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Identifying the Applications of Artificial Intelligence in the Ability to Automate Knowledge Management Processes

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Abstract

Purpose: the aim of this research is to identify the applications of artificial intelligence (AI) in automating knowledge management processes.

Methodology: This research is applied in nature and adopts a qualitative approach. To enhance the credibility of the findings, the Delphi method was employed. During the Delphi stage, the components and items related to each knowledge management process were identified. The study population consisted of 10 subject-matter experts selected through purposive sampling. The accuracy and validity of the qualitative data were assessed using criteria such as credibility, dependability, confirmability, transferability, and content validity.

Findings: The results indicate that artificial intelligence can play a significant role in various knowledge management processes, including knowledge identification, acquisition, audit, organization, dissemination, value creation, development, application, and creation.

Conclusion: The findings demonstrate that in the knowledge identification process, artificial intelligence is used most extensively for knowledge promotion. In the knowledge acquisition process, its primary applications are automatic summarization and reasoning. In the knowledge audit process, AI is mainly used for identifying knowledge gaps, while in the knowledge organization process, it is most widely applied in automatic classification. Furthermore, in the knowledge dissemination process, audience identification is the dominant application of AI. In the value creation process, evaluating the quality of content plays the most significant role. Finally, in the knowledge development process, AI is primarily used in research and scientific discoveries; in the knowledge application process, it is most evident in decision support system recommendations; and in the knowledge creation process, it is predominantly applied in knowledge synthesis.

Value: This study systematically identifies the role of artificial intelligence in automating knowledge management processes and highlights its applications across different stages of knowledge management, thereby contributing to the advancement of knowledge in this field.

Keywords: ***Artificial Intelligence, Knowledge Management, Knowledge Management Processes, Automation, Technology.***

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Extended Abstract

Introduction: Knowledge management (KM) has emerged as a strategic approach for harnessing organizational knowledge to improve decision-making, foster innovation, and enhance competitiveness. In recent years, artificial intelligence (AI) has significantly transformed KM by enabling the automation and optimization of processes such as knowledge discovery, organization, dissemination, and application. These technological advancements have provided organizations with new capabilities to manage vast, complex, and dispersed knowledge assets more efficiently. Accordingly, this study examines the critical role of AI in automating KM processes and highlights its potential to address organizational challenges related to effective knowledge management.

Purpose: The objective of this research is to identify the applications of artificial intelligence (AI) in automating various knowledge management processes. Given the growing importance of KM in improving organizational performance and productivity, AI is considered a key enabling tool for optimizing these processes and enhancing their effectiveness.

Methodology: This study is applied in nature and adopts a qualitative research approach. To enhance the credibility and reliability of the findings, the Delphi method was employed. During the Delphi stage, indicators and codes related to each knowledge management process were identified, refined, and categorized. The study population consisted of 10 subject-matter experts who were selected through purposive sampling. The qualitative data were evaluated based on established criteria, including credibility, dependability, confirmability, transferability, and content validity.

Findings: The findings indicate that artificial intelligence (AI) plays a significant role in automating nine key knowledge management processes: knowledge identification, knowledge acquisition, knowledge auditing, knowledge organization, knowledge dissemination, knowledge value creation, knowledge development, knowledge application, and knowledge creation. The applications of AI in each process are described below:

Knowledge Identification: In this process, AI facilitates activities such as knowledge stabilization, integration, retrieval, discovery, expert identification, and knowledge promotion. Among these applications, AI's role in enhancing knowledge promotion is particularly notable, as it enables the effective identification and dissemination of relevant knowledge to appropriate target audiences.

Knowledge Acquisition: AI technologies support knowledge acquisition through automatic text extraction, topic detection, automatic summarization, reasoning, information monitoring, machine learning, speech recognition, speech synthesis, and natural language processing (NLP). These capabilities are especially effective in processing large and diverse datasets, thereby enabling organizations to acquire valuable insights more efficiently.

Knowledge Auditing: In the knowledge auditing process, AI assists in identifying outdated content, irrelevant information, validating sources, assessing content quality, identifying knowledge gaps, and detecting biased content. These applications are essential for maintaining the accuracy, relevance, and overall quality of an organization's knowledge base.

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Knowledge Organization: AI automates knowledge organization through functions such as automatic classification, feature extraction and abstraction, metadata tagging, named entity recognition, and data linking. These applications significantly improve the structure, organization, and accessibility of organizational knowledge.

Knowledge Dissemination: Within the dissemination process, AI is used for audience identification, content personalization, publication scheduling, the formation of knowledge communities, and interaction analysis. These capabilities help ensure that knowledge is delivered efficiently and accurately to the right stakeholders at the appropriate time.

Knowledge Value Creation: AI contributes to knowledge value creation by identifying opportunities, generating predictions, evaluating content quality, fostering innovation, supporting decision-making, and facilitating problem-solving. Through these applications, organizations can strategically leverage their knowledge assets to achieve objectives and enhance innovation.

Knowledge Development: In the knowledge development process, AI plays a crucial role in research and scientific discovery. By analyzing large volumes of data and generating new insights, AI supports the development of innovative knowledge and advances scientific progress.

