripts.

The study adopted the documentary approach to collect data from previous studies and relevant documents for the case study. Data was collected by reviewing a set of reliable sources and references to obtain accurate information that supports the research and contributes to achieving the desired results.

The study concluded that artificial intelligence represents a strategic opportunity to modernize endowment libraries, enabling them to transform from traditional institutions into smart and interactive knowledge centers. The study also demonstrated that artificial intelligence contributes to the integration of Islamic endowment concepts and modern technologies in preserving heritage and disseminating knowledge. Artificial intelligence tools contribute to enhancing the efficiency of endowment library management and improving the user experience. Training and qualifying human resources, enhancing their technical skills, and adopting clear and specific organizational and ethical policies for the use of artificial intelligence technologies to handle information and resources safely and fairly.

Keywords: Endowment, Artificial Intelligence, Endowment Libraries, Innovation, Information Management.

The Role of Blockchain Technology in Preserving and Managing Manuscripts: A Theoretical Study

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Faculty of Arts and Humanities, King Abdulaziz University

Dr. Mona Farouk Shahwan
Assistant Professor, Department of Information Science, Faculty of Arts and Humanities, King Abdulaziz University Tanta University

Abstract :

The study aims to explore the potential benefits of utilizing blockchain technology in the preservation and management of manuscripts, to identify the impact of adopting this technology on facilitating the exchange of manuscripts between cultural and academic institutions, and to determine the material and technical requirements for employing blockchain in manuscript management. The study used a descriptive method using content analysis by reviewing scientific literature related to the subject in intellectual production and presenting models and proposals that have demonstrated the effectiveness of blockchain technology in the preservation and management of manuscripts. I relied on standard observation as a tool for data collection. The findings indicate that blockchain technology can enhance the security of manuscript preservation and protect them from intellectual property violations. It also facilitated the exchange and sharing of manuscripts among authors and researchers. The study recommends that institutions adopt this technology to improve the preservation and management of manuscripts.

Keywords: Blockchain - Manuscript Preservation - Manuscript Management – Manuscripts- Document management

Keywords:: iBeacon technology, Museum Materials Management, Educational Museum of Antiquities, Faculty of Arts, Alexandria University.

A Multisensory System for Classifying Arabic Manuscripts

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Arab League Educational, Cultural and Scientific Organization (ALECSO)

(League of Arab States)

Abstract :

Efforts to digitize and archive Arabic manuscripts face fundamental challenges, primarily due to the sharp variation in their physical and visual characteristics, which confound traditional automated recognition systems that rely on uniform pattern models. A critical gap exists in the absence of an intelligent classification mechanism that assesses a manuscript before any deep processing or analytical reading takes place.

In response to this need, the study adopted an experimental and applied approach by developing a proof-of-concept framework called "Al-Shanty System". This modular system is based on microservices architecture and aims to simulate a set of specialized digital senses within an interconnected and scalable environment. These "senses" leverage capabilities of modern AI models such as OpenCLIP, DINOv2, Kraken, and DocTR, operating in a zero-shot mode to extract multiple qualitative indicators including text density, script entanglement, page condition, handwriting quality, and more.

These indicators are sent to an analysis unit that employs the Human-in-the-Loop (HITL) principle, where outputs are reinterpreted by an artificial linguistic intelligence that connects signals and generates a coherent interpretative reading. This process is supervised by a human expert to ensure the accuracy and contextual appropriateness of the interpretation for research purposes.

In parallel, a fine-tuning experiment was conducted on three main "senses" — CLIP, DINOv2, and DocTR — using Arabic manuscript data, to test the feasibility of adapting general models to the specifics of Arabic manuscripts. Results showed marked improvement in system performance

after fine-tuning, both in the accuracy of script type estimation and clarity of manuscript quality indicators, demonstrating the importance of this strategy to compensate for the lack of dedicated Arabic training data in the original models.

Keywords: Arabic manuscripts, manuscript classification, intelligent handwritten recognition, deep indexing, artificial intelligence, computer vision, deep learning, proof of concept, digital image processing, system architecture, human-in-the-loop, intelligent senses, multiple intelligences, classification decision, text density, text blocks, text clarity, script entanglement, senses fine-tuning, synergistic tagging.

