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| **RESEARCH ARTICLE**

# Knowledge Management Systems and Usability Elements: A Literature Review

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| **ABSTRACT**

This study aimed at conducting a scientific review of intellectual production to determine how Knowledge Management Systems and Usability Elements evolve, which included global studies; Arabic and English published between 2000 and 2024 AD which appeared in the search results in three global databases IEEE, Google Scholar, ProQuest and an Arabic database platform, Dar Almandumah and Google Scientific Researcher as well as the Saudi Digital Library portal SDL. 112 sources of information were extracted from the original 550 and analyzed and reviewed in 4 main axes, The audit showed the temporal evolution of the concept of knowledge management systems from a purely managerial perspective to cognitive technical systems and the evolution of elements for assessing usability and the start of linking the two concepts to the most important digital indicators of the study concepts. One of the most notable findings of the study was the modest Arab intellectual production of usability and knowledge management systems compared to foreign production. The emergence of knowledge management systems began in 1978 in the medical field. knowledge management ", while the linkage between the term usability and knowledge management systems emerged in 2003 in a scientific paper linking knowledge management and elements of usability assessment, Research trends in knowledge management systems are summarized in 7 main themes: (Medical Field - Educational Field - Decision Making Systems - Knowledge Management Processes - Quality - Innovation - Artificial Intelligence) While the study found a 26.7% acquisition by the United States of America of total study conferences, the study also found several elements to assess usability; They fall into six main themes: Learning Ability - Information Content - User Interface - Handling Errors - Usability - Protection and Reliability.

| **KEYWORDS**

Knowledge Management Systems - Usability - Evaluation of Knowledge Systems - User Interface Design - Enhancing Usability - User Interfaces.

| **ARTICLE INFORMATION**

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## 1. Introduction

Knowledge is fundamentally dependent on the human resource, which is considered a critical component in acquiring knowledge and expertise. In order to achieve mutual benefits between human resources and institutions, it is essential to utilize and organize knowledge effectively. Knowledge Management Systems (KMS) provide an innovative methodology for acquiring, organizing, sharing, and generating knowledge. According to Yamani, Hussein and Atoum (2018:101), many knowledge systems fail to achieve optimal utilization of available knowledge resources. One of the main reasons for such failure is the lack of a robust infrastructure necessary for the successful implementation of KMS. This infrastructure includes organizational structures, organizational culture, leadership, information technology, creative thinking, human capital, and knowledge needs.

Given that information technology is a fundamental element of the KMS infrastructure, user interaction with technical systems is one of the most crucial factors in evaluating system quality and success. Therefore, effective interaction between KMS and

human elements—particularly in terms of system usability and ease of use—maximizes the benefits of KMS and makes usability evaluation a critical factor in their success.

This literature review aims to focus on two interrelated domains: Knowledge Management Systems and Usability Elements. The objective is to track the development of these domains in terms of conceptual evolution, historical emergence of terminology, and their convergence in scholarly studies. It also examines the topics and research trends associated with each concept, in addition to reviewing the conferences that have supported and disseminated these **concepts.**

The review investigates both Arabic and English scholarly outputs from various academic databases including the Dar Almandumah platform (for Arabic sources), IEEE Xplore, and ProQuest (for English sources), as well as digital search engines such as Google Scholar and the Saudi Digital Library Portal. The study places particular emphasis on the period from 2000 to 2024 to analyze trends and track digital indicators for the relevant terminologies, in addition to highlighting key conferences held during that time.

### 1.1 Study Framework
The structure of this study is organized around four main thematic axes:

1. Scope of the literature and the methodology used in reviewing it, including justification for the selected databases.
2. Definitions of the core terminologies and the evolution of concepts, along with the convergence of the two fields and a review of major conferences from 2000 to 2024.
3. Digital tracking indicators of the literature and the criteria used for filtering the scholarly output, along with the analysis of the results to reflect the current state of the fields.
4. Deriving key conclusions based on the results of the literature review.

### 1.2 Research Questions
1. What are the most prominent definitions of Knowledge Management Systems and Usability?
2. When did the concepts of Usability and Knowledge Management Systems first emerge?
3. What are the major conferences held to support the concepts of Usability and Knowledge Management Systems?
4. What are the key research trends addressed by each concept?
5. What are the main digital indicators for tracking the terminology related to Usability and KMS in academic databases?

### 1.3 Study Objectives
1. To present the most widely recognized definitions of KMS and Usability.
2. To outline the historical development and emergence of KMS and Usability.
3. To review the most prominent conferences that supported the advancement of KMS and Usability.
4. To identify key research trends associated with each concept.
5. To analyze digital tracking indicators that reflect the current state of both domains.

### 1.4 Significance of the Study
The significance of this study lies in its focus on the usability of Knowledge Management Systems and the role of usability in enhancing KMS effectiveness within organizations. This research is the first of its kind in Arabic scholarship to conduct a historical review of the concepts of usability and KMS, and to explore the relationship between them.

### 1.5 Key Terminologies
#### 1.5.1 Knowledge Management Systems (KMS):
According to Naji (2021:115), a KMS is defined as:
"An integrated automated system that supports knowledge management processes such as acquisition, storage, application, and sharing of knowledge."
Similarly, Basnawi and Al-Serehi (2017:60) define it as:
"The technical systems implemented by organizations to assist in managing knowledge."

#### 1.5.2 Usability:
As defined by Brinck and Wood (2002:2–3), usability refers to:
"*The degree to which users can perform tasks on a system.*"
Citing Al-Khamis and Nelson, Al-Sayyid et al. (2022:225) describe usability as:
"*The ability of individuals to use and interact with a system freely, easily, and efficiently to complete required tasks effectively with minimal errors.*"

### *1.6 Research Boundaries*

- **Content Scope:**
  This review encompasses the following types of sources:
  - Scholarly articles and research papers
  - Theses and dissertations
  - Conferences and workshops
  - Books

- **Temporal Scope:**
  The review covers literature from 2000 to 2024.

- **Linguistic Scope:**
  The study includes both Arabic and English sources.

## 2. Methodology

This study adopts a documentary research approach to explore the literature and trace the historical emergence of relevant terms. It also utilizes a descriptive methodology through content analysis to extract usability evaluation elements from the literature. The study follows the official literature review guidelines adopted by the Department of Information Science at King Abdulaziz University, which include the following key areas:

1. Key terms related to the study.
2. Historical emergence of the topic and associated concepts.
3. Conferences, workshops, and scientific societies addressing the topic.
4. Theoretical and research interests and their development over time.
5. Digital indicators used to track terminology across online databases.

### *2.1 Justification for Database Selection*

- **Dar Almandumah Platform:**
  Selected for its comprehensive coverage of research in both KMS and Usability in Arabic literature. It is considered one of the most widely used and content-rich platforms for Arabic-language research, with easy access to full-text studies.

- **IEEE Xplore:**
  Chosen for its extensive repository of over six million documents across various disciplines, particularly in information technology and technical knowledge management systems. IEEE also organizes relevant conferences and publishes their proceedings, which supports the technical focus of this study. Notably, the dominant perspective in IEEE literature views KMS primarily as a technical system rather than an administrative framework, aligning with the focus of this study.

- **ProQuest:**
  Selected for its broad access to scholarly resources, including journals, books, videos, and dissertations. It also places a strong emphasis on research in technology, computer science, information science, and technical knowledge management.

