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The Role of Convenience and Usability in the Adoption of Electronic Management Systems: A Theoretical and Empirical Review

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A B S T R A C T

This study aims to analyze the role of convenience and usability in the adoption of electronic management systems (EMS) through a scientometric approach. Using a bibliometric analysis of 1,112 articles published in the Scopus database between 2014 and 2024, this study maps the thematic evolution, trends, and main clusters in the related literature. Topic network visualization techniques using VOSviewer and RStudio were used to identify dominant themes and reveal relationships between topics, such as technology acceptance model (TAM), artificial intelligence (AI), blockchain, and other emerging technologies. The results show that convenience and ease of use continue to be key factors in EMS adoption, especially in sectors such as e-commerce, education, and healthcare. The emergence of new issues such as trust, risk, and privacy signals a shift in the focus of recent research, reflecting the need to consider psychological and social factors in modern technology. The theoretical implications suggest that while traditional models such as TAM are still relevant, the integration of new factors such as user satisfaction and privacy is becoming increasingly important.

INTRODUCTION

The adoption of electronic management systems (EMS) has become a critical part of digital transformation across industries (Chen et al., 2017; Hamzah et al., 2024; Jayashree et al., 2016). With the rapid evolution of technology, organizations are increasingly relying on these systems to streamline operations, improve decision-making, and increase efficiency (Sun & Jung, 2024). The effectiveness of EMS largely depends on how well users adopt and utilize these systems, which is influenced by several factors, including convenience and usability (Lee et al., 2015). As electronic management systems integrate advanced technologies such as blockchain, artificial intelligence (AI), and cloud computing, user-friendly interfaces and ease of functionality have become even more important (Kumari & Muthulakshmi, 2023). Understanding how these factors affect technology adoption can provide valuable insights into optimizing the use of EMSs in various sectors, from e-commerce to healthcare to government services. Thus, exploring the intersection between technology acceptance models and emerging technologies sheds light on broader patterns of EMS adoption.

Despite the growing reliance on electronic management systems, many organizations still face significant challenges in ensuring successful adoption and use (Kamarudzaman & Jambari, 2021). One of the key issues is the complexity associated with implementing new technologies in different operational environments, where users often face barriers such as difficult interfaces, lack of technical knowledge, or resistance to change (Pavlov et al., 2022). While models such as the Technology Acceptance Model (TAM) have been instrumental in understanding the common drivers of technology adoption particularly perceived usefulness and ease of use they do not fully capture the nuances of how modern systems, such as AI or blockchain, are adopted (Siagian et al., 2022). In addition, the COVID-19 pandemic has accelerated digital transformation, making it even more urgent to address these barriers (Padua, 2021). Lack of attention to factors such as convenience, trust, and perceived risk can lead to suboptimal adoption rates, limiting the potential benefits of these technologies.

While the TAM and similar frameworks have been widely used to examine the factors that influence technology adoption, the existing literature lacks a detailed exploration of how these models apply to emerging and rapidly evolving technologies, such as virtual reality or smart city solutions (Abd Majid & Mohd Shamsudin, 2019). Most studies focus on conventional technologies such as online banking and e-commerce (Phani Bhaskar & Prasanna Kumar, 2017), often neglecting the psychological and emotional aspects of technology adoption in complex digital ecosystems. Furthermore, recent developments such as the increased importance of perceived risk and trust and the role of socio-economic factors (e.g. the global impact of COVID-19) are not sufficiently integrated into traditional models. The literature also lacks a comprehensive network analysis that shows how clusters of research topics particularly those related to convenience and usability evolve, leaving a gap in understanding the broader dynamics of EMS adoption.

To address these gaps, it is necessary to expand the theoretical frameworks for studying technology adoption, particularly by incorporating factors beyond perceived usefulness and ease of use. This study aims to integrate concepts such as perceived risk, trust, and socio-economic context (e.g., global crises such as the COVID-19 pandemic) into the analysis of EMS adoption. In addition, by using advanced scientometric methods such as topic mapping and cluster analysis, this research will provide a more detailed and dynamic picture of how research topics related to convenience and usability evolve. These techniques will uncover hidden patterns and relationships among topics (J. Li et al., 2021), providing a more nuanced understanding of the role of these factors in EMS adoption across industries. In doing so, this research will develop a more comprehensive model that accounts for the complexity of modern technology ecosystems.

