

Mapping the Landscape of E-Business Systems: A Bibliometric Review and Future Research Directions

Fryda Fatmayati¹, Hanifah Nurul Muthmainah²

¹ Sekolah Tinggi Teknologi Kedirgantaraan

² Universitas Siber Muhammadiyah

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ABSTRACT

This research paper presents a comprehensive bibliometric review of the e-business systems landscape, analyzing publication trends, citation patterns, influential authors, and prevalent research themes. E-business systems, driven by technological advancements and changing consumer behaviors, have reshaped modern business practices. Through systematic data collection and analysis, this study reveals the evolution of research within this dynamic field. The findings underscore the interdisciplinary nature of e-business systems, spanning information technology, strategy, marketing, and more. The identification of influential authors, prevalent themes, and emerging directions provides a roadmap for scholars, practitioners, and policymakers to navigate the evolving landscape of e-business systems.

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Corresponding Author:

Name: Fryda Fatmayati

Institution: Sekolah Tinggi Teknologi Kedirgantaraan

Email: fryda.fatmayati@sttkd.ac.id

1. INTRODUCTION

The dawn of the digital age has driven a major transformation in the way businesses operate, communicate and interact with their stakeholders. E-business systems, which encompass a spectrum of technologies and strategies that facilitate electronic commerce, supply chain management, and customer interaction, have emerged as a key driver of this transformation. The complex interplay between technology, business processes, and consumer behavior in the e-business landscape has attracted the attention of academics, practitioners, and policymakers. As these systems become increasingly integral in modern commerce, it is imperative to conduct a comprehensive examination of the e-business systems landscape to understand its evolution, trends and future research directions.

The emergence of e-business systems stems from the convergence of digital technologies, communication networks and innovative business models. The evolution of electronic commerce, driven by the widespread adoption of the internet, marked the initial phase of this transformation. Since then, the landscape has expanded beyond online transactions to encompass aspects such as mobile commerce, social media marketing, digital supply chain integration, and the utilization of new technologies such as artificial intelligence and blockchain. The emergence of e-business systems can be attributed to the convergence of digital technologies, communication networks, and innovative business models. The evolution of electronic commerce, driven by the widespread adoption of the internet, marked the initial phase of this transformation. One example of this transformation is the

emergence of the low-cost airline model in the early 1990s, which made extensive use of internet technology to streamline business processes and gain competitive advantage [1]. The adoption of information technology and the redesign of business models enabled companies to better leverage commercial value, forcing traditional airlines to adopt new strategies to remain competitive [1].

As digital technologies advance, they begin to impact various aspects of society, including privacy, human rights, democracy, freedom and dignity [2]. The convergence of artificial intelligence (AI), big data analytics, and machine learning has led to the development of remarkable technologies such as voice, face, and smell recognition, as well as statistical algorithms that predict human behavior and preferences [2]. However, when these digital technologies are combined with authoritarian governments or powerful private actors, they can pose significant risks to society [2]. The sharing economy is another example of the entrepreneurial evolution of electronic commerce [3]. The concept has gained traction in recent years, with platforms such as Uber and Airbnb disrupting traditional industries and creating new business models based on resource sharing. Software-defined networking (SDN) is another emerging paradigm that promises to change the way networks are managed by breaking vertical integration, decoupling network control logic from the underlying routers and switches, promoting (logical) centralization of network control, and introducing the ability to program networks [4]. This separation of concerns simplifies network management and facilitates network evolution.

In summary, the emergence of e-business systems is the result of the convergence of digital technologies, communication networks, and innovative business models. The evolution of electronic commerce, driven by the widespread adoption of the internet, marked the initial phase of this transformation, with technological advances and the development of new business models continuing to shape today's e-business landscape.

The strategic integration of e-business systems has indeed resulted in improved operational efficiency, expanded market reach, and a more personalized customer experience. This can be attributed to various factors, such as the adoption of cloud computing, the use of predictive analytics, and the application of management control systems (MCS) in corporate social responsibility (CSR) integration.

Cloud computing technology enables the integration of small and large e-business applications into a single cloud, which helps speed up delivery and reduce management costs. This approach also provides better security through the cloud security model, making the system more flexible, scalable, and cost-effective for users [5].

