CLICK, MEASURE, SUCCEED: A BIBLIOMETRIC JOURNEY AND EMERGING RESEARCH GAPS IN INFORMATION SYSTEMS (IS) EFFECTIVENESS

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Abstract:

Information Systems (IS) effectiveness has emerged as a critical research area in the face of rapid digital transformation and the increasing reliance on technology across various sectors. Despite the field's maturity, theoretical development and research focus remain fragmented, necessitating a comprehensive synthesis of its evolution. This study presents a bibliometric analysis titled *"Click, Measure, Succeed: A Bibliometric Journey of Theoretical Contributions and Research Gaps in Information Systems Effectiveness"* to uncover historical trends, influential works, key contributors, and potential research gaps. The problem underpinning this research lies in the limited understanding of how theoretical contributions—particularly the DeLone and McLean Information Systems Success Model (D&M ISSM), the Technology Acceptance Model (TAM), and the Task-Technology Fit (TTF) model have shaped and evolved within the IS effectiveness domain over time. To address this, bibliographic data were extracted from the Scopus database using defined keywords, yielding a refined dataset of 1,121 publications spanning from 1975 to 2025. The data were cleaned and standardized using OpenRefine, analyzed quantitatively via Scopus Analyzer, and visualized through VOSviewer version 1.6.20, enabling the mapping of co-authorship, keyword co-occurrence, and citation networks. Key findings reveal a notable publication surge after 2020, with the United States, Indonesia, and Malaysia leading in output. Seminal works by DeLone and McLean dominate citation metrics, underscoring the enduring influence of the D&M ISSM. In contrast, research grounded in TAM and TTF increasingly highlights user acceptance and alignment between tasks and technology as critical factors in the success of IS. Keyword clustering reveals four thematic concentrations: system quality,

service performance, user satisfaction, and digital transformation. Despite growing interest, collaboration among countries remains limited, and theoretical diversification is still narrow. This study contributes to academic discourse by mapping the intellectual structure of IS effectiveness research and identifying gaps that warrant further exploration, particularly in emerging economies and across disciplinary boundaries. By consolidating fragmented knowledge, this research aids scholars in navigating past contributions while paving strategic directions for future inquiry into IS effectiveness.

Keywords:

Information System, Effectiveness, Success.

Introduction

The field of Information Systems (IS) effectiveness has gained substantial attention over the past few decades due to the increasing reliance on technology in modern organizations. As businesses strive to enhance operational efficiency, understanding the effectiveness of IS has become essential for achieving optimal outcomes. Theoretical frameworks play a critical role in shaping IS effectiveness research, providing structured approaches to evaluate and improve the performance of IS. Among the most influential models is the DeLone & McLean Information Systems Success Model (D&M ISSM), as proposed by DeLone and McLean (1992), which has been widely cited to assess system quality, user satisfaction, and overall net benefits. Other significant frameworks, such as the Technology Acceptance Model (TAM) by Davis (1989) and the Task-Technology Fit Model (TTF) by Goodhue and Thompson (1995), offer valuable insights into how users interact with Information Technology (IT) and the factors that influence its success within organizations. Despite the considerable contributions of these established models, the field of IS effectiveness continues to evolve.

The novelty of this paper lies in its focused exploration of theoretical contributions and research gaps, specifically within the realm of IS effectiveness. Meanwhile, much of the existing literature takes a broad approach to studying IS evolution, focusing on productivity and collaboration. This review delves deeper into the conceptual foundations, analyzing the evolution and theoretical underpinnings of models such as the D&M ISSM, the TAM, and the TTF Model. This paper also identifies significant gaps in the literature, especially in terms of technological, human, and measurement factors in IS systems. By concentrating on these areas, the paper offers a critical evaluation of how these frameworks have developed and where the research still falls short, guiding future studies to explore these under-researched aspects. This review will contribute to a more comprehensive understanding of IS effectiveness, providing valuable insights for both academic researchers and practitioners seeking to refine theoretical models and optimize IS practices in contemporary organizations.

