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Enterprise Resource Planning Systems (2000–2026): Scopus-Based Bibliometric Mapping of Knowledge Domains and Influential Studies

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ABSTRACT

This research paper seeks to examine the development and structure of knowledge in the field of ERP research from 2000 to 2026 employing bibliometrics as a methodological tool. To achieve this purpose, the data were gathered from the Scopus database and analyzed via VOSviewer to visualize co-authorship patterns, citations, and co-occurrences of keywords. According to the findings, the subject area of ERP research has expanded from initial issues concerning implementation to more sophisticated themes, which are associated with digital transformation, such as artificial intelligence, cloud computing, and big data analytics. The co-authorship network shows the dispersed collaboration among authors, even though there is dominance among a few countries, including China, the United States, and India, in producing global knowledge. Citation analysis demonstrates the interdisciplinarity of ERP research, considering various lenses such as information systems, organizational theory, and emerging digital technologies. On the other hand, the keyword analysis illustrates a transition from problems relating to operations and management to those regarding strategies and technologies. In summary, this research paper will make a valuable contribution to future literature by providing an overall picture of ERP research in terms of its evolution, key figures, and trends.

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1. INTRODUCTION

Enterprise Resource Planning (ERP) systems have become a basic element of the current organizational structure that facilitates the coordination of business processes within various functions such as financial management, human resource management, procurement and logistics, and customer service management [1]. ERP systems provide for the centralized collection of data, process standardization, and improved decision-making by facilitating real-time data accessibility [2]. Over the past few decades, ERP systems have advanced from merely being transaction-processing systems to becoming comprehensive management and decision-support systems for organizations [3].

The growth of ERP software has been highly associated with technological

advancements, such as cloud computing, big data analysis, and artificial intelligence. The technological advancements have helped boost the functionality of ERP software, providing more scalability, flexibility, and access to information. In the past few years, cloud ERP software has become more popular due to its affordability and simple installation process, especially for SMEs [4], [5]. Also, the incorporation of analytics and machine learning in ERP software has provided organizations with better prediction abilities and efficiencies, resulting in intelligent enterprise software.

ERP systems have generated a significant amount of academic interest over the last twenty years, leading to an extensive and diversified literature body in this area. ERP research cuts across several fields, such as information systems, management, operations, and accounting. Initially, the emphasis was placed on ERP systems' implementation issues, critical success factors, and adoption processes [6], [7]. Later, attention has shifted to post-implementation problems, system optimization processes, user satisfaction, and strategic implications of ERP systems for organizations [4]. This evolution is indicative of an increase in the maturity of ERP research both in its operational and strategic aspects.

Apart from evolving themes, there has been tremendous development in terms of the productivity and impact of ERP research. Studies based on bibliometrics reveal that the number of ERP-based publications has grown consistently after the early 2000s because of their persistent significance in academic and real-world contexts. In fact, the growing interest in ERP systems has led to a rise in journal publications, conferences, and inter-disciplinary partnerships. Influential research articles have greatly influenced ERP systems in terms of research directions, theory building, and implementation practices.

Although there is a vast amount of academic material available on ERPs, the literature still remains fragmented because of the interdisciplinary scope of the subject matter and the various research topics explored by different papers. For instance, one paper may concentrate on a particular dimension of ERPs, such as technology, changes, or implementation in a certain field, while another will look at something else. Moreover, the dynamic development of the IT environment makes it necessary to examine the issue of ERP in the context of IoT, Blockchain, and Industry 4.0 approaches. Thus, the need arises to conduct a systematic review of the ERP-related literature.

Despite the extensive literature devoted to the subject in the past couple of decades, a thorough bibliometric analysis has not yet been conducted on the intellectual structure and evolution of ERP research between 2000 and 2026. These studies, while interesting in some aspects, tend to be narrow in scope, limiting themselves either by the theme addressed, industry covered, or timeframe under consideration, thus failing to offer an all-inclusive picture. At the same time, it should be noted that there is a distinct lack of research that concentrates on influential papers and attempts to create a knowledge domain using advanced bibliometric analysis.