### *2.2 Theoretical Framework and Review of Previous Studies*
### *2.2.1 First: Key Definitions of Knowledge Management Systems and Usability*
### *2.2.2.1 The Concept of Usability:*

The literature review indicates that definitions of usability have evolved over time—from focusing on the ease of use of peripheral devices to encompassing aspects such as learnability, task performance, and adherence to usability standards (e.g., Nielsen's criteria). Additionally, a formalized definition has emerged through the International Organization for Standardization (ISO). The most prominent definitions are summarized in the table below:

**Table 1: Definitions of the Term "Usability" as Cited in the Literature**

| # | Reference | Definition |
|---|---|---|
| 1 | Flohrer, 1989 | Usability was defined as an empirical formula (Ease-of-Use Scale). The evaluation must be based on objective measurements (user testing), not solely on questionnaires. |
| 2 | Deili, 1989 | Usability at Microsoft is defined as working with writers, designers, and developers to create intuitive, learnable, and user-friendly products. |
| 3 | Brinck & Wood, 2002:2–3 | Usability is the degree to which users can successfully perform tasks using a system. |
| 4 | Junior et al., 2006:132 | Usability is a measure of how easy a system is to use and learn for end users, as well as how effectively system functions support user tasks, including the ability to recover from errors. |
| 5 | Gharieb, 2007 | The degree of system effectiveness, efficiency, and user satisfaction when performing specific tasks in a particular environment. |
| 6 | Jiménez et al., 2012:51 | Usability is a quality attribute that assesses how easy user interfaces are to use. Originating from ISO/IEC 9126, usability is defined as "the capability of the software product to be understood, learned, used, and attractive to the user under specific conditions." |
| 7 | Paz et al., 2014:11 | Usability is defined per ISO 9126-1 as the capability of software to be understood, learned, and liked by users under specific conditions. ISO 9241-11 further emphasizes the ease with which a user interface allows users to achieve specific goals. |
| 8 | Paz et al., 2014:11 | User experience is the human–machine interaction that measures user satisfaction with interfaces in achieving their intended purposes easily. |
| 9 | Al-Sayyid et al., 2022:438 | ISO defines usability as the effectiveness, efficiency, and satisfaction of a group of users performing a set of tasks in a specific environment. |
| 10 | Al-Sayyid et al., 2022:225 | Quoting Al-Khamis and Nielsen, usability is defined as "the ability of individuals to use and interact with a system freely, easily, and complete required tasks efficiently, effectively, and with minimal errors." |

From the above review, the researcher observed a high density of definitions related to *usability*, while definitions concerning *technical knowledge management systems* were comparatively limited. This observation, from the researcher's perspective, may be attributed to the limited dissemination of the concept of *technical* knowledge management systems in comparison to the broader, more established administrative or organizational KM frameworks found in the literature. Moreover, many conference proceedings do not provide full content or detailed theoretical foundations, which hinders access to definitions specific to the technical perspective of knowledge management systems.

### 2.3 The Concept of Knowledge Management Systems (KMS):
A review of the literature reveals an overlap in the conceptualization of Knowledge Management Systems, as they are viewed either as an institutional administrative framework for organizing organizational knowledge or as technical systems rooted in information technology. In accordance with the scope and technical focus of the current study, the most relevant definitions from the technical perspective have been synthesized and are presented in the table below:

**Table 2: Definitions of the Term "Knowledge Management Systems" as Cited in the Literature**

| # | Reference | Definition |
|---|---|---|
| 1 | Khamis et al., 2010:15 | "A precise design that requires the integration of technical, organizational, and managerial options to enable knowledge processes." |
| 2 | Basnawi & Al-Serehi, 2017:60 | "Technical systems implemented by organizations to assist in the management of knowledge." |
| 3 | Naji, 2021:115 | "An integrated automated system that supports knowledge management processes, including the acquisition, storage, application, and sharing of knowledge." |
| 4 | Zenouz et al., 2024:506 | Divides KMS into two components: (1) Knowledge Management Practices – methods and techniques to support business processes and develop KM; (2) Knowledge Management Tools – IT-based systems that support KM practices. |

### 2.4 Second: Historical Development and Conceptual Convergence of the Two Fields
### 2.4.1. Historical Development of the Usability Concept
A review of the literature reveals that the earliest appearances of the term *usability* emerged in the late 1980s, specifically in 1988, through conference proceedings. A pivotal paper was presented by *Neal (1988)* under the title *"Measuring Software*

*Usability – Methodology and Case Studies"*, which explored methodologies for evaluating software usability. Notably, the concept initially emerged within the context of software design and engineering.

In 1989, *Dieli* published a study titled *"Human Factors – Usability Design"*, focusing on usability aspects related to telecommunication devices at Microsoft. The concept also appeared in the domain of hardware and peripheral communication through *Flohrer (1989)*, who emphasized the importance of usability evaluation in enhancing communication stations for general users, particularly those with limited technical expertise. That same year, *Bevan (1989)* introduced the link between usability and ISO standards through his paper *"ISO Standards for the User Interface"* presented at a London-based conference. Subsequently, *Miyoshi & Murata (2001)* explored the usability evaluation of eye-input systems versus mouse-based systems. In 2003, *Lahtinen & Peltonen* presented a study in New Zealand focusing on early usability evaluations of Unified Modeling Language (UML) systems.

The explicit link between *usability* and *knowledge management systems (KMS)* appeared around 2003 during a U.S.-based conference. The concept has since expanded across various fields involving human interaction with digital technologies. In 2011, the first usability-focused conference held in an Arab country (Dubai) featured a paper by *Hindi & Khalil (2011)* titled *"Usability Practice and Awareness in UAE"*, which highlighted the low levels of awareness regarding usability—especially in interactive software.

### 2.4.2 Historical Development of the Knowledge Management Systems Concept
The concept of Knowledge Management Systems has evolved along two primary trajectories:

(1) the **organizational/institutional** perspective, which is more widespread, and
(2) the **technical perspective**, which remains less prevalent in the literature.

The technical conceptualization of KMS first appeared in 1978 at a U.S.-based medical conference, where *Baskin & Levi (1978)* presented a paper on knowledge representation in medical systems. In 1989, *S. & R. Parker* introduced a conference paper that focused on integrating knowledge management processes with database technologies to enable knowledge acquisition, validation, and dissemination.

In 1990, *Riedesel* introduced the notion of "knowledge agents" within KMS in the context of energy distribution systems, using space-station-like platforms. In the early 2000s, *Lei et al. (2000)* proposed a novel enterprise information system model that relied on knowledge management and core technologies, paving the way for the rise of technical KMS.

*Jang et al. (2001)* followed by comparing human-based versus technology-based knowledge systems and proposed a hybrid model. In 2002, *Nomura & Arai* emphasized the importance of designing IT systems aligned with knowledge strategies.

In 2006, *Chen et al.* explored knowledge generation based on knowledge extraction and inference technologies, particularly in archival systems. *Wei et al. (2010)* introduced the concept of *knowledge integration* and its relationship to technological innovation, using IBM as a case study to illustrate the shift from human-managed to system-managed knowledge processes.

Over time, KMS evolved from being database-centric to embracing expert systems that process domain-specific knowledge, especially in fields like healthcare and engineering.

### 2.4.3. Historical Convergence of Usability and Knowledge Management Systems
The first explicit convergence of *usability* and *KMS* appeared in 2003 in a paper by *Nunamaker* titled *"User Experience: Collaboration and Knowledge Management"*. This marked a pivotal moment linking user experience with knowledge management.