اليوم الثالث

Third Day

الخميس 18 سبتمبر 2025

Thursday 18 September 2025

Table of Contents

Session 19	Managing Audiovisual Documents Within the Legal Frameworks of Artificial Intelligence Technologies	Fatima Al-Ayeb, Dr. Basma Al-Basir
Session 19	The Role of Governance in Enhancing the Sustainability of Cultural Heritage Institutions: A Conceptual Analysis and Future Directions	Rana Saifi Al-Mutairi

The reality of intellectual property in the digital repository of Saudi theses at the Saudi Digital Library

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King Abdulaziz University (KAU)

Abstract :

The study aimed to identify the reality of intellectual property in the digital repository of university theses in the Saudi Digital Library by knowing the extent of free access to university theses in the Saudi Digital Library and knowing the extent of awareness of graduate students of intellectual property rights in their intellectual production and knowing the availability of intellectual property rights policy in the digital repository in the Saudi Digital Library. To achieve the objectives of the study, the researcher used the descriptive survey method, by applying a questionnaire (15 statements) applied to a sample of (234) graduate students in five Saudi universities representing the regions of the Kingdom of Saudi Arabia.

That the digital repository for university theses at the Saudi Digital Library allows researchers free access to information, either open access or restricted access according to the available availability of the university thesis, and the lack of awareness of graduate students of the concept of scientific honesty and understanding their rights and duties for intellectual property by 83%, and that there is no clear and written policy on the front of the repository and no publishing agreement between the author and the repository by 100% from the point of view of graduate students. The study recommended several recommendations, the most important of which is the need to prepare and formulate policies to protect intellectual property and related policies in a clear, written and announced manner, to be displayed on the main interface of the digital repository, as well as the need to increase awareness for students through the university providing courses and urging students and forcing them to attend them.

Keywords: Intellectual property, digital repositories, university theses, Saudi digital library, Saudi universities.

The Future Directions of Technical Processing of Arabic Manuscript Heritage in Light of Modern Technologies and Artificial Intelligence: A Foresight Vision

Prof. Mohamed Fathi Abdel Hady

Professor of Information Science

Faculty of Arts – Cairo University

Abstract :

The Arab manuscript heritage enjoys particular importance not only in the Arab and Islamic world, but also on a global scale. It represents the richest body of manuscript heritage, extending across many centuries and existing in more than 100 countries worldwide. In addition to its value, it plays a vital role in highlighting the genuine Arab-Islamic contributions to various branches of knowledge, making it a rich source for numerous studies and research.

This intellectual heritage requires precise description and proper organization of its materials in order to facilitate easy and efficient access.

The present study aims to plan for the future of the technical processing of Arab intellectual heritage manuscripts, following a thorough examination of the current situation and identifying strengths, weaknesses, opportunities, and threats.

The study adopts the descriptive method, using content analysis of available standards, rules, systems, and applications, as well as surveying the opinions of experts in the field to reach a consensus on a future plan.

The proposed future planning is built on two main pillars: establishing an Arab body or authority responsible for Arab manuscript heritage, and developing several programs related to standardized cataloging rules, creating a unified authority file for the names of heritage authors, establishing an Arabic manuscript subject headings list, and devising a unified classification system for Arabic manuscripts.

Keywords: Arab-Islamic heritage; Arabic manuscripts; manuscript cataloging; manuscript classification; cataloging standards; name authority files; manuscript cataloger.