The current research is an attempt at undertaking a thorough bibliometric mapping of ERP system studies between the years 2000 and 2026 based on the data in Scopus. First, the research intends to explore trends in publications, leading authors, institutions, and nations, as well as citations to reveal influential articles in the ERP domain. Second, the study will conduct a co-word and co-citation analysis to identify the knowledge domains in ERP studies. The study will help uncover trends and themes that can be used to inform future research in ERP systems.

2. METHODS

This research adopts the bibliometric research methodology in order to conduct an assessment of the evolution of enterprise resource planning systems literature between 2000 and 2026. According to [8] bibliometric methods have proven their efficacy as one of the best analytical tools for assessing scientific production and identifying patterns in the body of literature on a particular topic. The

data sources for this study include the Scopus database, which is known for indexing a large number of peer-reviewed scientific articles and conference proceedings in different academic disciplines. This database was utilized in this study in order to conduct a systematic search for relevant scholarly works. In doing so, specific keywords such as "Enterprise Resource Planning" and "ERP systems" were used, among other related terms in the titles, abstracts, and keywords. Only publications written in English and belonging to document types such as journal articles, conference papers, and reviews were included in the sample.

Upon collecting the data, various bibliometric analyses have been carried out for describing the basic features related to publishing activities. Such features include the rate of annual increase in number of publications, leading countries, leading organizations, and leading authors in ERP-related scientific activity. Citation analysis was carried out to evaluate the most highly cited papers and determine the influence they had on academia in terms of number of citations, h-index, and other similar measures. Moreover, co-authorship analysis was conducted for revealing patterns of cooperation between authors, organizations, and countries within the ERP research environment.

In order to better understand the intellectual structure and development of the theme in ERP research, this paper utilizes science mapping techniques. This includes co-word analysis and co-citation analysis. The first technique involves looking at the occurrence and co-occurrence of keywords, which will then allow for the identification of dominant themes and clustering of similar subjects that form the separate knowledge domain. On the other hand, the second technique can be employed to show the connections among important articles and the discovery of the knowledge base of the ERP research field. VOSviewer can be used for the visualization process.

3. RESULTS AND DISCUSSION

3.1 Co-Authorship Analysis

Co-authorship analysis is done to analyze the collaboration behavior of the researchers involved in the study of Enterprise Resource Planning systems (ERP). Through co-authorship analysis, one is able to understand how researchers are connected and their interactions in terms of exchanging knowledge. Co-authorship analysis also helps to reveal key collaborators and the nature of their contributions to the body of ERP research.

1. Author-Level Visualization

Enterprise resource planning (ERP) co-authorship network visualization reveals the relationship network among researchers working on ERP systems. In the visualization, authors are represented by nodes, while connections among them are shown through connecting lines. As a result, the visualization graphically represents the knowledge production process among academics. The grouping of authors into various colors shows that there are distinct research groups working in certain areas related to ERP systems.

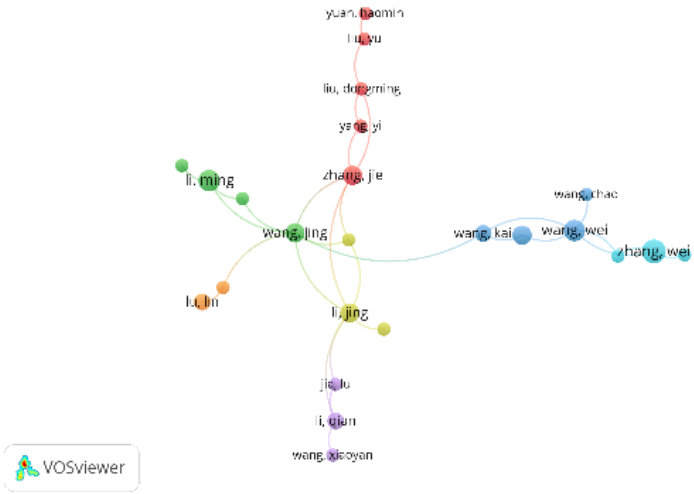

Figure 1. Author-level Visualization

Source: Data Analysis

From the above diagram, one will see that the network is made up of many small and moderately connected groups instead of one large, densely integrated collaboration network. In some cases, certain people emerge as nodes that connect to many other individuals in the network, implying that they are important collaborators in their own groups. This implies that they are used by others to exchange information and ideas. The above diagram indicates that there are many fragmented collaborations in ERP studies, and there are no interactions among them.