In 2004, *Jeng* evaluated the usability of digital libraries, and *Saward et al.* conducted a study titled *"Assessing Usability through Perceptions of Information Scent"*, focusing on information retrieval and e-commerce systems. In 2005, *Wan et al.* discussed usability standards for KMS in learning environments, particularly in content management systems.

By 2007, indirect links appeared in *Briggs et al.*, who evaluated system designs in relation to user interactions, using patent management systems as case studies. This was followed in 2009 by *Hisham & Sultan*, who explicitly discussed the gap between KMS and usability evaluation.

In 2010, *Bhutkar et al.* presented a significant study that focused on designing and evaluating the usability of a knowledge management system for nursing and ICU environments—representing a clear connection between the two concepts.

In 2011, *Linek & Tochtermann* conducted a usability evaluation of different digital library interface versions in Slovakia, and *Auinger et al.* evaluated usability in enterprise projects emphasizing information generation and management within complex organizational operations.

By 2012, *Alshebou & Alawadhi* evaluated the *Blackboard System* at Kuwait University under the title *"Usability of Blackboard System Applied at Kuwait University"*. Although implicitly related, Blackboard functions as a KMS. Another 2012 study by *Subramanian & Geetha* titled *"Evaluation Strategy for Ranking and Rating of Knowledge Sharing Portal Usability"* explicitly addressed usability within academic KMS platforms.

In 2015, *Medina-Flores & Morales-Gamboa* examined usability in learning systems based on Nielsen's criteria and international software quality standards. In 2017, the convergence between the two concepts grew significantly:

- *Talirongan & Hernandez (2017)* analyzed usability in information systems in the Philippines.
- *Malik (2017)* evaluated the usability of ontology engineering tools—viewed as foundational tools in KMS.
- *Basnawi & Al-Serehi (2017)* implicitly addressed usability as a criterion for evaluating KMS.

In 2018, *Suroso et al.* presented a study in Bali, Indonesia that designed and evaluated KMS based on usability standards and system quality.

In 2020, *Thoyyibah et al.* conducted a study evaluating the usability of KMS lifecycle systems in travel-related applications. This was followed in 2021 by *Darmawan et al.*, who evaluated mobile knowledge systems within smart district applications in Indonesia using KMS lifecycle frameworks.

In 2022, *Al-Sayyid et al.* linked usability with metadata standards in digital repositories. By 2023, *Chellappa et al.* analyzed usability within construction and safety knowledge systems in Indian engineering contexts.

Notably, no literature linking both concepts (i.e., "usability evaluation criteria for knowledge management systems") was found in Arabic databases, particularly in the *Dar Almandumah* platform, as the search yielded no results.

### 2.4.4 Third: Conferences and Workshops Addressing the Subject
Conferences represent fertile ground where researchers can access the latest developments and pioneering ideas within any field. They are often the starting point for the emergence of new concepts and methodologies. In this study, the IEEE database was selected for review due to its specialization and strong coverage of conferences relevant to both fields of interest: usability and knowledge management systems.

The IEEE database is particularly known for its support of conferences and research in computer science, engineering, and information science. Since usability falls under the domain of computer science and technology, and the focus of this study is on technical knowledge management systems, the IEEE database was deemed the most appropriate and comprehensive resource. Notably, no relevant Arabic conference proceedings were found in the Dar Almandumah platform, highlighting the scarcity of Arabic contributions in this area.

### 2.5 Usability
The researcher observed that numerous international conferences have addressed usability, often integrating it with other disciplines such as telecommunications, industrial applications, software, and healthcare. The selected conferences in the table below (Table 3) were chosen either based on the explicit mention of "usability" in their titles or due to the usability-focused topics covered in their proceedings.

Most conferences fall under the broader titles of Computer Science, Software Engineering, or Human-Computer Interaction (HCI)—the latter being relatively rare with only two dedicated events identified. Other conferences emphasize screen/interface design, IT engineering, and user experience from various technical perspectives.

Notably, the concept of usability gained traction in 2011, where conferences began addressing it in the context of enterprise systems and corporate solutions. The first known conference to discuss usability in the Arab world was held in Dubai, UAE, and featured a paper highlighting the low regional awareness of usability practices.

In 2012, a conference in Manama, Bahrain, included a paper by Alshebou & Alawadhi (2013) titled "Usability of Blackboard System Applied at Kuwait University", indicating the early stages of usability evaluation in educational systems in the Gulf region. In Saudi Arabia, the earliest documented usability-related study was presented in 2018 by Aldhoihi & Hammami, focusing on the usability of medical devices for Saudi users. While English-language conferences on usability are prolific, Arabic-language conferences in this field remain virtually nonexistent. Additionally, there were no identified usability conferences between the years 2000 and 2002.

**Table 3: Major Conferences in the Field of Usability in Chronological Order from 2000 to 2024**

| Year | Conference Title | Location | Paper Title | Authors |
|------|------------------|----------|-------------|---------|
| 2001 | IEEE Int. Conf. on Systems, Man and Cybernetics | Tucson, AZ, USA | Usability of input device using eye tracker on button size, distance between targets and direction of movement | T. Miyoshi, A. Murata |
| 2003 | 36th Annual Hawaii Int. Conf. on System Sciences | Big Island, HI, USA | Assessments of usability engineering processes: experiences from experiments | T. Jokela |
| 2003 | IEEE Symposium on Human Centric Computing Languages and Environments | Auckland, New Zealand | Enhancing usability of UML CASE-tools with speech recognition | S. Lahtinen, J. Peltonen |
| 2004 | 10th Int. Symposium on Software Metrics | Chicago, IL, USA | Assessing usability through perceptions of information scent | G. Saward, T. Hall, T. Barker |
| 2004 | IEEE Int. Conf. on Advanced Learning Technologies | Joensuu, Finland | Supporting usability and reusability based on eLearning standards | R. Garcia-Robles et al. |
| 2005 | 2nd IEEE Int. Workshop on Mobile Commerce and Services | Munich, Germany | Humancentric Applications of RFID Implants: The Usability Contexts of Control, Convenience and Care | A. Masters, K. Michael |
| 2005 | IEEE ROMAN Workshop on Robot and Human Interactive Communication | Nashville, TN, USA | User preferences for effective task completion while interacting with a robotic conversational animated face | Y. Ricano et al. |
| 2005 | 38th Annual Hawaii Int. Conf. on System Sciences | Big Island, HI, USA | A Repeatable Collaboration Process for Usability Testing | G.-J. de Vreede et al. |
| 2006 | Frontiers in Education, 36th Annual Conf. | San Diego, CA, USA | Proposed Usability Model for the Analysis of Digital Electronic Educational Web Pages | Inmaculada Plaza et al. |
| 2006 | IEEE Int. Symposium on Industrial Electronics | Montreal, QC, Canada | Harmonization of usability measurements in ISO9126 software engineering standards | L. Cheikhi, A. Abran, W. Suryn |
| 2006 | IEEE Symposium on Virtual Environments, Human-Computer Interfaces | La Coruna, Spain | User Interface Design for VCMMs: an Approach to Increase Fidelity and Usability | N. Calonego Jr. et al. |
| 2007 | Conf. on Bioscience and Information Technologies | Jeju, South Korea | Usability Evaluation of Humanoid-Animation Avatar with Physiological Signals | Sonho Kim et al. |
| 2008 | Int. Conf. on Advances in Computer-Human Interaction | Sainte Luce, Martinique | Usability Practice: The Appealing Way to HCI | Cristian Rusu et al. |
| 2008 | Int. Conf. on Internet and Web Applications and Services | Athens, Greece | Usability and Playability Heuristics for Evaluation of Pervasive Games | Kalle Jegers |
| 2009 | 42nd Hawaii Int. Conf. on System Sciences | Waikoloa, HI, USA | De-Facto Standards and UI Design for B2C Configurators | C. Streichsbier et al. |
| 2010 | 2nd Int. Conf. on Computer Engineering and Applications | Bali, Indonesia | Why Thinking Aloud Matters for Usability Evaluation | Esmadi Abu Seman et al. |
| 2011 | Int. Conf. on e-Business | Seville, Spain | User-centric usability evaluation for enterprise 2.0 platforms | Andreas Auinger et al. |
| 2011 | CTIT 2011 – Current Trends in IT | Dubai, UAE | Usability practice and awareness in UAE | Mahd Hindi, Ashraf Khalil |