The motivation for this study stems from the growing importance of user-centered design in technology adoption, especially as organizations are faced with increasingly sophisticated electronic management systems. With the rapid pace of technological advancement, there is an urgent need to revisit and extend traditional frameworks such as the TAM (Makmor et al., 2019). The motivation also stems from the recognition that recent global disruptions such as the COVID-19 pandemic have significantly accelerated digital adoption across all sectors. This phenomenon highlights the need to better understand how convenience, usability, and trust impact the adoption and sustained use of EMSs. In addition, the emerging role of advanced technologies such as AI and blockchain in management systems presents new challenges and opportunities for adoption studies, providing further impetus to delve into this evolving area of research.

The primary objective of this study is to explore how convenience and usability influence the adoption of EMS by examining the thematic evolution of related research. Specifically, this research will address the following research questions how have convenience and usability shaped the thematic evolution of EMS adoption research? What are the key clusters and trends in the network analysis of studies focused on EMS usability? How can topic mapping and cluster analysis reveal emerging research themes related to the role of convenience in EMS adoption? To achieve this, the study will identify dominant clusters and trends within the literature using advanced scientometric techniques such as network analysis and topic mapping. It will also examine the adoption of modern technologies such as AI and blockchain compared to traditional systems, focusing on the impact of usability and convenience on this process. By integrating psychological and socio-economic factors into the analysis, this research aims to provide a comprehensive understanding of the dynamics of technology adoption, thereby contributing valuable insights for both academic and practical applications in the field of electronic management systems.

This research is significant because it addresses the evolving landscape of technology adoption and provides insights into how convenience and usability factors impact the integration of advanced systems such as EMS in various

sectors. Using network analysis and topic mapping, the study will highlight emerging trends and gaps in current research and provide practical recommendations for optimizing the user experience in EMS. The findings will benefit academia and industry by providing a deeper understanding of the factors that drive or inhibit the adoption of EMSs. This is particularly relevant in a post-pandemic world where digital transformation is not just an option but a necessity. The insights gained from this study can help improve user satisfaction, increase adoption rates, and ultimately improve the efficiency of organizational processes.

LITERATURE REVIEW

Despite the growing reliance on electronic management systems, many organizations still face significant challenges in ensuring successful adoption and use (Kamarudzaman & Jambari, 2021). One of the key issues is the complexity associated with implementing new technologies in different operational environments, where users often face barriers such as difficult interfaces, lack of technical knowledge, or resistance to change (Pavlov et al., 2022). While models such as the Technology Acceptance Model (TAM) have been instrumental in understanding the common drivers of technology adoption particularly perceived usefulness and ease of use they do not fully capture the nuances of how modern systems, such as AI or blockchain, are adopted (Siagian et al., 2022). In addition, the COVID-19 pandemic has accelerated digital transformation, making it even more urgent to address these barriers (Padua, 2021). Lack of attention to factors such as convenience, trust, and perceived risk can lead to suboptimal adoption rates, limiting the potential benefits of these technologies.

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METHODOLOGY

This study employed a scientometric review design (Mingers & Leydesdorff, 2015) to map the role of comfort and ease of use in the adoption of electronic management systems (EMS). A scientometric review is an approach that employs quantitative analysis to comprehend the evolution of scientific literature in a systematic and quantifiable manner (Barbosa et al., 2018). By employing bibliometric analysis, this study could discern patterns, pivotal themes, and interconnections emerging in the extant literature (Misran, et al., 2022 ;Suardi et al., 2023), particularly about the role of convenience and usability in EMS. This approach enabled mapping research trends, topic networks, and the evolution of relevant themes, thereby supporting the research objective of identifying key clusters and trends in the EMS adoption literature.

The data for this study were drawn from the Scopus database, which covers publications from 2014 to 2024. The database was selected due to its comprehensive coverage and reputation for providing high-quality scientific literature from various disciplines, including technology and management. This research focused on English-language journal articles to ensure the quality and international readability of the review results. By examining the literature from the past decade, the study observed the evolutionary trends in research on convenience and ease of use in EMS adoption while capturing the shift in focus to new technologies, such as blockchain and AI.