Moreover, the fact that some clusters are isolated and have weak links suggests that many researchers prefer to collaborate with people within their close-knit circles instead of building ties with people outside their immediate social network. Such a phenomenon can be seen as evidence of the emergence of niche topics within ERP research, for example, ERP implementation, ERP system integration, and even ERP in the clouds. On the other hand, the lack of strong ties between clusters might also mean that there is a possibility of future research in the area of fostering collaboration between different disciplines.

2. Institution-Level Visualization

The network of co-authorship within institutions shown in the figure demonstrates the trends in collaborations among institutions involved in conducting ERP research. The representation of institutions by nodes and connections between them through links provides a clear view of the knowledge creation process among various organizations. The grouping of nodes through colors represents clusters of institutions with close collaboration relations.

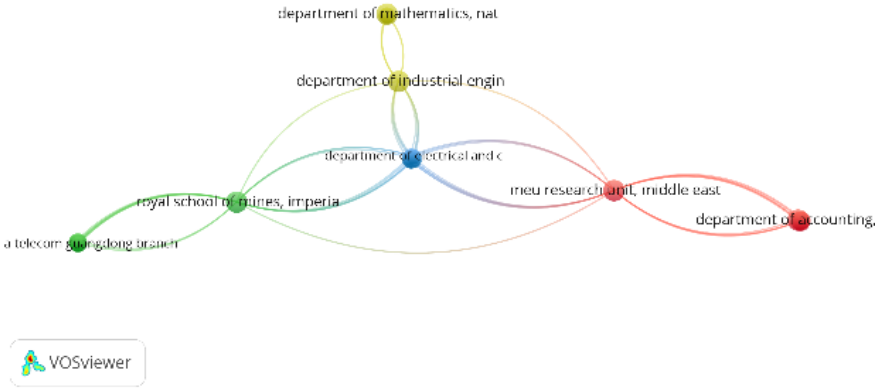

Figure 2. Institution-level Visualization
Source: Data Analysis

As shown from the graph, it can be observed that certain institutions hold an important position in the network and form important connections between the clusters. The institutions involved in engineering and technology-related areas, for example, industrial engineering departments and electrical engineering departments, seem to serve as bridges connecting a number of clusters together. Thus, it is obvious that the study of ERP systems is closely linked to the technical fields of studies and collaboration between different disciplines is necessary. The involvement of some international institutions, for example, from the Middle East and Europe, shows a level of international collaboration.

Nonetheless, the entire layout shows that the cooperation between institutions is still far from being achieved on a global level. There are clusters of institutions that have very little communication between each other, which means that the collaboration among researchers is usually confined to the same cluster or department. For instance, the departments involved in accounting, which can be considered business-related departments, are placed in different clusters than those that are related to engineering. This shows that there is a distinction between the management aspect and the technical aspect of the study of ERP systems.

3. Country-Level Visualization

The network diagram of country-level collaborations in ERP represents the global map of collaborations in the field of ERP research. By depicting each country as a node and their relations as a link, the figure gives an overview of knowledge creation among these nations. The fact that countries cluster under different colors shows that there exist groups of collaboration in the region.