| 2011 | IEEE Int. Prof. Communication Conf. | Cincinnati, OH, USA | Usability standards — Evolution, access and practice | Brian Traynor |
|------|-------------------------------------|----------------------|------------------------------------------------------|----------------|
| 2011 | 14th Int. Conf. on Interactive Collaborative Learning | Piestany, Slovakia | Assessment of usability benchmarks: Combining scales with specific questions | Stephanie B. Linek, Klaus Tochtermann |
| 2012 | 31st Conf. of the Chilean Computer Science Society | Valparaiso, Chile | Evaluating a Methodology to Establish Usability Heuristics | Cristhy Jiménez et al. |
| 2013 | 4th Int. Conf. on e-Learning, Management, and Design | Manama, Bahrain | Usability of Blackboard System at Kuwait University | S. Alshebou, S. Alawadhi |
| 2013 | CLEI – Latin American Computing Conf. | Caracas, Venezuela | Usability test for Augmented Reality applications | V. Farinazzo Martins et al. |
| 2014 | 7th Int. Conf. on Advanced Software Engineering | Hainan, China | Current Trends in Usability Evaluation Methods: A Systematic Review | Freddy Paz, José A. Pow-Sang |
| 2015 | Global Online Conf. on Information and Computer Technology | Louisville, KY, USA | Standard-Based Usability Evaluation | P. Philipp, R. Eck, E. Peinsipp-Byma |
| 2015 | IEEE European Modelling Symposium | Madrid, Spain | Usability Degree for Arabized Open Source Software | N. Othman et al. |
| 2016 | IEEE MITE – MOOCs, Innovation and Technology in Education | Madurai, India | UX Design to Promote Undergraduate Projects | M. S. Patil et al. |
| 2016 | ICSESS – Int. Conf. on Software Engineering and Service Science | Beijing, China | Analytical Study of Software Usability Quality Factors | Md Alamgir Kabir et al. |
| 2016 | IEEE Int. Conf. on Healthcare Informatics | Chicago, IL, USA | Usability Evaluation of Pediatric Virtual Patient Tool | L. C. Dukes et al. |
| 2017 | INCISCOS – Information Systems and Computer Science | Quito, Ecuador | Usability of Online Social Networks for Older Adults | E. M. Lazo Enriquez et al. |
| 2017 | HNICEM – Humanoid, Nano, and IT Conference | Manila, Philippines | Usability Testing of Academic Info Systems | F. J. Talirongan, A. A. Hernandez |
| 2017 | Computing Conference | London, UK | Usability Evaluation of Ontology Engineering Tools | Z. H. Malik |
| 2018 | Int. Conf. on Computer, Information, and Telecom Systems | Colmar, France | Evaluation of CT Scan Usability for Saudi Users | S. Aldoihi, O. Hammami |
| 2018 | ICIM – Int. Conf. on Information Management | Oxford, UK | Usability of Virtual Art Gallery Interface | D. E. Ashe et al. |
| 2018 | IEEE ICASI – Applied System Invention | Chiba, Japan | Usability Evaluation of Cloud Service Platform | K-H. Ng, S-M. Wang |
| 2019 | ICIC – Informatics and Computing Conference | Semarang, Indonesia | Usability Evaluation Using NAU Method | S. Munir et al. |
| 2019 | IEEE AFRICON | Accra, Ghana | Usability: A Full Life Cycle Perspective | J. Holm, E. du Plessis |
| 2020 | SIU – Signal Processing and Communication Applications | Gaziantep, Turkey | Opinion Mining on Usability Testing Data | Ç. Tekin et al. |
| 2021 | ICVEE – Vocational Education and Engineering | Surabaya, Indonesia | Website Usability and Webometrics Ranking | Y. Anistyasari et al. |
| 2022 | IEEE SysCon – Int. Systems Conference | Montreal, QC, Canada | Model-Based Usability for Cross-Domain Info Systems | S. Melzer et al. |
| 2023 | ICIMTech – Info Management & Technology Conf. | Malang, Indonesia | Usability Testing of Social Assistance App | H. P. Putra et al. |
| 2024 | APCIT – Asia Pacific Conf. on Innovation in Technology | Mysore, India | Enhancing Usability of AI Chatbots via ML | R. Chauhan et al. |

### 2.6 Knowledge Management Systems

Conferences represent fertile grounds for researchers to discover the latest developments in any field and serve as launching points for innovative ideas. Upon reviewing international conference databases, it was found that countries in East Asia—such as Singapore, Indonesia, and China—demonstrated a strong interest in organizing events centered around Knowledge Management Systems (KMS). Additionally, the United States emerged as one of the most active countries in hosting conferences in this domain.

The conference papers addressed a diverse range of topics within knowledge management. For instance, Wanyembi and Looijen (2000) tackled the challenge of ICT management in developing countries in Sub-Saharan Africa. Their proposed solution involved adopting maturity models to improve ICT operations in public universities in Kenya.

Similarly, LeiK et al. (2000), in a conference held in Italy, introduced a new model for enterprise information systems based on knowledge management, identifying key technologies and implementation constraints. This work can be considered a foundation for integrating technical knowledge systems within organizations.

In 2001, a conference paper presented in the United States compared two approaches to knowledge management: technology-centered and human-centered methods. Meanwhile, at a North Korean information science conference, Tuzovsky and Yampolsky (2003) explored the conceptual design of knowledge management systems, emphasizing the importance of identifying new knowledge requirements, modeling the organizational knowledge domain, and designing educational programs to support knowledge dissemination.

In 2004, the focus shifted toward Customer Knowledge Management, as Bueren et al. (2004) proposed an integrated model to enhance CRM processes using knowledge-based support mechanisms—highlighting transparency, dissemination, and development of knowledge.

In the healthcare sector, Yan et al. (2002) developed an internet-based approach for acquiring and managing medical knowledge aimed at building robust expert systems.

It is worth noting that most research on technical knowledge management systems was published in conferences related to Information Science, Information Retrieval, Information Management, and Software Engineering. These findings reflect the multidisciplinary nature of the field and its strong ties to both organizational knowledge and technological innovation.

The following Table (Table 4) presents a chronological list of the most relevant international conferences addressing Knowledge Management Systems from 2000 to 2024.