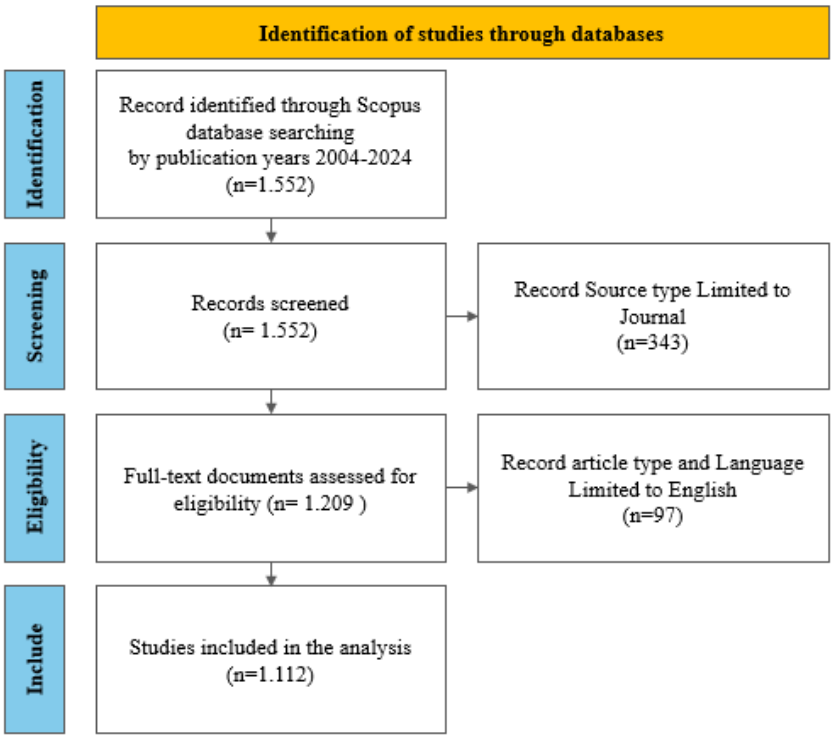

Figure 1. Modified PRISMA Diagram Illustrating the Item Selection Process

The data collection and screening process was conducted by PRISMA guidelines (X. Wang et al., 2019) to ensure transparency and replicability. From the initial 1,552 documents identified from relevant publications between January 1, 2014, and August 31, 2024, 1,209 were screened for journal articles only. Following further refinement, 1,112 articles in English were selected for analysis. This selection process ensured that only high-quality and relevant literature was included in the study, thereby supporting the aim of mapping in-depth trends and themes related to EMS adoption.

The study employed RStudio and VOSviewer software for data analysis, including topic mapping and theme evolution (Suardi et al., 2023)These tools facilitate the visualization of the network of concepts, themes, and keywords in the literature about comfort and ease of use in EMS. This analysis demonstrates the evolution of the pivotal issues in this study and identifies nascent trends and potential future research directions. Visualizing trends and mapping theme clusters within the network affords a more profound comprehension of the dynamics of EMS technology adoption from multiple perspectives.

RESEARCH RESULT AND DISCUSSION

Trends and Emergence of Research Topics

Trend analysis in scientometric studies refers to the study of patterns in the emergence and development of specific topics or keywords in the scientific literature over time (Abuhay et al., 2018). This approach is used to identify popular research directions, track changes in academic focus, and explore the relationships between different topics within a given field. Such analyses can reveal the dynamics of topic evolution, highlight emerging areas of research,

and identify related topics that may be growing or declining. In this study, we used RStudio to visualize the data using WordArt (Figure 2) and to identify the trending topics (Table 1).

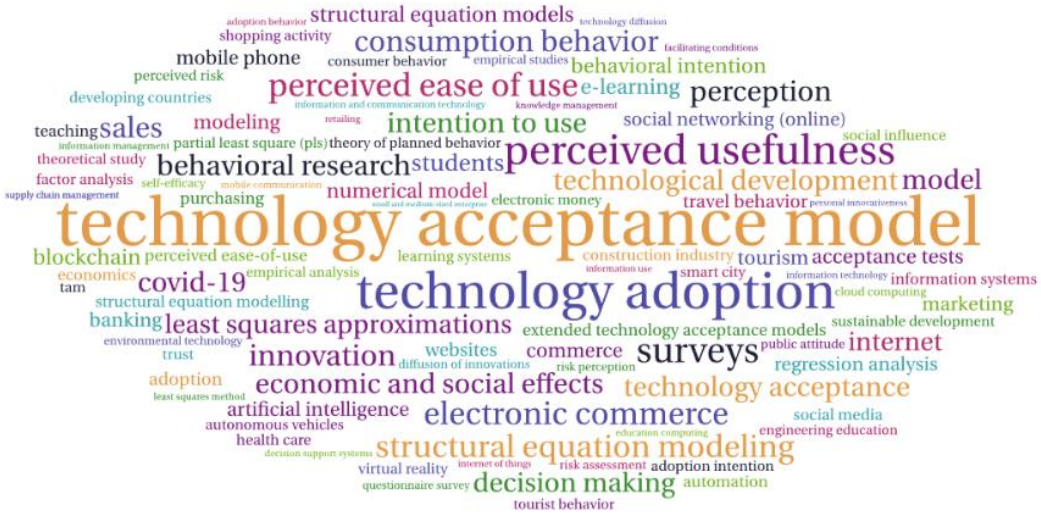

Figure 2. Word Cloud of Factors Affecting the Use of Electronic Management Systems