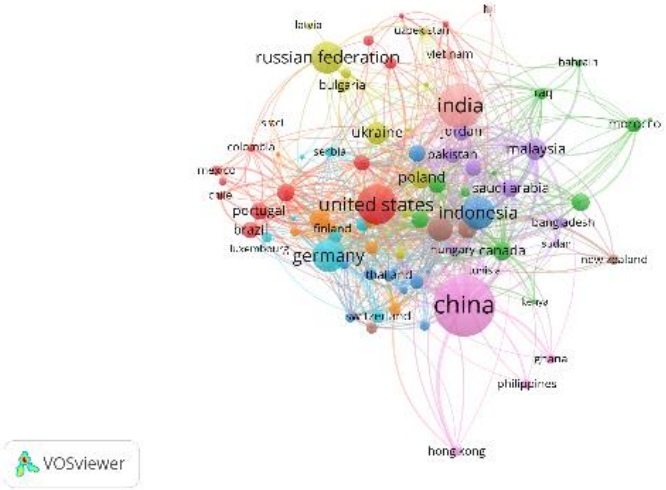

Figure 3. Country-level Visualization
Source: Data Analysis

As seen from the visualization, there are some nations, such as China, the US, India, and Germany, that are located in the central and very connected part of the graph. Such countries can be viewed as key centers of collaboration among nations; they play a crucial role in the progress of ERP research. Particularly, it can be said about China, which shows great connections with many nations and thus plays an important role in conducting research on ERP. The same applies to the US and Germany; the latter is an example of a European country, the connections of which are quite significant as well.

On the other hand, the network map shows a wider contribution pattern from the newly developed nations such as Indonesia, Malaysia, Vietnam, among others. The countries are incorporated in the international research collaboration framework, but in most cases, with fewer linkages than the established hub nations. Based on the clustering analysis, the collaborations are likely to take place within regional blocks, such as Asia-Pacific, Europe, and so forth, with linkages to the central nations. This implies that there is partial integration in the global research framework, whereby the flow of information is achieved through the established hub nations. Despite the disparity in linkage, there are possibilities of increasing international collaboration by linking less connected regions with the existing research giants.

3.2 Citation Analysis

Citation analysis is employed to evaluate the impact and influence of scholarly publications within the ERP research domain.

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
3473	[9]	Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management
1998	[10]	Workflow mining: Discovering process models from event logs
1841	[11]	Hierarchical Latent Variable Models in PLS-SEM: Guidelines for Using Reflective-Formative Type Models
1471	[12]	Market-oriented cloud computing: Vision, hype, and reality for delivering IT services as computing utilities
1386	[13]	Tropos: An agent-oriented software development methodology

Citations	Authors and year	Title
1168	[14]	Enterprise resource planning: Implementation procedures and critical success factors
1074	[15]	Grid services for distributed system integration
1060	[16]	Antecedents of knowledge transfer from consultants to clients in enterprise system implementations
1058	[17]	Critical factors for successful implementation of enterprise systems
974	[18]	The industrial management of SMEs in the era of Industry 4.0

Source: Scopus, 2026

The citation analysis shows that the theoretical basis of ERP research is interdisciplinary as it uses theories both from studies focused directly on ERP implementation and from neighboring fields, including information systems, process mining, cloud computing, and more sophisticated techniques for statistics modeling. In addition, papers by such authors as [9], which discuss the effect of institutional pressures and top managers on ERP adoption, stress organizational and strategic aspects of ERP implementation. The critical success factors and implementation processes, analyzed in studies by [14] and [17], also make up the core of many ERP studies. Moreover, influential studies by [10] on workflow mining and [19] on partial least squares structural equation modeling (PLS-SEM) show that modern ERP research depends on methods for data analysis and statistics.

Further, the presence of studies highly cited in cloud computing [12], distributed systems, and Industry 4.0 [18] shows that the field of ERP has moved towards a more technologically oriented perspective in the context of digital transformation. The above-mentioned articles indicate that ERP is not being considered as an independent system but rather is seen as part of a more comprehensive digital environment including cloud computing and smart manufacturing. Furthermore, the studies focused on knowledge transfer [16] emphasize the social aspects of ERP deployment.

3.3 Keyword Co-Occurrence Analysis

1. Network Visualization

The network map of the co-occurrence of keywords offers an illustration of the conceptual framework of Enterprise Resource Planning (ERP). It shows the interrelationship between different topics of study through the use of common keywords in the field of ERP. In the graph, clusters of topics are indicated in different colors. These represent major knowledge areas in ERP research, and the size of each node represents the frequency of occurrence of particular keywords.