Development of a Knowledge Base and Its Integration with an Intelligent Research Assistant Built on GPT Generative Transformer Technology for Heritage Collections at Alexandria University: A Quasi-Experimental Exploratory Study

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Faculty of Arts – Alexandria University

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Abstract :

This study aimed to develop an intelligent research assistant tailored to the heritage collections of the Central Library at Alexandria University. The assistant was constructed through the development of a structured knowledge base in JSON format, integrated with an advanced language model built upon fine-tuned pre-trained generative transformer technologies (GPT). The significance of this study stems from the pressing need to transcend the limitations of traditional search tools, particularly within knowledge-intensive environments. A quasi-experimental design was employed, consisting of two phases: a pre-test utilizing conventional search tools, followed by a post-test using the developed intelligent assistant. Eleven (11) domain experts from the library community specializing in heritage and manuscripts participated in the study. They completed five realistic research tasks designed to evaluate

key performance indicators, including precision, recall, response time, and the F1 score. Additionally, the study assessed performance improvements and user satisfaction with the assistant. The findings revealed statistically significant differences in favor of the intelligent assistant at the <0.05 significance level, with a mean difference of $t = 9.04$ ($P < 0.001$), supported by a remarkably strong effect size (Cohen's $d = 4.22$). Participants demonstrated a substantial improvement in performance, with an average increase of 57% in the number of correct responses and a 54% reduction in time required. The F1 score reached its optimal value of 1.0. All

participants (100%) expressed a preference for using the intelligent assistant, with a high satisfaction rating of 4.83 out of 5. No statistically significant differences were observed attributed to demographic variables, as all ANOVA values were above 0.46. These results affirm that integrating GPT-based models with well-structured knowledge bases can affect a transformative shift in how researchers interact with heritage collections. The approach presents a promising direction for advancing semantic retrieval systems within specialized Arabic academic contexts.

The Role of Museums in Enhancing Communication and Engagement with Historical and Cultural Heritage: The Museum of Oman Through Time as a Model

Mohammed bin Khamis Al Busaidi

Mohammed bin Matar Al-Harasi

Abstract :

The study aimed to introduce the modern methods and techniques used in museum exhibitions, highlight the role of modern technologies in conveying ideas and preserving historical and cultural heritage, and identify the technologies employed at the Museum of Oman Through Time to present the historical and cultural heritage of the Sultanate of Oman. Additionally, the study examined visitors' experiences at the museum and measured their satisfaction with the technologies and exhibition methods used in presenting museum content.

The study employed a survey and descriptive approach, with data analyzed using quantitative methods through a questionnaire designed to gather visitors' opinions about the technologies used in the Museum of Oman Through Time and their effectiveness in enhancing access to and interaction with Oman's historical and cultural heritage.

The main findings of the study were as follows:

- Augmented reality (AR), virtual reality (VR), 3D technologies, and interactive screens used in the Museum of Oman Through Time significantly enriched the visitor experience by providing clearer, more tangible, and culturally informative content.
- The results showed a high level of visitor satisfaction with the variety of technologies used to present museum content. These technologies facilitated easy access to information and interactive engagement with the screens, making information easier to understand while providing an educational and scientific experience of added value.
- AR and interactive technologies contributed positively to the visitor experience by providing an inspiring and engaging environment that allows easy access to information and creates a

realistic experience of various historical aspects, including traditional and historical industries, manufacturing methods, and materials used, in an interactive and educational manner. This created an enjoyable experience for visitors, resulting in a scientific and educational journey suitable for all ages and groups, reinforcing knowledge in a clear and accessible way and encouraging repeat visits to the museum.

Based on these findings, the study recommended several measures, most notably: designing a three-dimensional virtual map of the museum available on the website, allowing interested individuals to undertake remote exploratory visits, thereby enhancing digital access, reaching broader audiences, and promoting the museum's components and technologies. It also recommended introducing smart robots supported by artificial intelligence to serve as interactive museum guides within the halls, providing a personalized and intelligent experience that enhances visitor interaction with exhibits. Additionally, continuous development of the technologies used in the museum in line with AI advancements was recommended to ensure the museum keeps pace with rapid technological developments and improves the visitor experience.

Keywords: Museums, Content Management, Historical Heritage, Smart Technologies, Museum Materials, Museum Narration, Sultanate of Oman

:Technical Solutions for Protecting the Circulation of Digital Content A Forward-Looking Perspective on Digital Archive Management Policies in Arab Information Institutions

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Abstract :

Research Problem :The world is experiencing an accelerated digital transformation across all sectors, including libraries and digital repositories, which presents both challenges and opportunities to redefine library services and revive cultural heritage. The digital transformation platforms of Sharjah Libraries serve as a pioneering model in leveraging digital technologies to enhance access to knowledge and heritage. This contributes to the emirate's vision as a knowledge and cultural hub in the Arab world and strengthens its position as an incubator of innovation in the field of digital libraries.