Contemporary research highlights a vibrant and developing field underpinned by a blend of theoretical and empirical contributions. The D&M ISSM remains foundational, defining success through multiple dimensions: system quality, information quality, service quality, user satisfaction, and individual performance (Ibrahim et al., 2022). Recent adaptations have expanded the model's scope by incorporating elements such as interface design quality and user experience, reflecting the growing importance of usability in IS success evaluation (Al-Mamary, 2019; Delone & McLean, 2004; Zuama et al., 2017). Nonetheless, several conceptual limitations persist. The impact of IS on individual competencies, for instance, is insufficiently

addressed in the literature (Bernroider, 2008; Ghazal et al., 2018). Furthermore, the development and application of theoretical frameworks continue to present challenges, with scholars calling for clearer guidance on integrating theory and contextual adaptation (Mekonnen et al., 2022; Wang & Liao, 2008). The adoption of theories from adjacent disciplines, such as attribution theory from social psychology, has been proposed to enhance explanatory power, particularly in understanding user attitudes and satisfaction (Marthasari et al., 2024; Umaroh & Barmawi, 2021).

Furthermore, gaps remain in assessing IS effectiveness within the public sector, where performance metrics often diverge from private-sector, profit-based models. There is a clear need for context-sensitive frameworks that can accommodate the unique requirements of public administration systems. The ongoing focus on user satisfaction and perceived organizational value continues to shape the research agenda, with efforts aimed at validating reliable indicators of IS success (Alzahrani et al., 2019; Niemi & Pekkola, 2009).

In summary, IS effectiveness remains a dynamic, multifaceted research area that requires ongoing theoretical refinement and empirical expansion. The integration of robust conceptual frameworks, combined with the examination of emerging variables and specific organizational contexts, is essential to advancing knowledge in this field. Addressing the existing gaps, particularly those related to public sector applications and the practical use of theory, will support the development of more nuanced and effective models. Ultimately, such progress will enhance the strategic use of IS and drive sustained performance improvements across organizational settings.

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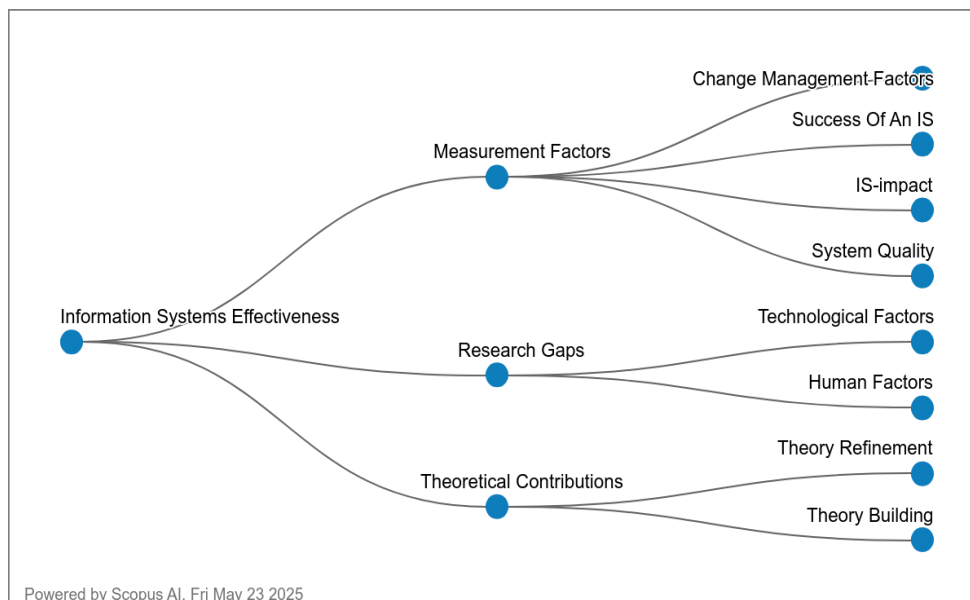
Figure 1: Conceptual Map of Information Systems Effectiveness Research Themes.

Figure 1 offers a clear overview of how researchers think about IS effectiveness. It highlights three main areas: Measurement Factors, which include things like Change Management, System Success, IS-impact, and System Quality; Research Gaps pointing out the need for more

work on Technological and Human Factors; and Theoretical Contributions, which focus on refining existing theories or building new ones. This map offers an overview of how the topic is studied, assessed, and developed while pointing to areas needing further research.