Figure 2 shows the research trends regarding convenience and usability in the adoption of electronic management systems, represented by a word cloud. This major trend can be seen in the dominance of the Technology Acceptance Model and Technology Adoption themes, which are the central focus. Factors such as usefulness and ease of use are often considered important in technology acceptance models. In addition, the emergence of behavioral intention, structural equation modeling, and decision making indicate analytical approaches frequently used to evaluate factors influencing technology adoption, particularly in e-commerce, innovation, and socioeconomic effects. The Internet, mobile communications, and emerging technologies such as blockchain and virtual reality are also influencing this trend. The COVID-19 pandemic also appears to be influencing this related research.

The WordCloud findings are consistent with previous research focused on TAM, where this model continues to dominate discussions of technology adoption. Several previous studies have highlighted two main factors, namely perceived usefulness and perceived ease of use, that are believed to influence an individual's or organization's decision to adopt a new technology (Hikmah et al., 2023; Tandon et al., 2016; Wu & Cheng, 2018). In addition, studies using structural equation modeling and survey-based approaches have been widely used to analyze user behavior and intention to use technology. This topic is increasingly relevant during the COVID-19 pandemic, where digital transformation is experiencing a significant acceleration, thus reinforcing the importance of research related to technology adoption.

However, recent research trends show a shift or expansion from traditional contexts to more specific and complex technology applications, such as blockchain, virtual reality, and autonomous vehicles (Aishwarya & Vivek Anand, 2023; Mendhurwar & Mishra, 2023). This indicates that researchers are

focusing on the fundamental theoretical aspects of TAM and exploring how these advanced technologies are accepted and adopted in different sectors, such as healthcare, education, and e-commerce. In addition, the role of perceived risk, trust, and social factors in technology adoption is receiving more attention, especially in the context of interactions with new technologies that may not be fully understood by the general public, such as in studies related to IoT, smart cities, or environmental technologies.

Table 1. Trend topics of Factors Affecting the Use of Electronic Management Systems

Topics	Freq	Year_Q1	Year_Med	Year_Q3
Technology acceptance model	731	2018	2021	2023
Perceived usefulness	80	2018	2021	2023
Perceived ease of use	55	2018	2019	2022
Technology adoption	47	2018	2020	2023
Covid-19	42	2021	2022	2023
Perceived risk	40	2016	2020	2022
Theory of planned behaviour	28	2019	2022	2023
E-commerce	22	2017	2019	2022
Internet banking	21	2015	2017	2019
Artificial intelligence	21	2022	2023	2024
Mobile banking	20	2018	2019	2021
Intention	13	2017	2018	2021
Personal innovativeness	13	2017	2018	2021
Subjective norm	10	2015	2016	2020
Security	10	2014	2018	2020

Table 1 shows research trends concerning convenience and usability in adopting electronic management systems between 2018 and 2023. The technology acceptance model, perceived usefulness, and perceived ease of use are the primary focus of research, occurring with high frequency. This indicates that the technology acceptance model remains a dominant framework for understanding the adoption of new technologies. Notwithstanding the emergence of new topics such as perceived risk and e-commerce since 2018, these remain relevant until 2023. Other trends, such as those related to the global impact of the SARS-CoV-2 pandemic and the advent of AI, which emerged after 2021, demonstrate that global socio-economic developments and advanced technologies exert an increasingly influential effect on technology adoption.

These findings are consistent with previous research focusing on the technology acceptance model, which indicates that perceived usefulness and ease of use remain key determinants in technology adoption. Prior research underscored the significance of perceived usefulness and ease of use in shaping users' intention to accept novel technologies (Munir & Ilyas, 2017). This trend persists today, with the TAM model retaining relevance in various contexts, including technology adoption in the banking sector, e-commerce, and online

learning (Ben Mansour, 2016). However, the emergence of factors such as perceived risk at an earlier period indicates that users are increasingly concerned about the risks associated with using technology, particularly in the banking and e-commerce sectors, which have been widely discussed in previous literature.

However, recent research has revealed intriguing differences, particularly incorporating subjects such as the COVID-19 and artificial intelligence. These two topics reflect significant changes in the technological and socio-economic landscape that have been insufficiently explored in previous research. The advent of the COVID-19 pandemic has precipitated a rapid acceleration in the digitalization of various sectors (Akram et al., 2021), thereby rendering technology adoption an even more crucial and urgent imperative. Conversely, cutting-edge technologies such as AI, which only commenced an intensive investigation in 2022, demonstrate that research on technology adoption now encompasses not only usability and convenience aspects but also the acceptance and integration of these novel technologies into diverse management systems. These new factors alter the perspectives of previous research, which are predominantly concerned with conventional technologies, such as online banking and e-commerce, to be more expansive and contextualized.