Predictive analytics techniques have been used to improve marketing performance and personalized customer experience. By analyzing past data and detecting trends, predictive analytics models can forecast industry trajectories and accurately determine consumer preferences, adding a cognitive component to the traditionally human-powered marketing process [6]. In addition, the adoption of MCS in CSR integration has been shown to have a positive impact on corporate performance, including employee, operations, and financial performance. By aligning CSR with corporate strategy, organizations can improve their performance both socially and financially [7].

In conclusion, the strategic integration of e-business systems has resulted in many benefits for businesses, including improved operational efficiency, expanded market reach, and personalized customer experience. This is achieved through the use of cloud computing, predictive analytics, and the implementation of management control systems in the integration of corporate social responsibility.

The strategic integration of e-business systems has resulted in increased operational efficiency, expanded market reach, and personalized customer experiences. Organizations across industries have leveraged these systems to streamline processes, gather valuable insights from data

analysis, and build direct and seamless relationships with consumers. As a result, the academic community has witnessed a surge in research efforts aimed at understanding the various dimensions of e-business systems, ranging from technological advancements to socio-economic implications.

2. LITERATURE REVIEW

2.1 *Evolution of E-Business Systems*

The evolution of e-business systems can be traced back to the early days of electronic commerce, where online transactions marked the beginning of digital business interactions. Over time, this landscape has evolved to encompass a wide array of technologies and practices, including mobile commerce, social media marketing, online payment systems, and supply chain integration [1], [8]. The progression from simple online transactions to complex ecosystems reflects the transformative power of technology in reshaping business models and consumer interactions [3], [9].

2.2 *Technology Enabling Factors*

Advancements in information and communication technology are critical in driving the growth of e-business systems. The development of secure online payment gateways, encryption protocols, and authentication mechanisms has increased consumer confidence and facilitated seamless transactions. In addition, the emergence of cloud computing, big data analytics, artificial intelligence, and blockchain have introduced new dimensions to e-business systems, enabling personalized experiences, predictive analytics, and secure data management.

2.3 *Consumer Behavior and Experience*

Understanding consumer behavior in the context of e-business systems has been a focal point of

research. Various studies have explored the factors that influence online purchase decisions, trust-building mechanisms, and the role of online reviews and social influence [10], [11]. The rise of mobile commerce further emphasizes the need to understand consumer preferences in the context of smaller screens and on-the-go interactions [12]m.

2.4 *Business Strategies and Models*

The e-business system has prompted organizations to revisit their strategies and business models. Traditional brick-and-mortar businesses have adopted an omnichannel approach, blending online and offline experiences to cater to diverse consumer preferences. The subscription economy, platform-based business models, and sharing economy have also emerged as prominent trends in the e-business landscape.

2.5 *Supply Chain Integration and Management*

Efficient supply chain management has become a critical element in e-business success. The integration of digital technologies across the supply chain, including inventory management, order fulfillment, and logistics, has enabled real-time tracking, reduced lead times, and improved operational efficiency [13], [14]. Research in this domain explores the challenges and opportunities of digital supply chain integration [15], [16].

3. METHODS

To ensure comprehensive coverage of the e-business systems literature, relevant scholarly articles were collected from reputable academic databases. Databases such as IEEE Xplore, ACM Digital Library, Scopus, and Web of Science were searched using a series of keywords including "e-business systems", "electronic commerce", "digital business", "online business", and other

reflecting the dynamic nature of the business environment.