Research Question

RQ1: What are the publication trends in IS effectiveness research over the years?
RQ2: Which articles are the most highly cited in the field of IS effectiveness?
RQ3: Which countries are the top contributors to IS effectiveness research based on the number of publications?
RQ4: What are the most frequently occurring keywords in IS effectiveness studies, and what thematic areas do they represent?
RQ5: What are the patterns of international collaboration in IS effectiveness research based on co-authorship across countries?

Methodology
Bibliometric analysis entails the systematic collection, organization, and examination of bibliographic data derived from scientific publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). Beyond descriptive metrics such as identifying publication sources, annual trends, and prolific authors (Wu & Wu, 2017), bibliometrics also encompasses advanced techniques, including document co-citation analysis. Conducting a rigorous literature review requires a structured and iterative process that involves using appropriate keywords, executing targeted searches, and performing a thorough content analysis. This methodology enables the development of a comprehensive and credible bibliographic foundation (Fahimnia et al., 2015). In line with this approach, the present study emphasizes high-impact publications, as they offer valuable insights into the theoretical underpinnings of the field. To ensure reliability and accuracy, data were exclusively sourced from the Scopus database (Al-Khoury et al., 2022; Stefano et al., 2010; Khiste & Paithankar, 2017), a widely recognized platform with extensive coverage. Furthermore, to maintain scholarly rigor, the analysis was limited to peer-reviewed journal articles, explicitly excluding books and lecture notes (Gu et al., 2019). The dataset includes publications from 2020 through December 2023, as indexed by Elsevier's Scopus.

Data Search Strategy
The study employed a screening sequence to determine the search terms for article retrieval. The study was initiated by querying the Scopus database with key terms of "information system," "effectiveness," or "success," assembling 1,121 articles. This process yielded 1,121 results, which were further scrutinized to include only research articles in English. Articles in the press were also excluded (refer Table 1 and 2).

Table 1: The Search String.

Scopus	TITLE ("information system" AND (effectiveness OR success)) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (LANGUAGE, "English")).

Table 2: The Selection Criterion in Searching.

Criterion	Inclusion	Exclusion
Language	English	Non-English
Publication Stage	Final	In Press

Data Analysis

VOSviewer is a widely recognized and user-friendly bibliometric analysis tool developed by Nees Jan van Eck and Ludo Waltman at Leiden University, Netherlands (Van Eck & Waltman, 2010, 2017). The software is extensively used for visualizing and analyzing scientific literature, offering robust functionalities such as constructing network visualizations, clustering related items, and generating density maps. Its capacity to explore co-authorship, co-citation, and keyword co-occurrence networks makes it particularly effective for mapping and interpreting complex research landscapes. With an interactive and intuitive interface, coupled with ongoing updates, VOSviewer facilitates the dynamic and efficient exploration of large bibliographic datasets. Its ability to compute bibliometric indicators, tailor visual outputs, and integrate with various data formats solidifies its role as a valuable tool for both novice and seasoned researchers.

One of VOSviewer's core strengths lies in its capability to translate complex bibliometric data into interpretable visual representations. The software excels in network-based clustering, allowing users to identify and interpret relationships between keywords, authors, or publications. Its focus on visual clarity enables users to discern thematic structures and research clusters, while its accessibility ensures usability across varying levels of technical expertise. As bibliometric analysis continues to gain prominence across academic disciplines, VOSviewer's flexible architecture and visualization capabilities make it indispensable for uncovering patterns, trends, and emerging domains within a body of literature. Notably, its continuous development ensures methodological relevance and adaptability in an evolving research environment.

For this study, bibliographic data were extracted from the Scopus database in PlainText format, including fields such as publication year, document title, author names, journal, citations, and keywords. The dataset covered the period from 1975 to December 2025. VOSviewer version 1.6.20 was employed to analyze and visualize the data using clustering and mapping techniques. The software operates on a Visualization-of-Similarities (VOS) approach, which locates items in a low-dimensional space so that the distance between items reflects their degree of relatedness (Van Eck & Waltman, 2010, 2017). In contrast, this bears a conceptual resemblance to the Multidimensional Scaling (MDS) method (Appio et al., 2014). VOSviewer differs by utilizing Association Strength (AS_{ij}) as a normalization technique for co-occurrence frequencies, thereby offering a more precise representation of item similarity (Van Eck & Waltman, 2007). This method enhances the interpretability of bibliometric relationships and supports deeper analytical insights:

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}.$$

It is proportional to the ratio between the actual number of co-occurrences of items i and j, and the expected number of such co-occurrences, assuming that the occurrences of i and j are statistically independent (Van Eck & Waltman, 2007).