**Table 4: Major Conferences in the Field of Knowledge Management Systems in Chronological Order from 2000 to 2024**

| Year | Conference Title | Conference Location | Paper Title | Authors |
|------|------------------|---------------------|-------------|---------|
| **2000** | Proceedings of the 2000 IEEE International Conference on Management of Innovation and Technology. ICMIT 2000. "Management in the 21st Century" (Cat. No.00EX457) | Singapore | "A model for improving ICT management" | G. Wanyembi; M. Looijen |
| **2000** | University as a Bridge from Technology to Society. IEEE International Symposium on Technology and Society (Cat. No.00CH37043) | Rome, Italy | "Knowledge management and its application model in enterprise information systems" | Zhang Lei; Ren Shouju; Jiang Xiaodan; Liu Zuzhao |
| **2001** | PICMET '01. Portland International Conference on Management of Engineering and Technology. Proceedings Vol.1: Book of Summaries (IEEE Cat. No.01CH37199) | Portland, OR, USA | "Knowledge activity processes and knowledge management system: An empirical examination of the relationship between behavioral features of knowledge management system" | Seungkwon Jang; Jong-In Choi; Kilpyo Hong; J. Jung |
| **2002** | Proceedings. IEEE Workshop on Knowledge Media Networking | Kyoto, Japan | "Knowledge management process model to develop knowledge strategies - how to design knowledge media networks for successful knowledge management" | T. Nomura; K. Arai |
| **2002** | Proceedings of the Second Joint 24th Annual Conference and the Annual Fall Meeting of the Biomedical Engineering Society [Engineering in Medicine and Biology] | Houston, TX, USA | "Internet-based knowledge acquisition and management method to build large-scale medical expert systems" | Hongmei Yan; Yingtao Jiang; Jun Zheng; Bingmei Fu |

| 2003 | 7th Korea-Russia International Symposium on Science and Technology, Proceedings KORUS 2003. (IEEE Cat. No.03EX737) | Ulsan, South Korea | "The system approach to knowledge management systems designing and development" | A.F. Tuzovsky; V.Z. Yampolsky |
|------|------|------|------|------|
| 2004 | 37th Annual Hawaii International Conference on System Sciences, 2004. Proceedings of the | Big Island, HI, USA | "Customer knowledge management - improving performance of customer relationship management with knowledge management" | A. Bueren; R. Schierholz; L. Kolbe; W. Brenner |
| 2005 | Proceedings Frontiers in Education 35th Annual Conference | Indianapolis, IN, USA | "Work in Progress - An Evaluation Model for Learning Content Management Systems: from a Perspective of Knowledge Management" | Liyong Wan; Chengling Zhao; Qingtang Liu; Junyi Sun |
| 2006 | 2006 IEEE International Conference on Service Operations and Logistics, and Informatics | Shanghai, China | "A Network-Based Framework and Its Operation Model of Archival Knowledge Management and Service System" | Zhigao Chen; Ying Li; Liqiao Li |
| 2007 | 2007 International Conference on Machine Learning and Cybernetics | Hong Kong, China | "A Knowledge-Based Intelligent System for Power Customer Service Management" | Ying-Chun Guo; Dong-Xiao Niu |
| 2007 | 40th Annual Hawaii International Conference on System Sciences (HICSS'07) | Waikoloa, HI, USA | "The Co-evolution of Design and User Requirements in Knowledge Management Systems: The Case of Patent Management Systems" | Tony Briggs; Bala Iyer; Paul Carlile |
| 2008 | 2008 International Conference on Information Management, Innovation Management and Industrial Engineering | Taipei, Taiwan | "Study of Enterprise Project Management Knowledge Base Management System Based on Ontology" | Xiangyuan Shu; Xiansheng Qin |
| 2009 | 2009 WRI World Congress on Software Engineering | Xiamen, China | "Knowledge Management System of Intercity Emergency Decision Making" | Hong Tang; Lindu Zhao |
| 2010 | 2nd IEEE International Conference on Information Management and Engineering | Chengdu, China | "The model of knowledge integration management for IT corporation and its operating mechanism" | Shan Wei; Zhang Qingpu; Liu Chen |
| 2011 | 2011 International Conference on Information Management, Innovation Management and Industrial Engineering | Shenzhen, China | "M-Learning Design Based on Personal Knowledge Management" | Shuying Zhuang; Lin Hu; Honghua Xu; Yinghua Tian |
| 2012 | 2012 International Conference on Information Retrieval & Knowledge Management | Kuala Lumpur, Malaysia | "Knowledge management system model in enhancing knowledge facilitation of Software Process Improvement for Software House Organization" | Rusli Abdullah; Amir Mohamed Talib |
| 2013 | International Conference on ICT for Smart Society | Jakarta, Indonesia | "Knowledge management system design model for smart enterprise" | Dea Rahmatia; Kridanto Surendro |
| 2013 | 2013 IEEE International Conference on Green Computing and Communications and IEEE Internet of Things and IEEE Cyber, Physical and Social Computing | Beijing, China | "The Application of the Knowledge Representation Based on Concept Algebra in the Knowledge Management System of Petroleum Enterprise" | Hongjie Duan; Shanpeng Wu; Feiyue Ye |
| 2014 | 2014 International Conference on Computer and Information Sciences (ICCOINS) | Kuala Lumpur, Malaysia | "Knowledge management system quality: A survey of knowledge management system quality dimensions" | Marzanah A. Jabar; Abdallah S. M. Alnatsha |
| 2015 | 2nd 2015 International Conference on Computing for Sustainable Global Development | New Delhi, India | "Document management system: An explicit knowledge management system" | Shyamalesh Khan; Usha Rani; B V N Prasad; A K Srivastava; S Selvi; D K |

| | | | | Gautam |
|---|---|---|---|---|
| **2016** | 2016 Third International Conference on Information Retrieval and Knowledge Management (CAMP) | Malacca, Malaysia | "A Mobile Knowledge as a service (mKaaS) model of knowledge management system in facilitating knowledge sharing of cloud education community environment" | Rusli Abdullah; Yousef A. M. Alsharaei |
| **2017** | 2nd 2017 International conferences on Information Technology, Information Systems and Electrical Engineering (ICITISEE) | Yogyakarta, Indonesia | "Storing, diving and distributing of comprehensive knowledge using knowledge management in the library and knowledge center" | Cornelius Mellino Sarungu; Titan; Dina Fitria Murad; Sunardi |
| **2018** | 2018 International Conference on Information Management and Technology (ICIMTech) | Jakarta, Indonesia | "Designing the Knowledge Management System in an IT Consulting Company" | Marisa Karsen; Yohannes Kurniawan; Hariawan Bangun Safutra; Gryan Bestra Tama; Aidil Zuldi; Michal Joštiak; Vladimír Matanik |
| **2018** | 2018 International Conference on Orange Technologies (ICOT) | Nusa Dua, Bali, Indonesia | "Evaluation Of Knowledge Management System Application With Technology Acceptance Model Method In Education Division" | Jarot S. Suroso; Sasmoko; Rizki Fadhillah |
| **2018** | 2018 International Conference on Information Management and Technology (ICIMTech) | Jakarta, Indonesia | "Information System Development on Web-Based in Integrated Management System Through Improving Knowledge Management to Increase Organization Performance of Construction Company (A Conceptual Framework)" | Ringgy Masuin; Yusuf Latief; T. Yuri Zagloel |
| **2019** | 2019 International Conference on Information and Communications Technology (ICOIACT) | Yogyakarta, Indonesia | "Designing Knowledge Management System with Big Data for Hospital Inpatient Services: (Case Study at Islamic Hospital XYZ Pekanbaru)" | Tommi Rahman Perdana; Siti Mujiatun; Sfenrianto Sfenrianto; Emil Robert Kaburuan |
| **2020** | 2020 International Conference on Information Management and Technology (ICIMTech) | Bandung, Indonesia | "Knowledge Management using Gamification in Consulting Firms" | Daniella Elizabeth Yuliana Malingkas; Win Ce |
| **2021** | 2021 International Conference on Quality Management, Transport and Information Security, Information Technologies (IT&QM&IS) | Yaroslavl, Russian Federation | "Integration of Knowledge Management Systems and Product Data in a Single Information Space of a High-Tech Enterprise" | Kirill I. Porsev; Valeria A. Ivanova; Pavel I. Abramov; Nina N. Aniskina |
| **2022** | 2022 IEEE 2nd International Conference on Power, Electronics and Computer Applications (ICPECA) | Shenyang, China | "A study of technical support for artificial intelligence systems applied to knowledge management systems" | Huicai Zhou |
| **2023** | 3rd 2023 International Conference on Intelligent Cybernetics Technology & Applications (ICICyTA) | Denpasar, Bali, Indonesia | "Knowledge Management System for Preserving, Sharing and Enhancing the Knowledge of Employees" | Annisa Shinta Mahgfiroh; Siti Afiyah; Tiara Eka Deliya; Ilona Irena Gutandjala; Arief Ramadha |
| **2023** | 2023 International Conference on Industrial IoT, Big Data and Supply Chain (IIoTBDSC) | Wuhan, China | "Personalized Intelligent Knowledge Management Design of Electric Power Professional Technology Based on Domain Characteristic Knowledge Map" | Shuaihui Ren; Jiyun Liang; Hui Lu; Jiayan Wang; Heng Wu; Hongzhi Lu; Yude Bao; Huan Chen |
| **2024** | 2024 International Conference on Development and Application Systems (DAS) | Suceava, Romania | "Synergizing User's-defined Requirement Design for Crafting a Knowledge Sharing Management | Malak Alharbi; Marie Devlin; Jennifer Warrender |