Network Analysis and Topic Mapping

Network analysis and topic mapping are essential scientific methods for identifying, visualizing, and understanding the relationships and structures within the research literature (Tan et al., 2016). These techniques allow researchers to explore the connections between different topics, identify key trends and patterns, and uncover clusters of topics that frequently appear in academic publications. In this study, we used VOSviewer to create a network map of political communication in digital media (Figure 3), and RStudio to create a conceptual structure map (Figure 4).

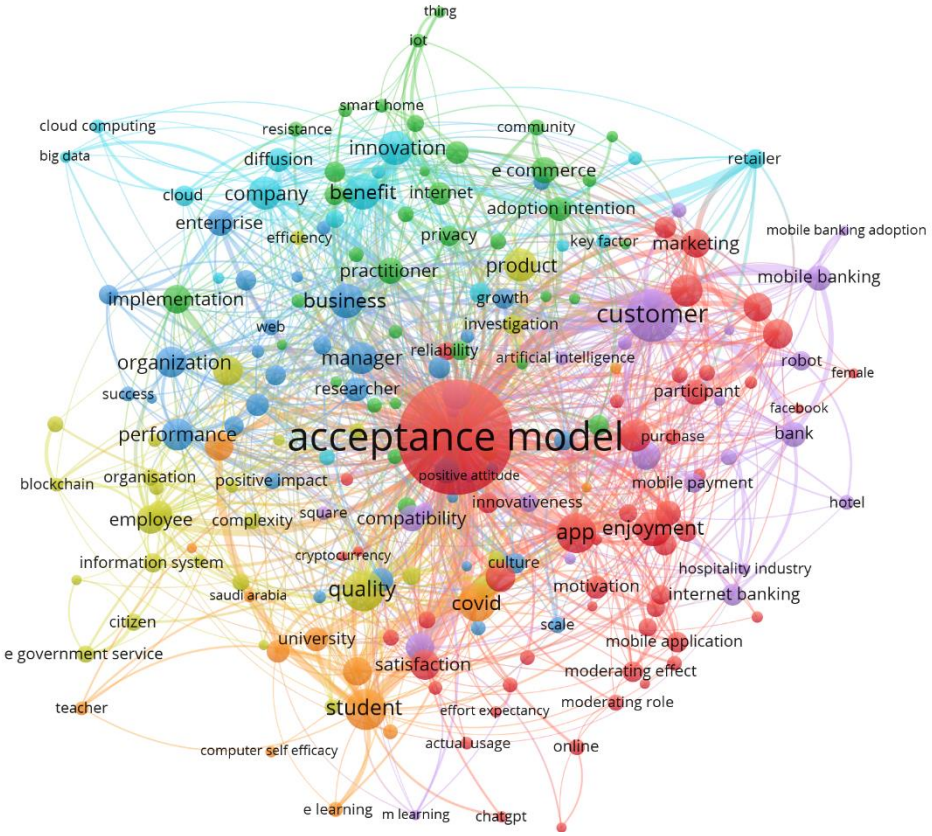

Figure 3. The network of topic research

Figure 3 shows the network of research topics on the role of convenience and usability in adopting electronic management systems, with a representation of interconnected nodes and edges. The different colored nodes represent related research topics, with the node's size indicating the frequency of occurrence of the topic in the research. The other colors differentiate between groups or clusters of thematically related topics. For instance, the red cluster encompasses topics related to customers, mobile applications, and convenience. In contrast, the blue and green clusters represent topics such as business, innovation, and technology applications. The edges or lines connecting the nodes illustrate the relationship between these topics; the thicker the line, the more closely related the two topics are. This network demonstrates that the topic "acceptance model" is situated at the center, serving as the primary hub for various other topics, including quality, application convenience, and technological innovation, all of which are pertinent factors in adopting electronic management systems.

Recent research has demonstrated that the enjoyment derived from mobile applications (apps) and the quality of the underlying technology are significant predictors of user acceptance of electronic management systems, particularly in financial services such as mobile banking and e-commerce (Tiwari et al., 2021). The literature has long discussed these factors related to technology acceptance models. In this context, theories such as the TAM and the Unified Theory of Acceptance and Use of Technology (UTAUT) emphasize the importance of perceived usefulness and convenience for adopting new technologies (Othman

et al., 2019; Venkatesh et al., 2016). Prior research has demonstrated that convenience fosters a positive user experience, accelerating technology adoption (Hussain et al., 2019). As digital innovations become more interactive and personalized, the convenience of apps is becoming an increasingly important factor, particularly in ecosystems that support online transactions and services.