Results and Discussion

RQ 1: What Are The Publication Trends In Information Systems Effectiveness Research Over The Years?
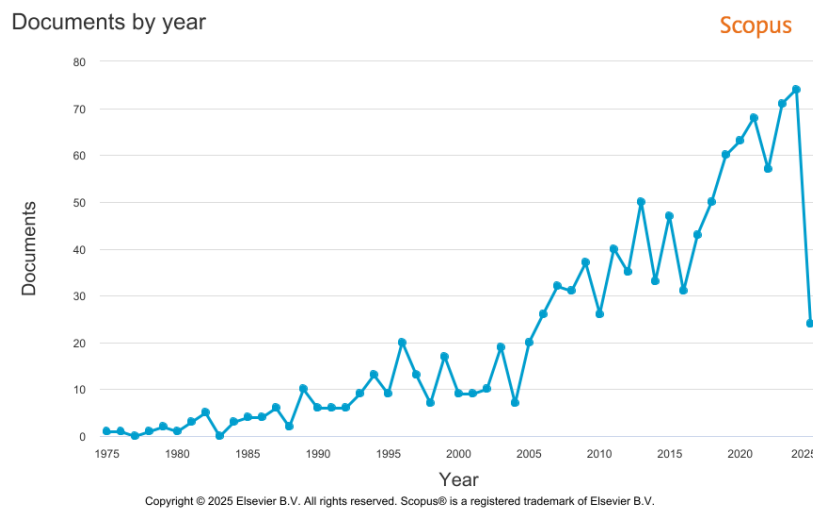
Figure 2: Plotting Document in Information Systems Effectiveness Publication by Years.

Table 3: Publications in Information Systems Effectiveness from Year 2005-2025.

Year	Total Publication	Percentage (%)
2025	24	2%
2024	74	7%
2023	71	6%
2022	57	5%
2021	68	6%
2020	63	6%
2019	60	5%
2018	50	4%
2017	43	4%
2016	31	3%
2015	47	4%
2014	33	3%
2013	50	4%
2012	35	3%
2011	40	4%

2010	26	2%
2009	37	3%
2008	31	3%
2007	32	3%
2006	26	2%
2005	20	2%

Figure 2 and Table 3 reveals a steady and growing scholarly interest in the field of IS effectiveness. In the early years (2005–2010), the number of publications remained relatively modest, with annual outputs ranging from 20 to 40 articles, representing only about 2–3% of the total publications. This period marks the formative phase of IS effectiveness research, likely focused on laying the conceptual groundwork and adapting emerging theoretical models such as the D&M ISSM. The relatively low publication volume during this stage suggests that, while foundational, IS effectiveness was still an emerging research niche in the broader IS discipline.

Between 2011 and 2020, there was a noticeable acceleration in publication activity, with the number of articles stabilizing at around 40–68 articles annually. This growth coincides with the digital transformation era, where organizations increasingly rely on complex IT infrastructures, prompting more rigorous empirical validation and the application of IS effectiveness theories. The increasing percentages during this decade (4–6%) indicate that the field gained traction in theoretical discourse and practical importance, as businesses began prioritizing system quality, service quality, and information quality to drive performance. This era likely saw more nuanced studies exploring how IS effectiveness is linked to decision-making, user satisfaction, and organizational outcomes.

The most significant surge is evident in the post-2020 period, particularly from 2021 to 2025, where publications peaked in 2024 with 74 articles (7%) and remained high into 2025. This sharp increase may be attributed to the global acceleration of digital technologies during and after the COVID-19 pandemic, which intensified research into digital resilience, remote work systems, and technology-enabled productivity. The growing academic focus during this period suggests a mature and diversified field, addressing contemporary challenges such as system adaptability, user engagement, and post-implementation effectiveness. Notably, the upward trend indicates not just volume but evolving complexity in theoretical applications and the identification of new research gaps, such as sustainability, AI integration, and cross-industry system effectiveness.

RQ 2: Which Articles Are The Most Highly Cited In The Field Of IS Effectiveness?