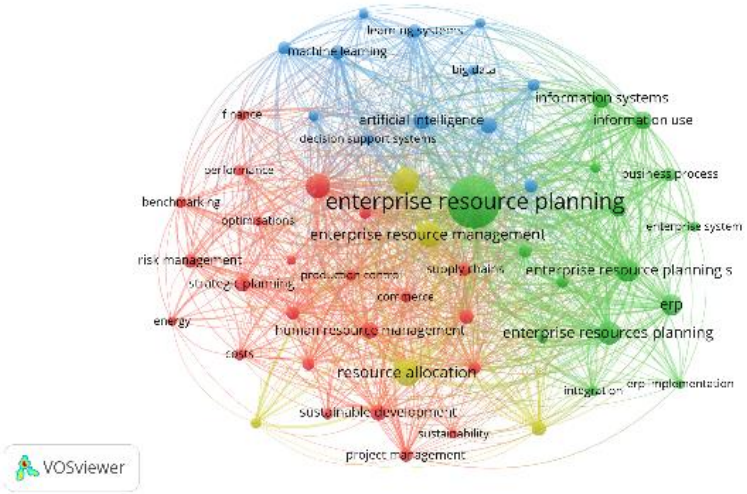

Figure 4. Network Visualization
Source: Data Analysis

According to the figure above, it can be seen that "Enterprise Resource Planning" is the core element in this network. In other words, "Enterprise Resource Planning" is located at the core and is the most influential factor in connecting several clusters of themes. It shows that "ERP" continues to be a central issue where different streams of research converge. In addition, some words that are closely connected to the core include "enterprise resource management," "ERP," and "enterprise resources planning."

A common grouping of terms relates to the organizational perspective and contains terms such as "resource allocation," "project management," "risk management," and "supply chain management." This grouping reflects the long-established emphasis in ERP research on increasing efficiency through improved decision-making and optimal use of resources. The importance of ERP systems as strategic instruments for achieving these ends is thus brought out by the grouping.

A second cluster focuses on technology-related topics, with terms like "information systems," "information use," "data processing," and "artificial intelligence" playing central roles. This shows that there has been a change in the trend of ERP studies as they now incorporate cutting-edge technology. The involvement of AI and data-driven systems in this cluster reveals that the current ERP studies investigate how ERP evolves within intelligent enterprises.

Moreover, there are new and integrative themes which connect conventional and technocratic themes like "ERP systems," "business process," and "digital transformation." Such associations imply that studies on ERP systems are evolving towards a more holistic direction by combining innovation with strategic thinking. The overlapping among clusters also implies the blurred lines between themes which signify increasing complexity of ERP systems in contemporary organizations. The future directions for ERP studies could involve topics like intelligent ERP systems, cloud integration, and sustainability.

2. Overlay Visualization

The keyword co-occurrence visualization overlay helps gain insights into the changing nature of research themes from a chronological point of view for the topic of ERP. The application of color shades, with darker colors depicting older periods and brighter colors denoting more contemporary developments, helps understand how the interests of researchers have changed over the period under study. Through this process, existing research themes and novel themes emerging in recent times can be identified.