However, in comparison to previous research, the emergence of topics such as "COVID", "innovation", and "privacy" in this topic map indicates a shift in research focus related to external conditions that influence technology adoption (Cobelli & Blasi, 2024). The advent of the global pandemic of 2019–2020 has accelerated the adoption of digital technologies worldwide. Before this, such topics were not widely covered in research. Previous studies have tended to focus on technology adoption in relatively stable environments. However, recent research has begun to factor in global crises and innovations such as AI, which adds considerable complexity to studying technology acceptance (Abbas et al., 2023). Furthermore, privacy and security have become a significant concern, reflecting users' increasing concerns over data protection in the context of the widespread adoption of technology.

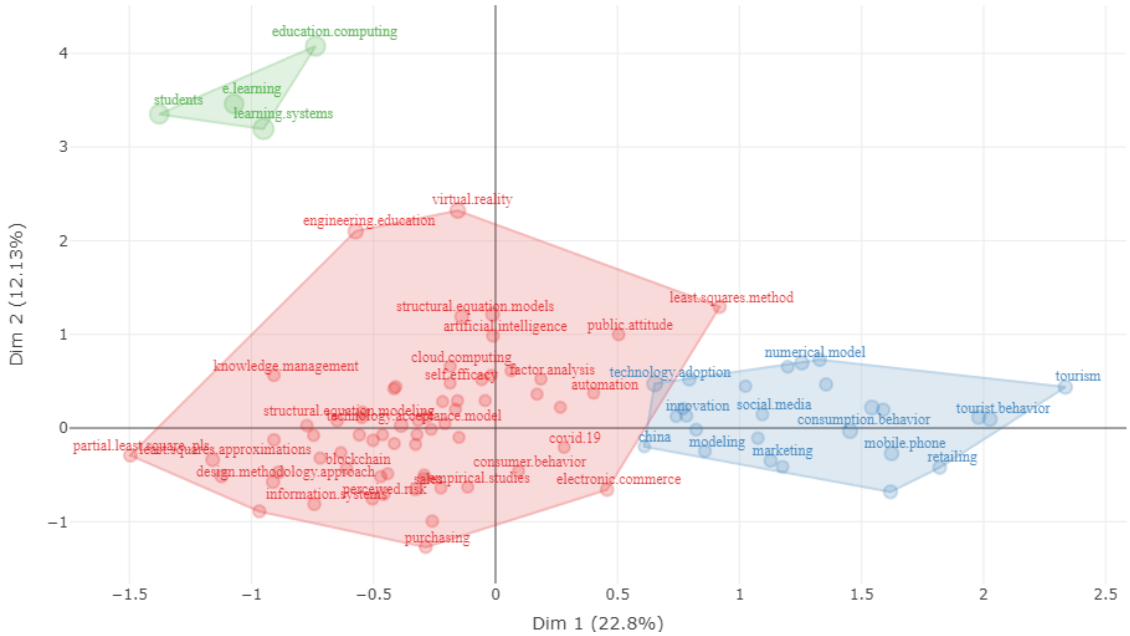

Figure 4. Conceptual Structure Map

Figure 4 shows the three principal clusters associated with investigating the influence of convenience and usability on adopting electronic management systems. The color of each node represents a distinct topic cluster: green, red, and blue. The positioning and distribution of the nodes illustrate the interconnections between the various topics. The green cluster in the top left corner encompasses more specific themes, including electronic government and cloud computing. These focus on public service-based technologies and digitization. The red cluster in the center of the diagram encompasses topics such as engineering, virtual reality, and peripherals pertaining to technical

aspects and innovations. Meanwhile, the blue cluster on the right covers topics such as e-commerce, technology adoption, and mobile payments, which are more closely related to technology adoption in the business and commercial sectors. This distribution demonstrates that research on adopting electronic management systems is distributed across multiple disciplines, including the public sector and commercial technology.

This finding suggests that the primary focus in the existing literature is on clustering research topics that combine disparate approaches to understanding technology adoption, particularly electronic management systems. In the initial cluster (indicated in red), themes such as the technology acceptance model and perceived usefulness are particularly prominent, corroborating the assertion that prior research has also concentrated on the technology acceptance model and perceived usefulness as pivotal elements in determining technology system adoption. This finding is consistent with numerous previous studies demonstrating the significant impact of technology usability and convenience on users' intention to adopt new technology (Ozturk et al., 2016). Furthermore, the topics of behavioral intention in this cluster demonstrate alignment with research examining user behavior in adopting technology. This area has been extensively explored through the lens of the Theory of Reasoned Action (TRA) (Nam et al., 2014).