Table 4: Most Top Ten Cited Authors

Authors	Title	Year	Source Title	Cited by
DeLone and McLean (2003)	The DeLone and McLean model of information systems success: A ten-year update	2003	Journal of Management Information Systems	8,404
DeLone and McLean (1992)	Information systems success: The quest for the dependent variable	1992	Information Systems Research	7,579

|				
Petter et al. (2008)	Measuring information systems success: Models, dimensions, measures, and interrelationships	2008	European Journal of Information Systems	1,355
Pitt et al. (1995)	Service quality: A measure of information systems effectiveness	1995	MIS Quarterly: Management Information Systems	1,202
Delone and McLean (2004)	Measuring e-commerce success: Applying the DeLone and McLean Information Systems Success Model	2004	International Journal of Electronic Commerce	1,114
Heeks (2002)	Information systems and developing countries: Failure, success, and local improvisations	2002	Information Society	905
Petter et al. (2013)	Information systems success: The quest for the independent variables	2013	Journal of Management Information Systems	651
Wang and Liao (2008)	Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success	2008	Government Information Quarterly	626
Segars and Grover (1998)	Strategic information systems planning success: An investigation of the construct and its measurement	1998	MIS Quarterly: Management Information Systems	582
Gable et al. (2008)	Re-conceptualizing information system success: The IS-impact measurement model	2008	Journal of the Association for Information Systems	569

The Table 4 presents most top ten cited authors in the domain of IS effectiveness. It reveals the profound and enduring influence of (DeLone & McLean, 1992). Their two seminal articles, the 1992 foundational work *"Information systems success: The quest for the dependent variable"* and the 2003 follow-up *"The DeLone and McLean model of information systems success: A ten-year update"* DeLone and McLean (1992) together account for nearly 16,000 citations. These two publications have not only laid the theoretical groundwork for defining and measuring IS success but have also sparked decades of empirical testing, adaptation, and extension across diverse application domains. Their consistency as lead authors in four out of the top five entries in this list further underlines their centrality in shaping the IS effectiveness discourse.

Beyond DeLone and McLean, significant scholarly contributions have emerged from closely aligned collaborators and independent theorists. Petter et al.(2013), often co-authoring with DeLone and McLean, contributed a notable piece in 2008 that examined the interrelationships among IS success constructs, garnering over 1,300 citations. Meanwhile, Pitt et al. (1995) studied service quality, a critical dimension of IS effectiveness, reflecting an early pivot toward user-centric evaluation. Additionally, Wang and Liao's (2008) validation of the D&M ISSM within eGovernment settings and Heeks's (2002) exploration of IS implementation in developing countries demonstrate how scholars have contextualized IS success models to reflect sectoral and regional nuances, thus broadening their applicability and impact.

Notably, this citation landscape also illustrates the evolution of the IS effectiveness conversation from broad, theoretical formulations to context-specific refinements and the development of new models. Gable et al. (2008), cited over 500 times, introduced a stakeholder-driven perspective on IS success. Segars and Grover's (1998) investigation into strategic IS planning emphasized methodological rigor in measuring IS success constructs. These works collectively represent the field's intellectual diversification and maturing, offering a multi-dimensional view of effectiveness that spans technical, strategic, user-experience, and contextual elements. The clustering of citations around models that combine theoretical clarity with practical applicability highlights the enduring relevance and adaptability of IS effectiveness research in a rapidly digitizing world.