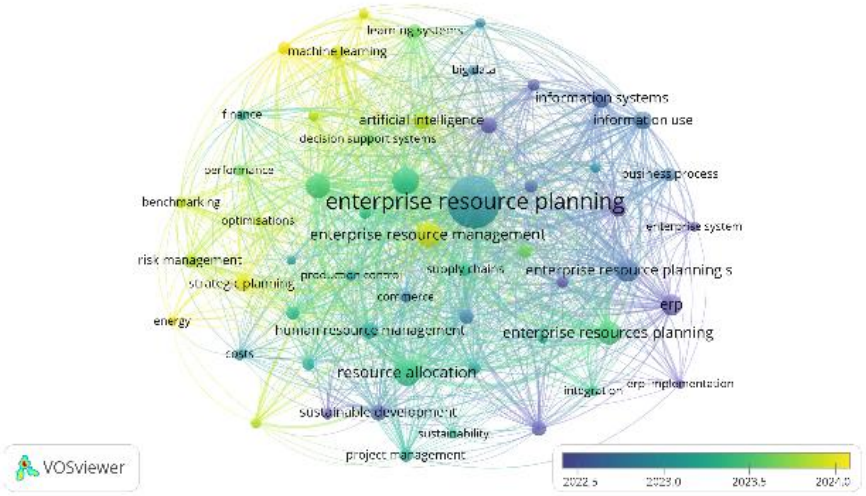

Figure 5. Overlay Visualization

Source: Data Analysis

According to the above chart, it is clear that early ERP studies were more focused on the issues related to basic research and application, including "enterprise resource planning," "enterprise resource management," "resource allocation," and "project management," as shown by the darker colored keywords. Such topics were associated with ERP's early efforts to resolve the problems related to system implementation, efficiency enhancement, and organization integration. It laid a foundation for subsequent ERP research in terms of theory and application.

With time, the trend has been observed to change in favor of technology-based topics. The keywords like "information systems," "decision support systems," and "data processing" have been shown in colors that lie between extreme and light green, demonstrating their rising prominence in the intermediate stage of ERP studies development.

In the latest era, indicated by brighter colors, the rise of sophisticated digital technologies is evident. Key phrases like "artificial intelligence" and "machine learning" along with others point to a clear inclination towards intelligent ERP systems. It can be observed that there has been a remarkable shift in the field of ERP research in which researchers are not only concerned with implementing the ERP system but also improving the system's intelligence and automation.

3. Density Visualization

Density visualization of keyword co-occurrence is the first step towards obtaining an idea about which topics in the field of Enterprise Resource Planning (ERP) have been intensely researched. The denser areas are shown by brighter colors (from yellow to light green), whereas the darker areas reflect lesser-known or developing issues. The visualization method thus enables one to determine not only what topics form the core of the research but also which ones are considered peripheral.

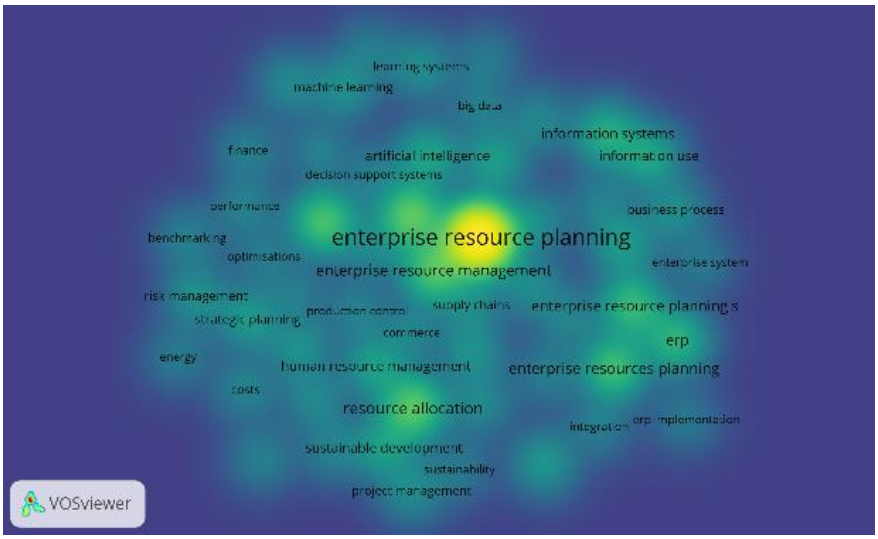

Figure 6. Density Visualization

Source: Data Analysis

As can be seen from the chart, the term "enterprise resource planning" stands out with the highest brightness and centrality, thereby proving that it is indeed the main topic of study in the field. These main keywords are surrounded by other closely related terms like "enterprise resource management," "ERP," "information systems," and "business process." Again, one will note that these terms occur in clusters of relatively high density. From this, it can be deduced that research in the field is primarily centered on integrating business processes and information systems. The density surrounding these keywords suggests maturity and stability of the knowledge base.

In contrast, keywords found in darker and scattered areas such as "artificial intelligence," "machine learning," "sustainable development," and "decision support systems" indicate new and less dense areas of investigation. While these subjects may be receiving increasing attention, they represent areas that are still developing relative to the main ERP topics due to their low density. The emergence of these areas reflects a growing interest in research on sophisticated and multidisciplinary areas, especially those associated with digital transformation and intelligent systems.