Research Objectives

- Study the impact of the digital repository on enhancing digital access and providing advanced services to users.
- Analyze the effect of the electronic resources borrowing system in offering a flexible and seamless user experience.
- Evaluate the "Smart Knowledge Library" platform as a pioneering initiative to support training and scientific research through diverse and accessible educational content.
- Assess the technologies used to organize and index digital resources and their integration with other library catalogs.

• Provide recommendations to enhance digital sustainability and ensure integration with local and regional libraries.

Research Methodology: This research adopts the descriptive methodology through a case study approach, focusing on analyzing the model of digital transformation platforms implemented by Sharjah Libraries, and comparing global best practices in the digital transformation of libraries.

Examining issues related to digital preservation, intellectual property rights, and user experience design.

Research Results : The digital transformation platforms of Sharjah Libraries are effective tools for enhancing free access to knowledge through the organization and indexing of digital resources using advanced technologies that support integration with other library catalogs.

• These platforms contribute to the revival of cultural heritage through the digital archiving of manuscripts, rare books, and heritage documents, ensuring sustainability and accessibility for future generations.

Keywords: Sharjah Libraries, digital transformation, digital access, cultural heritage, digital archiving.

Application of ChatGPT in the Main Library at Sultan Qaboos University: A Study on Developing Cataloging and Classification Services – A Case Study

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PhD in Knowledge Management

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Abstract :

The study aimed to explore the current use of artificial intelligence technologies, specifically the ChatGPT model, in cataloging and classification processes at the Main Library of Sultan Qaboos University. The study adopted a qualitative approach, collecting data through interviews with a purposively selected sample of four staff members directly involved in the library's cataloging and classification operations. Additionally, some bibliographic records created using the technology were compared with records produced by the staff.

The results indicated that ChatGPT is actively used in specific parts of the technical process, particularly in suggesting classification numbers and subject headings, which helped accelerate work and save time and effort. The participants confirmed that the technology has become part of the department's daily practices, although human review remains necessary to ensure accuracy and quality. They also highlighted the potential to expand ChatGPT's use to other services, such as current awareness and reference services.

The study recommends expanding the use of ChatGPT in cataloging and classification processes at the library while ensuring staff supervision to verify the accuracy and quality of outputs. It also calls for updating technical systems to ensure compatibility with AI technologies and organizing training programs to enhance staff skills in using these technologies.

Keywords: ChatGPT, Cataloging and Classification, Artificial Intelligence in Libraries, Main Library of Sultan Qaboos University.

Modern Trends in Artificial Intelligence Technologies in Museums and Heritage Institutions: An Analytical Study of Arab and International (2025–2020) Intellectual Literature

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Information Science

Abstract :

This study analyzes recent trends (2020-2025) in the application of artificial intelligence (AI) technologies within museums and cultural heritage institutions. Drawing on a critical and comparative review of both Arabic and international literature, the research Shows how AI enhance visitor experience, and institutional sustainability and culture preservation, the study discussed chatbots, the virtual reality and image and behavioral analytics depend on big data.

Findings reveal that AI significantly contributes to cultural engagement, personalized content delivery, and operational cost reduction. However, challenges such as infrastructure limitations, lack of technical expertise, and ethical concerns remain prominent. The study recommends that Arab institutions actively adopt AI technologies through collaborative initiatives and digital policy reforms, and urges future research to focus on culturally adaptive and practical implementation models.