RQ 3: Which Countries Are The Top Contributors To IS Effectiveness Research Based On The Number Of Publications?
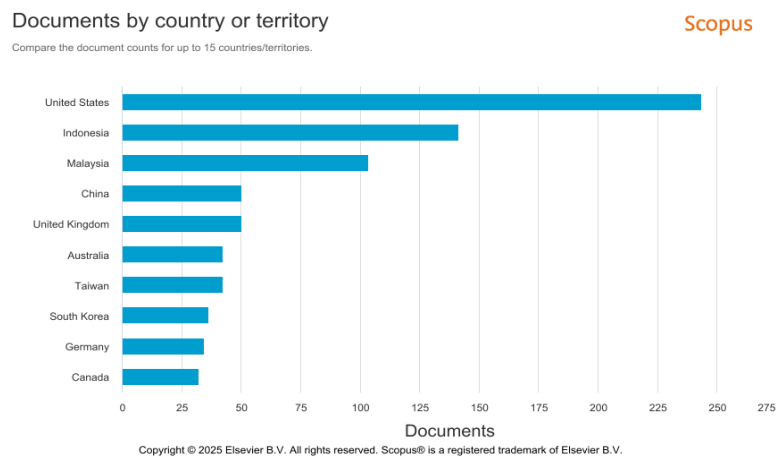
Figure 3: Top 10 Countries Contributors to IS Effectiveness.
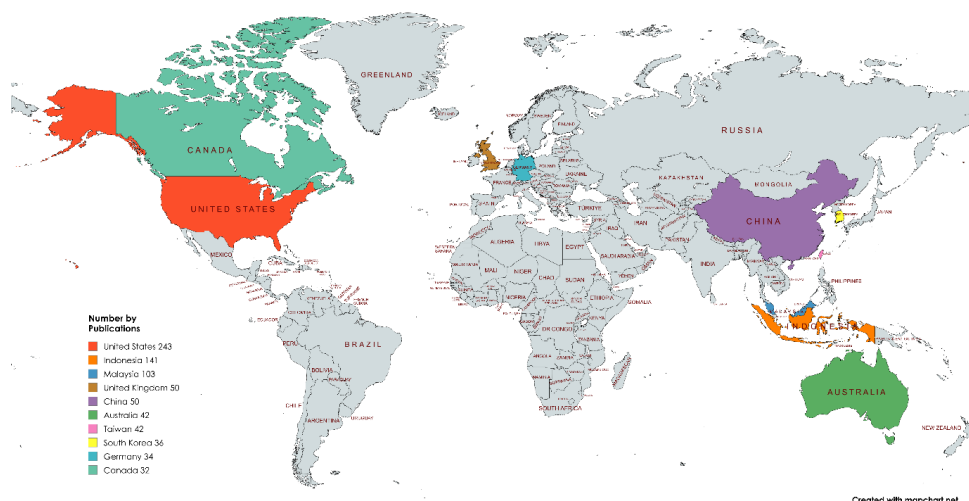
Figure 4: Top 10 Countries Contributors to IS Effectiveness in World Map.

Figure 3 shows the top 10 country contributors with publication counts, while Figure 4 maps their geographic distribution to highlight regional patterns in IS effectiveness research. The bibliometric analysis highlights the dominance of the United States, which leads with nearly

250 documents. This reflects the country's long-standing leadership in IS research, bolstered by well-established academic institutions, significant funding resources, and a strong focus on technology-driven organizational transformation. The United States not only serves as the origin of foundational IS models such as the D&M ISSM. It also maintains robust engagement in both theoretical development and applied research, particularly in measuring the success of corporate and government IT (Scott et al., 2025).

Interestingly, Indonesia and Malaysia emerge as significant contributors, occupying the second and third positions, respectively (Umaroh & Barmawi, 2021; Wibowo & Fajar, 2019). This is a noteworthy shift from traditional Western dominance, indicating a growing research momentum in Southeast Asia. Indonesia's rise can be attributed to increased digital transformation efforts and the government's emphasis on e-governance, fintech, and education-driven IS research. Malaysia, with its strong research ecosystem supported by national initiatives and academic-industry partnerships, demonstrates a focused interest in IS effectiveness, particularly in areas like public sector systems, audit quality, and IT governance. These trends reflect a regional prioritization of IS implementation success as part of broader national development agendas.

The middle and lower tiers of the chart feature developed economies such as the United Kingdom, Australia, Germany, and Canada, along with East Asian powerhouses like China, South Korea, and Taiwan (Fan & Fang, 2006). Meanwhile, their publication volumes are moderate in comparison to the top three. They represent diverse IS research agendas ranging from high-tech innovation ecosystems in East Asia to public sector digital services in Europe and Oceania. These countries contribute critical perspectives on IS success, often rooted in empirical studies that address context-specific challenges like cultural fit, system adoption, and stakeholder satisfaction. The global distribution illustrated here underscores the expanding international dialogue around IS effectiveness, driven by shared challenges of digital transformation, system integration, and performance measurement across varied socio-economic contexts.