Discussion

The findings of this bibliometric study reveal that ERP systems research has developed into a mature but still growing area of research, one which features interdisciplinary collaboration and changing focus areas. The preponderance of ERP as a key keyword, coupled with strong association with terms like enterprise resource management, business process, and information system, suggests that the area of research is well-grounded both in theory and practice. Previous seminal papers, especially those centered around ERP implementation and assimilation in organizations, have a major role in shaping the epistemology of the body of knowledge on ERP systems. The persistence of such fundamental research topics, in spite of new developments in technology, underscores their significance.

The results of the analysis of co-authorship reveal that collaborative practices in ERP research continue to be quite fragmented, whereby the researchers tend to conduct their activities in tightly interconnected clusters rather than in one global community. Even though there are some nodes that facilitate the transfer of knowledge, such as some particular authors, institutions, or countries, the general structure implies lack of collaboration across clusters. Nevertheless, this aspect indicates the potential direction for further research related

to enhancing cooperation between researchers around the world.

For individual countries, the study reveals that the most important players in the field include China, the United States, India, and a number of European countries. They act as the driving force behind the development of ERP research. The presence of high connectivity and high citation scores makes these countries central to the global knowledge map. Simultaneously, an increasing contribution by the developing countries signifies a trend towards knowledge democratization. Emerging countries like Indonesia, Malaysia, and Vietnam have been making their mark in the research field despite contributing largely in collaboration with other research centers.

The results provided by these three analyses together point to the presence of considerable movement towards the exploration of much more technology-oriented themes instead of conventional issues of implementations and operations. Although in the early literature, researchers used to dwell on resource allocations, project management, and critical success factors, more recent studies are progressively focusing on technologies like artificial intelligence, machine learning, and digital transformation. This change in the focus area of the ERP research can be attributed to the change that has happened in the field of enterprise systems as well as ERP itself in the digital era, when ERP was considered not as a standalone system but as part of a bigger system.

The current paper provides a thorough investigation of ERP research for 26 years. It identifies not only the existing strengths and weaknesses in the domain but also some emerging trends and opportunities. It is expected that future investigations will be oriented towards finding ways to overcome the division between purely technical issues and business problems associated with the implementation of ERP systems. There is also room for further exploration of integrating ERP systems with innovative tools like artificial intelligence and cloud computing. Moreover, some geographical areas have been under researched, which calls for further investigation of ERP systems there.

4. CONCLUSION

This work shows that the research area of ERP systems for the period from 2000 to 2026 is a mature but continuously growing area. Based on the results of bibliometric analysis, it can be seen that despite the initial focus on the problems of implementation, key success factors, and organization integration, the most recent works tend to consider the problem of integration of digital technologies such as artificial intelligence, cloud computing, and data-based systems. The analysis of collaborative behavior shows the existence of influential research clusters; however, globalization is still far from being achieved, meaning that there are further perspectives in collaboration across the globe. In any case, the research area of ERP is growing constantly in scope and content, transforming from a practical one to a strategically oriented one, which proves ERP's significance in digital transformation.

REFERENCES

[1] A. Atkar, "ERP SYSTEM (Enterprise Resource Planning) Integrated Software Solution for Business Management," *Gurukul Int. Multidiscip. Res. J.*, 2024, [Online]. Available: https://api.semanticscholar.org/CorpusID:271275063

[2] C. Feng and D. A. Ali, "Leveraging digital transformation and ERP for enhanced operational efficiency in manufacturing enterprises," *J. Law Sustain. Dev.*, vol. 12, no. 3, pp. e2455–e2455, 2024.

[3] G. U. Ebirim, I. F. Unigwe, O. F. Asuzu, B. Odonkor, E. E. Oshioste, and U. I. Okoli, "A CRITICAL REVIEW OF ERP SYSTEMS IMPLEMENTATION IN MULTINATIONAL CORPORATIONS: TRENDS, CHALLENGES, AND FUTURE DIRECTIONS," *Int. J. Manag. Entrep. Res.*, vol. 6, no. 2, pp. 281–295, 2024.