| | | System" | |
|---|---|---|---|

### 2.7 Summary of Study Results

This section presents the criteria for selecting information sources from the intellectual output, along with the key findings of the study, as represented by six numerical indicators used to classify the selected intellectual contributions. These indicators reflect the current state of the two research fields under investigation:

1. Indicator 1: Frequency of topic-related terminology in databases and digital search engines.
2. Indicator 2: Publication status by information sources and research topic.
3. Indicator 3: Publication status by type of information source and knowledge domain.
4. Indicator 4: Leading countries hosting relevant conferences.
5. Indicator 5: Key research interests related to the study topic.
6. Indicator 6: Main criteria for evaluating the usability of the technological systems featured in the studies.

### 2.7.1 First: Criteria for Selecting Information Sources

After reviewing the relevant literature and scanning the specified databases and digital search engines using the Arabic and English search terms listed in Table (6), a total of **689,880** results were obtained. It should be noted that some of these may appear multiple times across different databases and platforms.

Approximately **550** sources were filtered (due to the large volume, full manual filtering was not feasible), including academic papers, conference proceedings, research studies, and theses. Filtering was performed using advanced search filters, prioritizing results that were most relevant to the selected keywords. Sources were selected based on a predefined set of acceptance and exclusion criteria outlined below:

**Table 5: Intellectual Output Filtering Criteria**

| Acceptance Criteria | Exclusion Criteria |
|---|---|
| **Published between 2000–2024** | Published before 2000 *(Note: pre-2000 studies were used only for terminology tracking)* |
| **Focus on technical knowledge management systems** | Focus on **organizational or institutional knowledge management systems** |
| **Focus on usability evaluation of technological systems** | Focus on **learnability** or any other usability-related concept outside the defined scope |

A total of **112 information sources**—including research papers, working papers, and studies—were ultimately selected and analyzed. The next section of the study provides a detailed review of the results. The researcher used the widest possible range of synonyms and related terms for the main research concepts to maximize retrieval and analysis of relevant studies and intellectual contributions. Below is a table summarizing the search terms and example queries used:

**Table 6: Search Terms and Phrases**

| Search Query | Arabic Equivalent (used for reference) |
|---|---|
| ("Full Text & Metadata":Knowledge Management System) OR ("Document Title":Knowledge Management System) OR ("Publication Title":Knowledge Management System) | (العنوان: قابلية استخدام نظم إدارة المعرفة والموضوع: قابلية استخدام نظم إدارة المعرفة) |
| ("Full Text & Metadata":Usability of Knowledge Management system) OR ("Document Title":Usability of Knowledge Management system) OR ("Publication Title":Usability of Knowledge Management system) | (العنوان: قابلية الاستخدام و الموضوع: قابلية الاستخدام) |
| ("Full Text & Metadata":Usability) OR ("Document Title":Usability) OR ("Publication Title":Usability) | (العنوان: نظم إدارة المعرفة والموضوع: نظم إدارة المعرفة) |

| Search Terms Used | |
|---|---|
| **English Term** | **Arabic Equivalent** |
| **Usability** | قابلية الاستخدام |
| **Usability Standards** | معايير قابلية الاستخدام |
| **Usability Evaluation** | تقييم قابلية الاستخدام |
| **Usability Testing** | اختبار قابلية الاستخدام |
| **Knowledge Management System** | نظم إدارة المعرفة |
| **Knowledge Management Evaluation** | تقييم نظم إدارة المعرفة |
| **Usability of Knowledge Management System** | قابلية استخدام نظم إدارة المعرفة |

The table above demonstrates how some databases allow for narrowing and refining search results by specifying where the term appears (e.g., title, subject, or full text). In many cases, it was necessary to include the full-text option to obtain relevant results, as the advanced search function in several databases yielded limited or irrelevant outputs when restricting the search to title and subject only.

### *2.7.2 Second: Quantitative Indicators for Tracing Intellectual Output in Databases*
This section discusses two types of indicators—**general indicators** and **specific classification indicators**—based on the type of data retrieved:

**A. General Indicator:**
- **Frequency of topic-related terms** across digital databases and search engines, applied before filtering the results.

**B. Classification Indicators for Selected Sources:**
1. Publication status by type of information source and research topic.
2. Publication status by type of information source and knowledge domain.
3. Leading countries hosting relevant conferences.
4. Key research interests in the study fields of usability and knowledge management.
5. Key criteria used to evaluate the usability of technological systems as reported in the reviewed studies.

### *2.8 Term Frequency Indicator in Overall Search Results (Pre-Filtering)*
<u>**Indicator 1:**</u> Frequency of Subject Literature Terms in Databases and Digital Search Engines

The study tracked the frequency of key terminology related to the subject literature in both Arabic and English from 2000 to 2024. The intellectual output in both languages—comprising studies, scholarly articles, conference papers, and academic theses—was retrieved using the following platforms and databases:

Saudi Digital Library (SDL), Dar Almandumah, ProQuest, IEEE, and Google Scholar.