RQ4: What Are The Most Frequently Occurring Keywords In IS Effectiveness Studies, And What Thematic Areas Do They Represent?
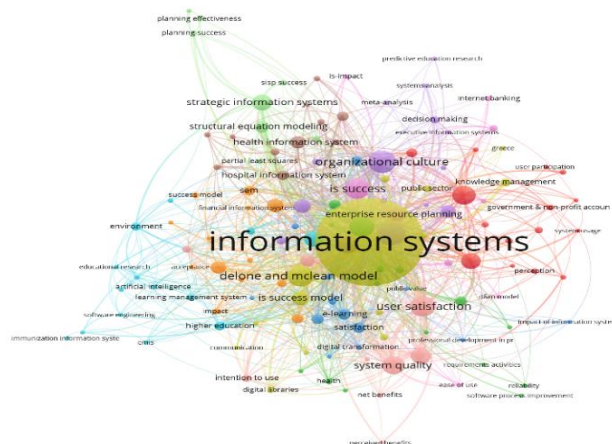
Figure 5: Network Visualization Map of Keywords' Co-Occurrence.

Table 5: Most Top 10 Keywords' Co-Occurrence.

Keyword	Occurrences	Total Link Strength
Information Systems	427	841
Effectiveness	59	115
Organizational Culture	58	133
Delone And Mclean Model	52	133
Is Success	51	95
User Satisfaction	50	161
Critical Success Factors	49	103
Accounting Information System	44	89
System Quality	42	149
Success	38	111

Figure 5 presents the network visualization of keywords' co-occurrence, whereas Table 5 provides the top 10 most frequent keyword pairs, illustrating the main thematic connections in IS effectiveness research. The keyword analysis from the bibliometric dataset highlights "information systems" as the most dominant term, with 427 occurrences, significantly outpacing all other keywords. This confirms its centrality as the overarching domain of the study. Closely associated terms such as "effectiveness" (59), "IS success" (51), and "success" (38) suggested a strong thematic alignment with evaluating how well IS performs in meeting organizational or user objectives. The high frequency of these terms indicates sustained scholarly interest in conceptualizing and measuring IS performance outcomes, often within theoretical frameworks like the D&M ISSM.

The prominence of "organizational culture" (58), "user satisfaction" (50), and "critical success factors" (49) reflects a growing recognition of human and contextual elements in IS effectiveness. These keywords suggest that research in this domain has evolved beyond purely technical assessments to consider socio-organizational dimensions. For instance, organizational culture is often linked to the adoption and sustained use of IS, while user satisfaction is a key dimension in many IS success models. The appearance of "critical success factors" further highlights an applied research focus on identifying key drivers that influence IS implementation and performance across diverse contexts.

Interestingly, the "Delone and McLean model" (52) and "system quality" (42) underscore the lasting impact of the D&M ISSM in framing research on IS effectiveness. Their presence among the top keywords indicates that this model remains a key theoretical foundation. The inclusion of "accounting information system" (44) points to a specific application area, suggesting that IS effectiveness is frequently studied concerning financial and decision-support systems. Overall, the keyword clustering reveals both theoretical continuity and thematic diversification, where foundational models are being adapted to address emerging dimensions such as cultural context, satisfaction metrics, and domain-specific applications.

RQ5: What Are The Patterns Of International Collaboration In IS Effectiveness Research Based On Co-Authorship Across Countries?
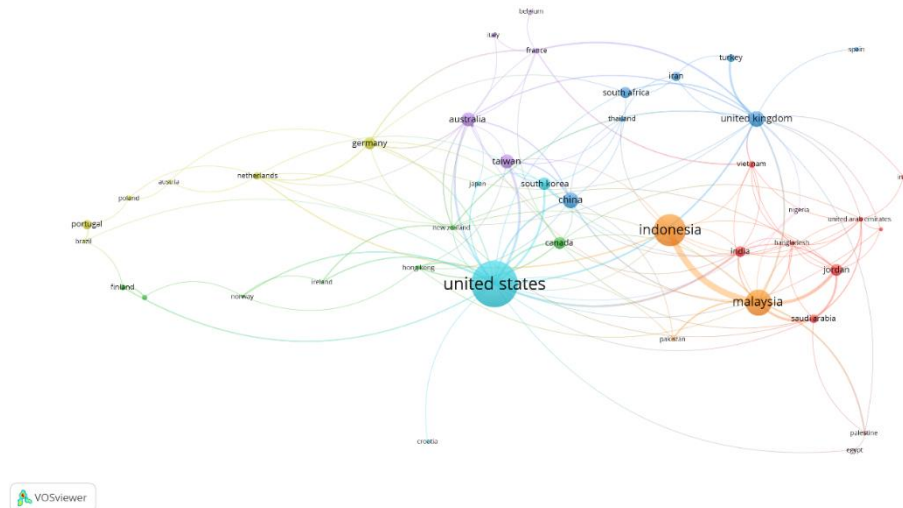
Figure 6: Patterns of International Collaboration in IS Effectiveness.