[4] S. Sekarlangit, E. Sediyono, and A. P. Widodo, "IDENTIFIKASI PENERAPAN ERP PADA UPT LABORATORIUM LINGKUNGAN DINAS LINGKUNGAN HIDUP KOTA PALANGKA RAYA,"

Infotronik J. Teknol. Inf. dan Elektron., vol. 8, no. 1, pp. 39–43, 2023.

[5] X. Zhang, R. Chang, M. Wang, and X. Sui, "The influence of driver's risk perception ability on driving decision-making: an ERP study," *Curr. Psychol.*, pp. 1–11, 2024.

[6] O. C. de Souza Lima, J. M. Soares, A. P. Martins, and S. M. de Oliveira, "TRANSFORMANDO DADOS EM ESTRATÉGIA: O PAPEL CRUCIAL DOS SISTEMAS ERP NA GESTÃO DOS NEGÓCIOS," *Rev. ELETRÔNICA AMPLAMENTE*, 2024, [Online]. Available: https://api.semanticscholar.org/CorpusID:273814666

[7] A. Ishak, E. Fauzi, E. Ramon, J. Firison, Z. Efendi, and H. Kusnadi, "Analysis of Trade Distribution Network Structure on Livestock Commodities among Regions in Indonesia," *J. PANGAN*, vol. 31, no. 3, pp. 249–258, 2022.

[8] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *J. Bus. Res.*, vol. 133, pp. 285–296, 2021.

[9] H. Liang, N. Saraf, Q. Hu, and Y. Xue, "Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management1," *MIS Q.*, vol. 31, no. 1, pp. 59–87, 2007.

[10] W. Van der Aalst, T. Weijters, and L. Maruster, "Workflow mining: Discovering process models from event logs," *IEEE Trans. Knowl. Data Eng.*, vol. 16, no. 9, pp. 1128–1142, 2004.

[11] J.-M. Becker, K. Klein, and M. Wetzels, "Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models," *Long Range Plann.*, vol. 45, no. 5–6, pp. 359–394, 2012.

[12] R. Buyya, C. S. Yeo, and S. Venugopal, "Market-oriented cloud computing: Vision, hype, and reality for delivering it services as computing utilities," in *2008 10th IEEE international conference on high performance computing and communications*, Ieee, 2008, pp. 5–13.

[13] P. Bresciani, A. Perini, P. Giorgini, F. Giunchiglia, and J. Mylopoulos, "Tropos: An agent-oriented software development methodology," *Auton. Agent. Multi. Agent. Syst.*, vol. 8, no. 3, pp. 203–236, 2004.

[14] E. J. Umble, R. R. Haft, and M. M. Umble, "Enterprise resource planning: Implementation procedures and critical success factors," *Eur. J. Oper. Res.*, vol. 146, no. 2, pp. 241–257, 2003.

[15] I. Foster, C. Kesselman, J. M. Nick, and S. Tuecke, "Grid services for distributed system integration," *Computer (Long. Beach. Calif).*, vol. 35, no. 6, pp. 37–46, 2002.

[16] D.-G. Ko, L. J. Kirsch, and W. R. King, "Antecedents of knowledge transfer from consultants to clients in enterprise system implementations1," *MIS Q.*, vol. 29, no. 1, pp. 59–86, 2005.

[17] F. Fui-Hoon Nah, J. Lee-Shang Lau, and J. Kuang, "Critical factors for successful implementation of enterprise systems," *Bus. Process Manag. J.*, vol. 7, no. 3, pp. 285–296, 2001.

[18] A. Moeuf, R. Pellerin, S. Lamouri, S. Tamayo-Giraldo, and R. Barbaray, "The industrial management of SMEs in the era of Industry 4.0," *Int. J. Prod. Res.*, vol. 56, no. 3, pp. 1118–1136, 2018.

[19] A. M. Beckers and M. Z. Bsat, "AN ANALYSIS OF INTERCULTURAL BUSINESS COMMUNICATION.," *J. Bus. Behav. Sci.*, vol. 26, no. 3, 2014.