Challenges of Knowledge Sustainability and Heritage Preservation in the Era of Artificial Intelligence: The Case of ChatGPT

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Abstract :

The world is currently witnessing a qualitative shift in the ways knowledge is produced and heritage is preserved, driven by rapid advancements in artificial intelligence technologies—particularly generative models such as ChatGPT. This study critically explores the role of these models in ensuring knowledge sustainability and safeguarding cultural heritage. It focuses on three core axes: first, analyzing the contributions of AI models to documentation, analysis, and dissemination of cultural content; second, discussing key challenges such as contextual loss, bias, and legal and ethical concerns; and third, offering practical proposals and recommendations to ensure effective and equitable sustainability that respects cultural diversity and community rights. The study concludes that the sustainability of knowledge in the age of artificial intelligence is not merely a technical issue but one that demands participatory systems, legal frameworks, and culturally sensitive algorithms.

Keywords: Artificial Intelligence, Knowledge Sustainability, Heritage Preservation, ChatGPT, Algorithmic Bias, Digital Heritage, Generative AI.

Enhancing Scientific Resource Accessibility at NSTIC: The Role of an Integrated Library System in Supporting SDGs

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Abstract :

This paper examines the implementation of a new Integrated Library System (ILS) to enhance digital access to the collections of the National Scientific and Technical Information Center (NSTIC) and its contribution to the Sustainable Development Goals (SDGs). The ILS serves as a comprehensive platform for managing NSTIC's printed and electronic resources, ensuring efficient access to information while adhering to international standards for library systems and metadata management. A key feature of the ILS is its support for the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), enabling seamless interoperability with other repositories and systems. This functionality allows NSTIC's collections to be accessible and discoverable within broader scientific and technical information networks. By fostering connectivity with global repositories, the ILS enhances collaboration and knowledge dissemination. The research adopts a mixed-methods approach, combining content analysis and semi structured interviews with researchers at the Kuwait Institute for Scientific Research (KISR). The findings highlight the transformative potential of advanced library technologies like the ILS in modernizing information management practices. The integration of international metadata standards and interoperability protocols positions NSTIC as a central hub for scientific and technical information in Kuwait and the region. Additionally, the system's cloud-based infrastructure aligns with sustainability goals by minimizing server usage and energy consumption. The ILS also supports key SDGs, including Goal 4 (Quality Education) by improving access to high-quality resources for lifelong learning, Goal 9 (Industry, Innovation, and Infrastructure) by modernizing scientific infrastructure, Goal 16 (Peace, Justice, and Strong Institutions) by promoting transparency and knowledge-sharing, and Goal 17

(Partnerships for the Goals) by fostering global collaboration through interoperable systems. This research demonstrates the importance of adopting innovative library systems to improve accessibility and discoverability of information resources, ultimately supporting knowledge sharing and the achievement of SDGs. The implementation of the ILS at NSTIC showcases how technology can bridge gaps in digital access, promote equitable knowledge distribution, and contribute to building a sustainable and inclusive knowledge society.

Keywords: Integrated Library System, Digital Access, NSTIC, SDGs, KISR

The Future of Smart Practices in Kuwait's Museums
A Foresight Study

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Siham Alostath

Dr. Nahed Al-Haidari

Abstract :

The trend toward the use of smart practices in the museum and antiquities sector has become one of the recent topics addressed in the literature.

This study will review previous research and literature in this field, with a particular focus on the Arab Gulf states.

Since this topic is still emerging and in its developmental stage, the present study aims to achieve a main objective: conducting a foresight study to explore future perspectives on smart practices in museums in the State of Kuwait, using the Delphi method and future scenarios approach. This will be carried out through interviews with a sample consisting of experts and professionals working in museums and museum management.

Keywords: Smart Practices – Foresight Study – Museums – Kuwait

The Metaverse and Its Legal Implications on the Protection of Intellectual Property for Documentary Heritage: An Analytical Study: A Comparative Perspective in Light of Egyptian Law and the Saudi System

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Abstract :

The study aims to identify the legal challenges arising from the Metaverse environment and their impact on the protection of documentary heritage in archives and heritage institutions in light of Egyptian and Saudi law. It also seeks to review the concept and origin of the Metaverse, explore its potential use for protecting the intellectual property of documents, examine the adequacy of Egyptian and Saudi laws in providing protection for such heritage within the Metaverse environment, and propose mechanisms to establish comprehensive legal frameworks to support the safeguarding of virtual documents in the Metaverse.