Knowledge Application: During the application phase, AI supports the identification of practical application opportunities, recommends decision-support systems, personalizes user experiences, and enables continuous learning and improvement. These applications enhance the effective use of knowledge in real-world organizational contexts.

Knowledge Creation: AI contributes to knowledge creation through knowledge synthesis, visualization, and intellectual property management. In particular, knowledge synthesis enables AI to integrate information from diverse sources to generate new insights, thereby promoting innovation and creativity.

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Conclusion: The results of this study underscore the transformative potential of artificial intelligence across all stages of knowledge management. In the knowledge identification process, AI's most significant contribution lies in knowledge promotion. In knowledge acquisition, automatic summarization and reasoning emerge as the most prominent applications. In the knowledge auditing process, AI is particularly effective in identifying knowledge gaps, while in knowledge organization, its strongest contribution is in automatic classification. Likewise, in knowledge dissemination, audience identification represents the most salient application of AI. In the domain of knowledge value creation, content quality evaluation constitutes the primary contribution of AI. With regard to knowledge development, AI plays a critical role in research and scientific discovery. In knowledge application, AI supports decision-making primarily through recommendation systems, and in knowledge creation, knowledge synthesis is identified as the most impactful application.

Value: This research systematically identifies the applications of artificial intelligence in automating knowledge management processes and highlights its contributions to optimizing these processes. By leveraging AI, organizations can substantially enhance the efficiency, accessibility, and strategic utilization of knowledge, ultimately improving organizational performance and productivity. The findings provide a valuable framework for organizations seeking to integrate artificial intelligence into their knowledge management practices.

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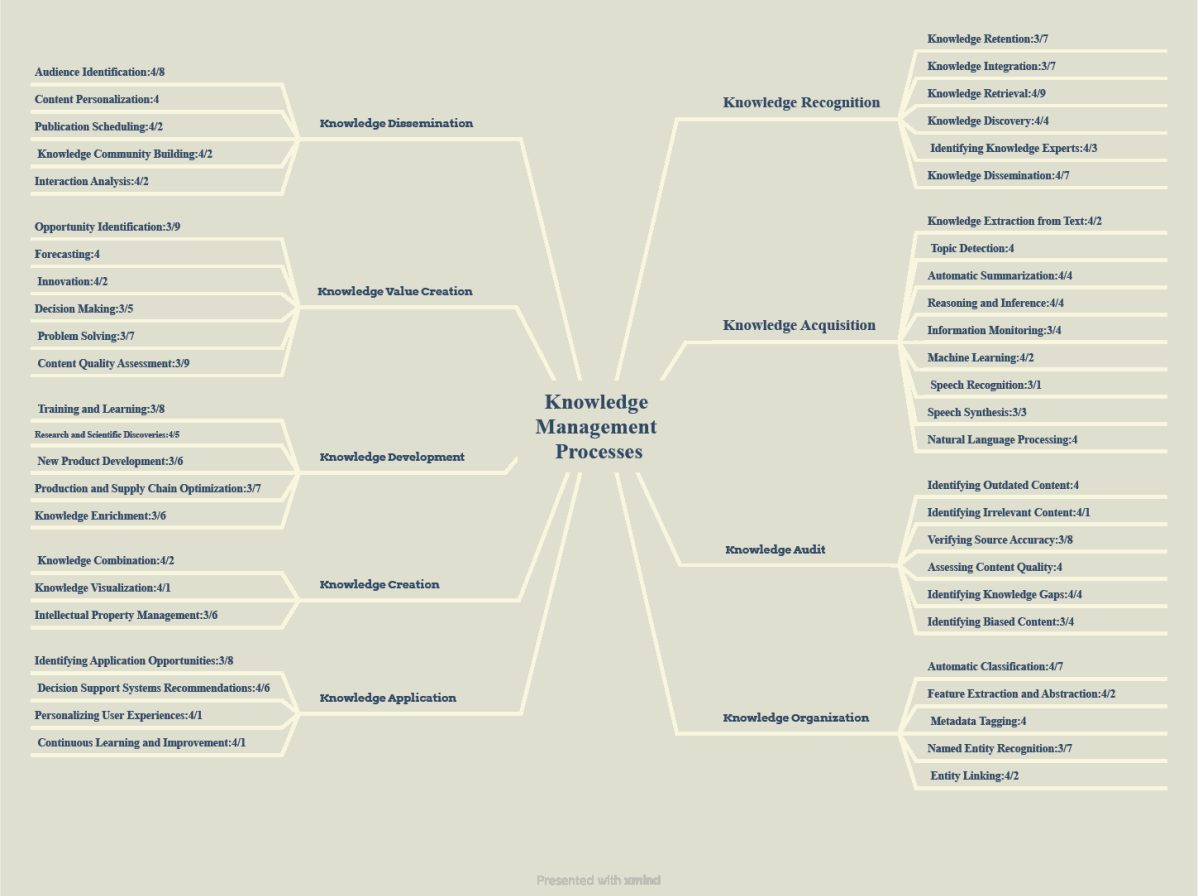

Figure 1: Finalized Indicators and Items

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