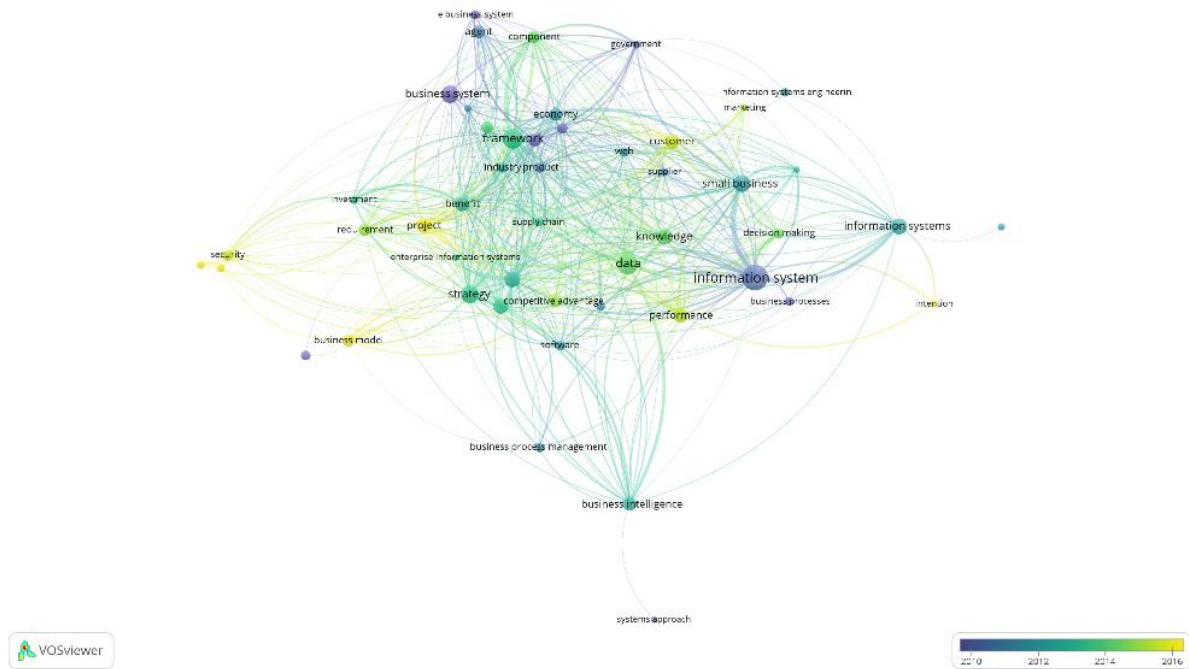


Figure 2. Research Trend

The analysis of publication trends revealed the evolution of research within the e-business systems landscape over the past two decades. The growth of research articles in this field exhibited distinct phases, aligning with significant technological advancements and shifts in business practices. The early 2000s saw a gradual rise in publications, paralleling the initial adoption of e-commerce

practices. The subsequent years marked accelerated growth, corresponding to the emergence of mobile commerce, digital marketing strategies, and the integration of social media into e-business systems. This trend underscored the field's responsiveness to technological developments and shifting consumer behaviors.