The researcher noted that not all retrieved results were directly relevant to the subject area. However, the purpose of this indicator was to measure the frequency of terms in the databases regardless of the content's alignment with the study scope.
The table below illustrates the frequency of terms across the selected databases used in the study:

**Table 7: Term Frequency in Selected Databases and Search Engines**

| Search Term (In Arabic) | Saudi Digital Library | Dar Almandumah | Google Scholar (Arabic) | Total |
|---|---|---|---|---|
| **Usability** (قابلية الاستخدام) | **112** | **1** | **3** | **116** |
| **Knowledge Management System** (نظم إدارة المعرفة) | **69** | **13** | **16** | **98** |
| **Usability of Knowledge Management System** ( قابلية استخدام نظم إدارة المعرفة) | **0** | **0** | **0** | **0** |
| **Search Term (In English)** | **Google Scholar** | **IEEE** | **ProQuest** | **Total** |
| **Knowledge Management System** | 7,110 | 459,529 | 971 | **467,610** |
| **Usability** | 45,600 | 134,907 | 3,829 | **184,336** |
| **Usability of Knowledge Management System** | 14 | 37,931 | 2 | **37,934** |

From the above, it is evident that in **Arabic-language databases**, the term **"Usability"** appeared the most (116 instances), especially in the **Saudi Digital Library (112 occurrences)**. The term **"Knowledge Management System"** ranked second with **98 occurrences**, with SDL again having the highest number (69). The term **"Usability of Knowledge Management System"** did not appear in any of the Arabic databases.

In **English-language databases**, the term **"Knowledge Management System"** had the highest frequency (**467,610**), with **IEEE** being the leading platform due to its specialization in technology and extensive conference proceedings. This was followed by **Google Scholar**, then **ProQuest**.

The term **"Usability"** appeared **184,336** times, with IEEE again having the largest share. The term **"Usability of Knowledge Management System"** appeared **37,934** times, most notably in **IEEE**, followed by **Google Scholar (14)** and **ProQuest (2)**.

The researcher also observed that the term "Knowledge Management System" appeared in two contexts:
1. Institutional/Organizational Knowledge Management Systems (more common).
2. Technical Knowledge Management Systems (less common).

This indicates that the term often encompasses both administrative and technical meanings. Furthermore, the overall **Arabic scholarly production** in usability and knowledge management is significantly limited compared to **English-language output**, with a discrepancy of **689,666 entries**, even after accounting for duplication across platforms.

### 2.9 Filtered Intellectual Output Indicators

Out of approximately **689,880 search results**, about **550 sources** were filtered based on the criteria defined in Table 5. After excluding irrelevant entries, a total of **112 sources** (including research papers, conference proceedings, and theses) were selected for in-depth analysis. These were categorized and analysed according to various indicators:

**Indicator 2:** Publication Type by Information Source and Study Topic
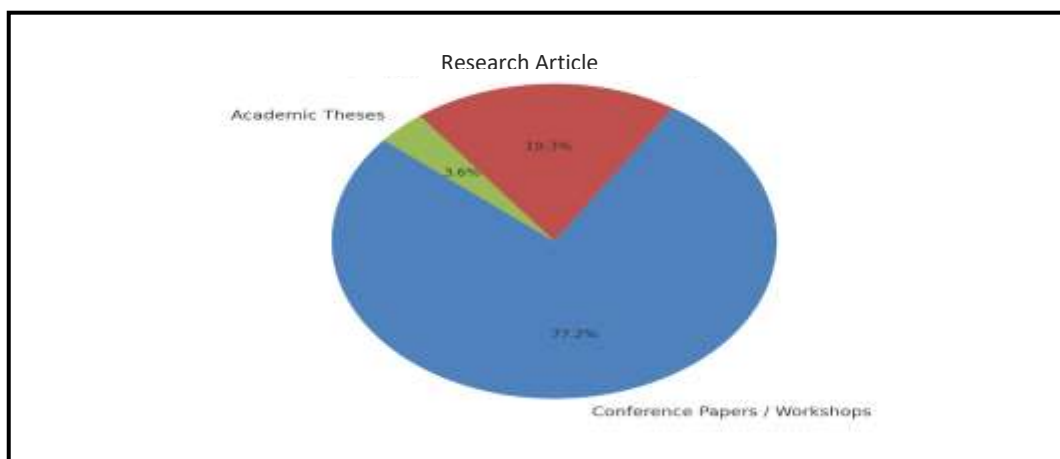


**Figure 1: Publication Type Distribution by Source**

Figure 1 shows that **conference and workshop papers** accounted for **76%** of the selected intellectual output. **Scholarly articles and research papers** made up **19%**, while **academic theses and dissertations** constituted only **3.5%**, indicating limited academic research on the usability of knowledge management systems at the graduate level.

**Indicator 3:** Publication Type by Knowledge Domain



**Publication Type by Knowledge Domain**
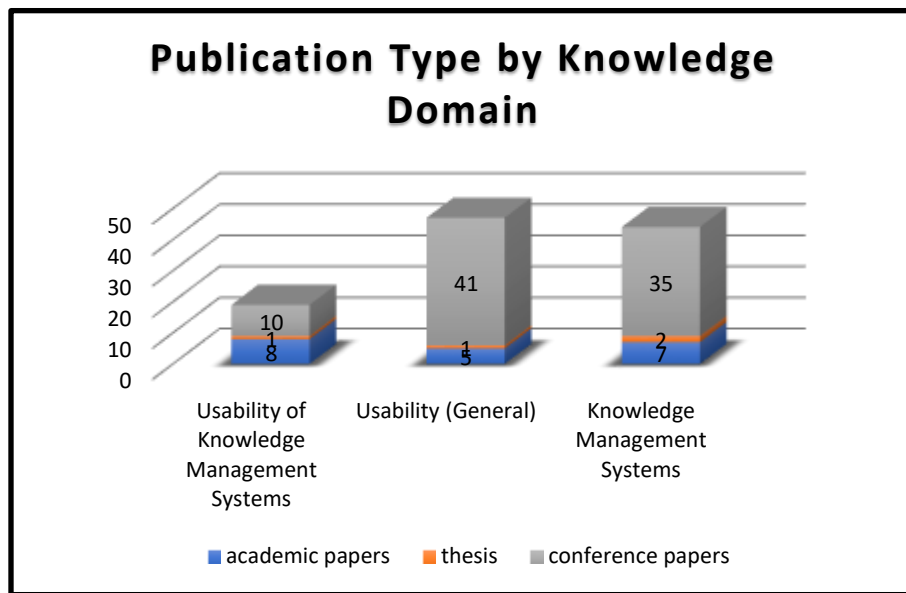
As shown in the corresponding figure:

- **Usability of Knowledge Management Systems**: 19 entries
  - ○ 8 academic papers
  - ○ 1 thesis
  - ○ 10 conference papers
- **Knowledge Management Systems**: 44 entries
  - ○ 7 academic papers
  - ○ 2 theses
  - ○ 35 conference papers
- **Usability (General)**: 47 entries
  - ○ 5 academic papers
  - ○ 1 thesis
  - ○ 41 conference papers

This highlights that **usability** is most frequently addressed in **conference settings**, particularly in relation to **general usability and knowledge management**, whereas academic theses are scarce.

**Indicator 4:** Leading Conference-Hosting Countries

**Table 8: Countries Hosting Conferences in the Fields of Usability and Knowledge Management Systems**

| One Conference | Two Conferences | Three Conferences | More Than 3 Conferences |
|---|---|---|---|
| **UAE, Italy, Ghana, Greece, Bahrain, Ecuador, Chile, Taiwan, Turkey, Gyeongju, New Zealand, Philippines, Venezuela, Romania, Russia, Singapore, Slovakia** | France, South Korea, Canada, Germany | Spain, UK, Malaysia, Japan, India | China (11), Indonesia (12), USA (23) |

- **Total conferences: 86**
- **USA** hosted the most conferences (**23; 26.7%**)
- **Indonesia** (12) and **China** (11) followed
- **European countries** hosted 10 conferences collectively
- **Arab countries**: only 2 conferences (UAE and Bahrain)

This reflects the **dominance of the USA and East/Southeast Asia** in research related to usability and knowledge management.