Conversely, the findings also demonstrate variations in the themes that emerged in the different clusters. For instance, the second cluster (blue) saw the emergence of topics related to consumer behavior and new technologies, including tourism, mobile communication, and social media (Mathew & Soliman, 2021). This indicates that recent research primarily focuses on studies examining rapidly evolving modern industries and technologies, such as technology-based tourism and mobile communication. This shift diverges from previous research employing traditional conceptual approaches, such as the TAM and the TRA (Awa et al., 2015). While the fundamental elements of technology acceptance remain significant, the context of technology adoption has become more diverse, encompassing a broader range of industries influenced by contemporary digital technologies.

Thematic Evolution and Cluster Analysis

Thematic evolution and cluster analysis is a way of tracking how research themes change and develop over time. Thematic evolution analysis looks at how a research topic develops, from its start to how it changes or joins with new themes (Y. Wang et al., 2021). Cluster analysis groups studies based on similarities. This helps researchers understand a field's structure and dynamics (Rundle-Thiele et al., 2015). Combining this with thematic evolution analysis shows how research areas change, which clusters are dominant, and how new concepts are integrated into existing literature. This provides insight into future trends and the relevance of research themes.

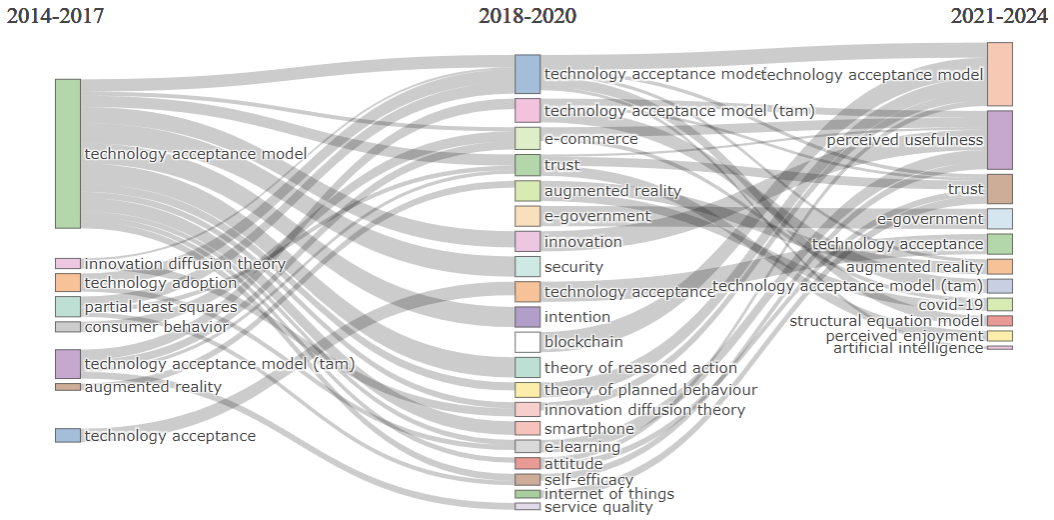

Figure 5. Thematic evolution

Figure 5 shows the evolution of research topics about the role of convenience and usability in adopting e-management systems from 2014 to 2024. Between 2014 and 2017, research primarily focused on the technology acceptance model, with some extensions delving into innovation diffusion and consumer behavior theories (Rese et al., 2014). Between 2018 and 2020, the focus of research began to shift and branch out, with studies exploring more specific topics, including e-commerce, trust, augmented reality, blockchain, and e-government (Hsieh, 2020). This shift indicates that technology adoption is becoming more diverse and contextualized. This trend persists into the 2021-2024 period, with heightened interest in perceived usefulness, trust, structural equation modeling, and the impact of the global pandemic, indicating broader adaptation to new technologies and an increased role for psychological and social factors in technology acceptance (Troisi et al., 2022). This evolution illustrates that technology adoption research is expanding across sectors and technologies, focusing more on usability, convenience, and trust.

The findings of this study indicate a need for a shift in the focus of deeper research on technology adoption as new contexts and technologies emerge. Previous research has largely been based on the technology acceptance model as a fundamental framework, primarily focusing on traditional factors such as usability and ease of use (Marakarkandy et al., 2017). However, in recent research, the focus has broadened to encompass more specific areas, including augmented reality, e-commerce, and blockchain (Q. Li et al., 2021). This indicates that the fundamental technology acceptance model model is being utilized in an expanding array of complex and nuanced contexts. These technologies, which may have been considered niche or newly introduced in previous research, are now the subject of maturing and evolving research, with adoption beginning to be studied more systematically across different industry sectors.