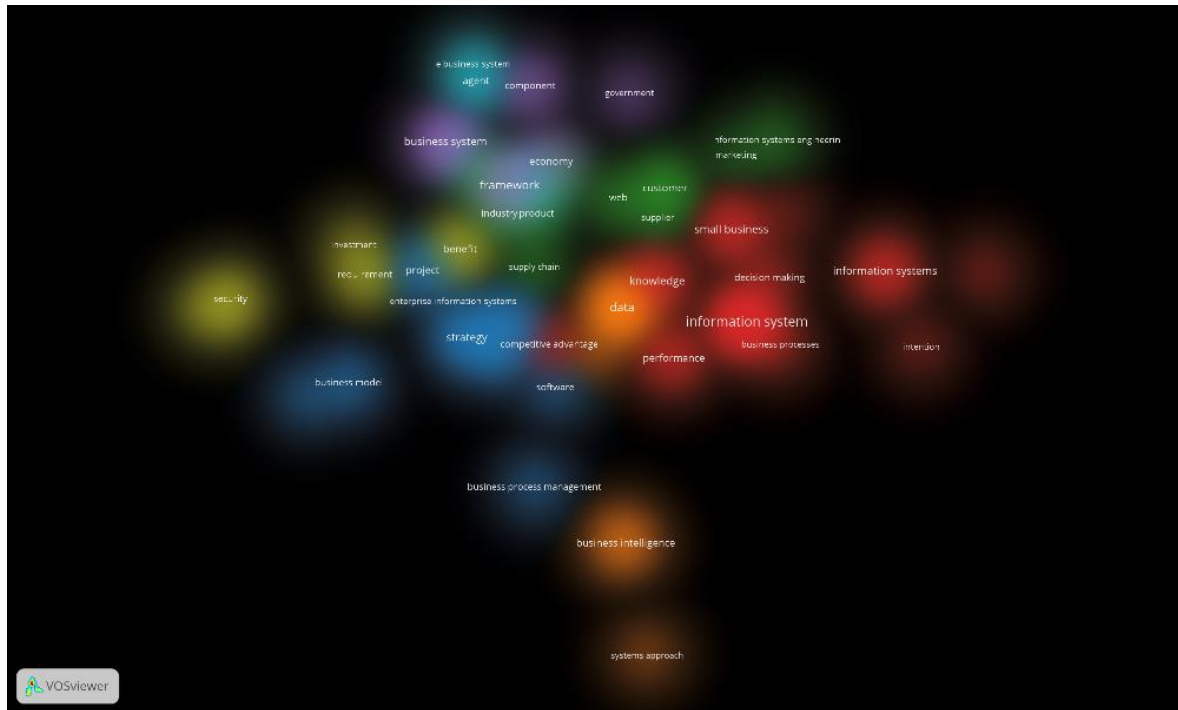


Figure 3. Visualization Cluster

Figure 3 presents a clustering of research articles based on their keywords, which reveals different thematic clusters within the e-business systems landscape. Each cluster is associated with a set of keywords that provide insight into the prevalent

research themes within this field. A discussion of these clusters provides a deeper understanding of the nuanced topics that scholars have explored in the context of e-business systems.

Table 2. Results Cluster

Cluster	Total Items	Most frequent keywords (occurrences)	Keyword
1	(10)	Performance (20), Small business (15)	Business performance manager, business process, competitive advantage, decision making, employee, information system, intention, knowledge, performance, small business
2	(7)	Supply chain (25)	Customer, industry, information system, marketing, product, supplier, supply chain, systems integration
3	(8)	Business model (25), Enterprise (10)	Business information system, business model, business process manager, company, enterprise, enterprise information system, project, software, strategy
4	(6)	Security (20)	Benefit, business continuity, investment, requirement, resilience, security
5	(5)	Government (20)	Business system, component, economy, framework, government
6	(4)	e-Business system (25)	Agent, e-business system, solution, variety
7	(4)	Business intelligence (15)	Business intelligence, data, decision support system, system approach

The clustering of keywords provides a comprehensive overview of the diverse research themes that constitute the e-business

systems landscape. The identification of these clusters underscores the multidisciplinary nature of the field, ranging from performance

enhancement and supply chain integration to security considerations, business model innovation, and governmental interactions. The prevalence of keywords related to small businesses and performance suggests a concerted effort to understand how e-business systems can contribute to the success of smaller enterprises. Supply chain integration emerges as a critical research area, aligning with the increasing complexity of modern supply chains and the need for efficient coordination. The exploration of business models and security resonates with the transformative potential of e-business systems and the imperative to ensure their robustness.

The presence of governmental and business system-related keywords highlights the intersection of e-business systems with broader economic and regulatory contexts. This cluster indicates the recognition of the role of governments in shaping the e-business landscape and fostering an environment conducive to digital commerce. In summary, the thematic clusters revealed in Table 2 provide a comprehensive view of the research landscape within e-business systems. These clusters represent distinct avenues of inquiry, reflecting the multifaceted nature of the field and the need for interdisciplinary collaboration to address the challenges and opportunities presented by e-business systems.



Figure 4. Author Collaboration

The citation analysis found influential works and authors that have shaped the landscape of e-business systems. Highly cited papers indicate important contributions that form the basis for future research. Prominent authors emerge as thought leaders,

contributing substantially to the discourse in this area. The citation network shows the interconnectedness of ideas, indicating the intellectual foundations underpinning current research.

Table 4. Keywords Results

Most occurrences		Fewer occurrences	
Occurrences	Term	Occurrences	Term
142	Information system	20	Competitive advantage
97	Data	19	Software
90	Framework	18	Business information system

72	Strategy	17	Business process
70	Business system	17	Decision support system
61	Small business	16	Supply chain
60	Entreprise	15	Investment
59	Knowledge	15	Government
55	Information system	14	Nature
52	Project	13	Resilience
49	Benefit	12	Marketing
46	Business intelligence	11	Systems approach
42	Erp system	10	Employee
38	Requirement	10	Entreprise information system

Table 4 provides an in-depth breakdown of the most frequently occurring keywords within the e-business systems literature, along with their corresponding occurrences. The keywords are categorized into those with the most occurrences and those with fewer occurrences. This breakdown offers insight into the central themes and topics that researchers have emphasized, as well as those that have received comparatively less attention. The discussion of these keywords further illuminates the key focal points within the e-business systems landscape.