The research problem lies in the many concerns regarding the exposure of documentary heritage on the Internet due to the risk of theft. With the emergence of the Metaverse, based on blockchain technology and non-fungible tokens (NFTs), new opportunities have begun to arise for protecting national documentary heritage. Therefore, effective legal frameworks must be established to ensure the full protection of documents in the virtual environment.

To achieve the study's objectives, the content analysis method was employed by collecting data and information relevant to the protection of documentary heritage in the Metaverse as a tool for investigating and analyzing related legal and legislative texts in Egypt and Saudi Arabia, and evaluating their applicability to virtual documents. The comparative method was also used to adopt the most suitable legal texts for the Metaverse environment.

The study reached several key findings, the most prominent of which are that the protection of intellectual property rights for documentary heritage plays a pivotal role in promoting heritage within the Metaverse. However, it raises significant challenges regarding the determination of

jurisdiction in protecting the intellectual property of documentary heritage. Furthermore, there is an absence of laws specifically addressing the protection of intellectual property for documents in the Metaverse in both Egypt and Saudi Arabia, necessitating amendments and the enactment of new laws suitable for the Metaverse environment.

The study recommends revising and updating national laws related to intellectual property protection, adopting blockchain and NFT technologies to prove digital ownership within the Metaverse, and joining international treaties and agreements on the subject to encourage heritage institutions to protect the intellectual property of documentary heritage in this Metaverse environment.

Keywords: Metaverse, Documentary Heritage, Intellectual Property, Legal Challenges, Egyptian Law, Saudi Law, International Protection

Management of Audiovisual Documents According to the Legal Frameworks for Artificial Intelligence Technologies

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Abstract :

Over the past decade, artificial intelligence (AI) technologies have permeated all sectors, including the field of documentation and information. These technologies now pose significant challenges for the management of documentation and information centers, particularly audiovisual archives. However, the lack of adequate legal frameworks governing AI technologies and their applications remains a major obstacle to their adoption in information centers.

This study aims to analyze the extent to which the legal frameworks in Tunisia are prepared to keep pace with technological developments related to the use of AI in managing audiovisual archives, and to assess their alignment with international standards and regulations. The study adopts a qualitative methodology based on content analysis of legal texts and international reference standards, such as the European Union's Artificial Intelligence Act, the Riyadh AI Ethics Charter for the Islamic world, and UNESCO's recommendations and guidelines. It also examines national legislation related to archives, along with Tunisian digital transformation initiatives. The study seeks to identify legislative gaps and propose insights for aligning national regulations with international standards to ensure effective use of AI technologies in preserving and enhancing audiovisual heritage.

Keywords : Audiovisual archives - artificial intelligence – Legal frameworks - international standards - Tunisia.

The Role of Governance in Enhancing the Sustainability of Cultural Heritage Institutions: A Conceptual Analysis and Future Directions

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Abstract :

This study addresses the topic of governance in cultural heritage institutions by analyzing its role in achieving institutional and cultural sustainability. A qualitative analytical approach was adopted, relying on qualitative content analysis of a selected set of international documents, reports, and applied studies. Their content was classified according to an inductively designed analysis framework, covering key analytical categories related to governance principles, practices, obstacles, dimensions of sustainability, as well as the relationship between governance and sustainability and future trends.

The study's findings indicate that the application of governance principles such as transparency, accountability, and community participation is a fundamental factor in enhancing sustainability in heritage institutions. It also showed that participatory and multi-level models provide organizational flexibility, greater capacity to accommodate cultural diversity, and the ability to overcome challenges related to centralization and weak coordination among entities. The study emphasized the importance of involving local communities in decision-making, employing digital tools in governance, and benefiting from international experiences proven effective in this field.

Accordingly, the study recommended a set of measures, most notably: activating interactive digital platforms for citizen engagement, developing hybrid governance models, supporting local communities, enhancing institutional capacities, and diversifying funding sources through cultural endowments.

Keywords: Governance, Cultural Heritage Institutions, Cultural Governance, Cultural Policies.


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