Conversely, developments such as incorporating trust and perceived enjoyment as significant factors in technology adoption indicate a divergence from the prevailing approach in previous research (Oliveira et al., 2016). While

earlier research focused on rational aspects such as usability, recent research incorporates a more nuanced understanding of psychological and emotional elements (Ding & Chai, 2015). Trust and user satisfaction have emerged as significant considerations, particularly in increasingly complex and interconnected digital environments, such as those encountered in e-government or augmented reality applications (Osman et al., 2019). This shift reflects a broader change in research focus beyond mere evaluations of technology functionality towards a greater emphasis on subjective aspects of user experience and security, now seen as key drivers of higher and more sustainable levels of technology adoption.

Table 2. Cluster Analysis of Selected Themes: Callon's Centrality, Callon's Density, Rank Centrality, and Rank Density

Cluster	Callon Centrality	Callon Density	Rank Centrality	Rank Density	Cluster Frequency
Flow experience	0,00	50,00	3,50	4,00	2,00
Technology acceptance	0,13	43,75	8,00	2,00	6,00
Technology acceptance model	4,17	63,73	13,00	8,00	439,00
Technology adoption	0,47	31,85	10,00	1,00	25,00
Augmented reality	0,25	66,67	9,00	9,00	6,00
Consumer behavior	0,00	62,50	3,50	7,00	4,00
Decision support systems	0,00	50,00	3,50	4,00	2,00
Innovation diffusion theory	0,08	185,42	7,00	13,00	19,00
Decision-making trial and evaluation laboratory (dematel)	0,00	100,00	3,50	12,00	6,00

Table 2 shows the cluster analysis of the various research themes based on the metrics of Callon Centrality, Callon Density, Rank Centrality, and Rank Density. The technology acceptance model is distinguished by a notably high Callon Centrality (4.17) and the highest cluster frequency (439), indicating that technology acceptance model occupies a pivotal position in research on technology adoption. However, technology acceptance model's moderate Callon Density (63.73) suggests that, despite its frequent use, innovations or explorations in this research remain limited. In contrast, technology acceptance and adoption are also significant, with notable cluster frequencies indicating that these topics remain pertinent and frequently appear in the broader literature review.

Themes such as "Augmented Reality" and "Partial Least Squares" demonstrate high "Callon Density " (66.67 and 68.75, respectively), indicating robust internal development within these topics. While these topics possess lower Callon Centrality values than technology acceptance model, they receive more detailed examination and advancement within the research domain. Conversely, Innovation Diffusion Theory exhibits the highest Callon Density

(185.42), suggesting that despite its relative obscurity compared to technology acceptance model, this field is witnessing a surge in innovative developments and active research. This cluster exemplifies the mounting interest in elucidating the mechanisms through which novel technologies disseminate and are embraced across diverse contexts.

CONCLUSION AND RECOMMENDATION

This research successfully addresses how convenience and usability shape the thematic evolution of EMS adoption. The scientometric analysis showed that these two factors play an important role in EMS adoption, with themes such as the TAM continuing to dominate research. The study also identified major clusters in the literature, including emerging technologies such as blockchain and artificial intelligence, which are gaining increasing attention in technology adoption research. The topic mapping results indicate that convenience and ease of use influence EMS adoption in traditional sectors such as banking and e-commerce, as well as in emerging sectors such as education, healthcare, and e-government.

Theoretically, these findings reinforce the relevance of the TAM model, which emphasizes perceived usefulness and ease of use, while showing that new factors such as trust and risk are also beginning to play a role in EMS adoption. This suggests that while the traditional framework is still relevant, future studies need to integrate more complex psychological and social factors such as user satisfaction and privacy, especially in the context of newer technologies such as virtual reality and artificial intelligence. Practically, the results of this study provide insights for developers of e-management systems, who should focus on improving convenience and ease of use to encourage wider adoption, while also considering security and user trust in an increasingly complex digital world.

ADVANCED RESEARCH

Despite its significant contribution, this study has several limitations. First, this analysis only covers literature published in English and from the Scopus database, so it may not be representative of all research published in other languages or databases. Second, this study focuses on studies from 2014 to 2024, which may not fully capture recent trends in technology adoption, especially given the acceleration of technological change following the COVID-19 pandemic. Third, while the bibliometric and scientometric analyses provide a comprehensive overview of the evolution of the topic, this study does not delve into a qualitative analysis of the non-quantitative factors that may influence EMS adoption. Further research could expand the scope and methodological approach to capture more complex dynamics in the adoption of electronic management technologies.

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