Most Occurrences Keywords:

- a. Information System: The most frequent keyword, "information system," reflects the core focus of research on the integration and utilization of digital technologies to manage, process, and disseminate information within business contexts. This keyword signifies the pivotal role of information technology in facilitating e-business operations and decision-making processes.
- b. Data: The prominence of "data" as a keyword underscores the significance of data-driven insights in e-business systems. Researchers have explored how data analytics and big data technologies contribute to understanding consumer behavior, optimizing processes, and supporting strategic decision-making.
- c. Framework: The prevalence of "framework" suggests a scholarly emphasis on developing conceptual

and theoretical frameworks to guide research and practice within the e-business systems landscape. Frameworks aid in structuring analysis, understanding complex interactions, and deriving meaningful insights.

- d. Strategy: The keyword "strategy" highlights research into the strategic alignment of e-business systems with organizational goals and objectives. Scholars have explored how these systems contribute to competitive advantages and the formulation of effective business strategies.
- e. Business System: The frequent occurrence of "business system" underscores the overarching theme of e-business systems within the broader business ecosystem. Research has focused on understanding how these systems impact various facets of business operations, from supply chain management to customer engagement.

Fewer Occurrences Keywords:

- a. Competitive Advantage: While appearing less frequently, "competitive advantage" signifies research efforts to investigate how e-business systems can confer competitive benefits to organizations. This keyword underscores the value of technological innovations in enhancing market positioning.
- b. Software: The appearance of "software" as a keyword indicates

research into the development, deployment, and integration of software solutions within e-business systems. This reflects the technological aspect of e-business and the importance of software platforms in enabling digital transactions.

- c. Business Information System: The keyword "business information system" points to studies that explore the design, implementation, and management of information systems tailored to meet the specific needs of businesses.
- d. Decision Support System: The presence of "decision support system" highlights research into systems that facilitate informed decision-making through data analysis and visualization, indicating the focus on leveraging data for strategic insights.
- e. Supply Chain: While fewer in occurrences, "supply chain" indicates research into supply chain management within the e-business context. This suggests an exploration of how e-business systems can enhance the efficiency and effectiveness of supply chain processes.

The breakdown of keywords in Table 4 offers a comprehensive understanding of the themes that have garnered significant attention within the e-business systems landscape. The high occurrence of "information system" underscores the central role of technology in e-business, while keywords like "data," "framework," and "strategy" point to the interdisciplinary nature of research in this field. The presence of keywords related to "business system" indicates a holistic perspective on the integration of technology into business processes.

The fewer occurrences keywords reveal areas of exploration that may warrant increased attention. Keywords like "competitive advantage" and "software" signify potential avenues for deeper investigation, such as how organizations can leverage e-business systems to gain a

competitive edge and the technical aspects of software development and integration.

In conclusion, the breakdown of keywords highlights the multifaceted nature of the e-business systems landscape, encompassing technology, strategy, data, and various facets of business operations. The variations in keyword occurrences reflect the diverse range of topics that researchers have explored, contributing to a comprehensive understanding of e-business systems and their implications for modern business practices.

5. CONCLUSION

In an era characterized by rapid technological innovation and digital transformation, the e-business systems landscape has emerged as a pivotal domain shaping the business ecosystem. This research has undertaken a rigorous bibliometric review, unearthing key insights from publication trends, citation patterns, influential authors, and research themes. The evolution of research within e-business systems reflects the integration of technology into various business processes, fostering operational efficiency, consumer engagement, and strategic decision-making. The analysis has showcased the collaborative and interdisciplinary nature of e-business systems research, uniting scholars from diverse fields to explore complex topics ranging from information systems and supply chain integration to business models and security considerations. The contributions of influential authors and the prevalence of certain themes emphasize the ongoing pursuit of knowledge and innovation within this domain. As the business landscape continues to evolve, the identified research gaps and emerging directions underscore the importance of ongoing inquiry. Future research should delve into the uncharted territories of blockchain integration, ethical implications, AI-driven strategies, and sustainability within e-business systems. By addressing these challenges and opportunities, scholars and practitioners can harness the full potential of e-business systems to drive economic growth, enhance

consumer experiences, and shape a digitally empowered future.

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