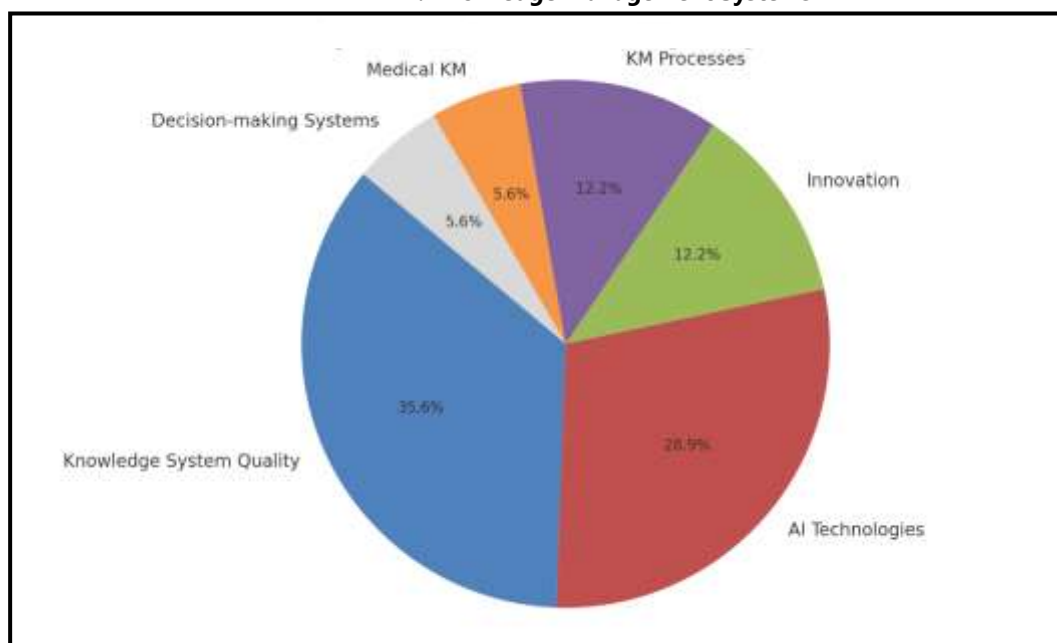Key Research Interests in Study Fields

**1. Usability**
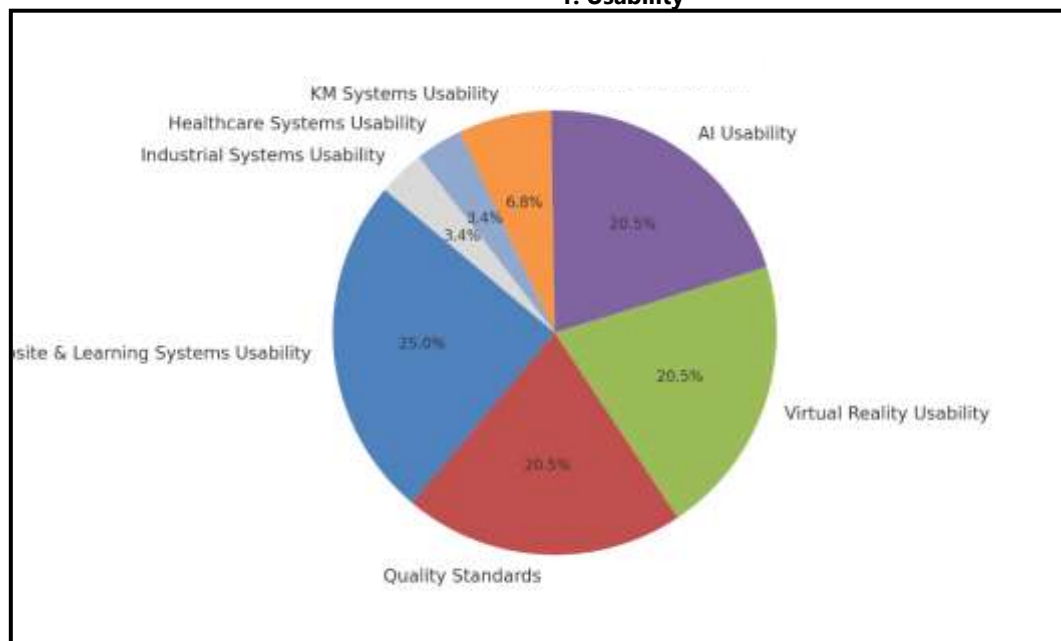


The leading focus areas were:
- **Websites and learning systems usability**: 22%
- **Quality standards, virtual reality usability, and AI usability**: 18% each
- **Usability of knowledge management systems**: 6%
- **Healthcare and industrial systems usability**: 3% each

**2. Knowledge Management Systems**



The research interests were distributed as follows:
- **Quality of knowledge systems**: 32%
- **AI technologies in knowledge systems**: 26%

- **Innovation and knowledge management processes**: 11% each
- **Medical knowledge management and decision-making systems**: ~5%

There is notable **overlap** in research interests between the two fields, particularly in **quality, AI, and healthcare**.

**Indicator 6:** Core Elements for Evaluating the Usability of Technological Systems
A total of **68 studies** were analysed to extract usability evaluation elements. Key insights:

- **Philipp et al. (2015)**: Usability cannot be effectively measured without understanding user context and goals.
- **Paz et al. (2014:11-15)**: Usability is a critical quality dimension in information systems engineering. Questionnaires were found to be more effective than traditional usability testing in some contexts.

**Table 9: Core Usability Evaluation Dimensions - researcher**

| Dimension | Evaluation Elements |
| --- | --- |
| **Learnability** | Ease of learning, recognizability, alignment with user expectations, memorability |
| **Informational Content** | Content clarity, contextual consistency, suitable language, search functionality, download speed |
| **User Interface** | Simple and attractive design, interface customization, task-relevant functions, easy navigation |
| **Error Handling** | Support availability, user documentation, clear error messages |
| **Usability** | User autonomy, system feedback, user willingness to reuse, trust during interaction |
| **Security and Reliability** | System uptime, authentication, data security, user communication, access permissions |

### 3. Key Study Results
- The **concept of knowledge management systems** emerged in **1978** in the medical field.
- The **usability** concept entered academic discourse in the **late 1980s**.
- The first notable connection between **usability and knowledge management systems** appeared in **2003** via conference papers.
- This connection first emerged in **education and library sciences**, particularly e-learning and content management systems.
- **No Arabic-language conferences** addressed usability or knowledge management.
- **USA** leads in hosting relevant conferences.
- **Arabic scholarly output** in the fields is **limited** compared to **international** contributions.
- Most research on knowledge management focuses on its **organizational** rather than **technical** aspects.
- Strong association exists between **usability** and **quality evaluation** of knowledge management systems.
- In **Saudi Arabia**, interest in **user experience evaluation** began in **2018**.
- **18% of studies** link usability with **quality standards**, confirming its importance in evaluating intelligent systems.
- **32% of studies** emphasize improving knowledge systems' quality.
- Key usability metrics include: **learnability**, **contextual consistency**, **task efficiency**, and **user expectations alignment**.
- The primary usability evaluation areas fall into **six categories**: Learnability, Informational Content, User Interface, Error Handling, Usability, and Security & Reliability.

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