Table 6: Most Top 10 Countries of International Collaboration.

Country	Documents	Citations	Total Link Strength
United States	242	27,693	49
United Kingdom	50	4,176	30
Taiwan	42	2,131	12
Malaysia	103	2,084	51
Australia	42	1,750	19
South Korea	36	1,184	13
Indonesia	141	995	27
Canada	32	838	12
Jordan	32	810	20
Germany	34	803	13

Figure 6 illustrates the patterns of international collaboration in IS effectiveness derived from the VOSviewer analysis, and Table 6 presents the top 10 countries with the highest levels of international collaboration.The bibliometric analysis of country contributions reveals that the United States is the clear leader in the field of IS effectiveness research, with 242 publications and a remarkable 27,693 citations. This dominance reflects the country's long-established academic infrastructure, high research investment, and the historical origins of foundational IS models such as the D&M ISSM. Although the United States has a slightly lower Total Link Strength (49) than Malaysia (51), its high citation count suggests significant global influence and visibility, often producing seminal works that form the theoretical core of the discipline.

Malaysia and Indonesia exhibit a contrasting dynamic. Both have high publication outputs (103 and 141 documents, respectively), but their citation counts (2,084 and 995) are relatively low. This suggests that while these countries are actively publishing in the IS effectiveness domain, their research may be more recent, more context-specific, or less cited internationally. Malaysia, however, leads in Total Link Strength (51), indicating robust international collaboration and strong connectivity in co-authorship networks. Similarly, Indonesia's respectable link strength (27) shows growing scholarly integration, even if its citation impact is still emerging. These patterns signal a rising contribution from Southeast Asia in shaping IS discourse, particularly in applied and regional studies.

Countries like the United Kingdom, Australia, Taiwan, and South Korea demonstrate moderate publication and citation levels, reflecting a balanced contribution from both theoretical and empirical work. For instance, the UK has fewer documents (50) but a high citation count (4,176), indicating influential publications with a broad academic reach. Germany, Canada, and Jordan also contribute meaningfully, though their Total Link Strength values suggest a more limited international collaboration. Overall, the data reflect a mix of mature, high-impact contributors and emerging research hubs, with Malaysia and Indonesia positioned as important players in expanding the global IS effectiveness research landscape.

Conclusion

This study set out to map the intellectual landscape and evolving research patterns within the field of IS effectiveness through a bibliometric analysis of 1,121 publications retrieved from the Scopus database. The investigation addressed five core questions concerning publication trends, citation impact, leading contributors, keyword patterns, and international collaboration. The primary objective was to identify influential theoretical models and expose research gaps that could shape the direction of future inquiry. A systematic approach incorporating tools such as OpenRefine, VOSviewer, and Scopus Analyzer enabled the identification of key clusters, including system quality, user satisfaction, and organizational outcomes.

Findings indicate that research activity on IS effectiveness has intensified significantly since 2020, aligning with the global acceleration of digital technology. The United States remains the most dominant contributor in terms of both volume and impact, while Malaysia and Indonesia have shown increasing scholarly engagement in the region. Despite this growth, international co-authorship remains uneven, and theoretical reliance continues to center around established frameworks, particularly the D&M ISSM. Keyword analysis and citation mapping confirm the ongoing relevance of core constructs, such as service quality and information quality, while also suggesting an emerging focus on contextual and human-centric dimensions.

This study contributes to the consolidation of the fragmented literature, offering an integrated understanding of theoretical progress and highlighting underexplored aspects, such as individual performance, interface quality, and public sector applications. Additionally, the rise of emerging technologies such as artificial intelligence, big data analytics, and cloud computing demands a re-examination of current models. Traditional frameworks such as D&M ISSM, TAM, and TTF Model, while foundational, require adaptation to address the growing complexity of IS environments. There is a clear need for updated and context-sensitive theoretical models that integrate both technological advances and organizational dynamics.

Limitations of this study include its reliance on Scopus-indexed journal articles, which may potentially exclude relevant insights from other databases or non-English publications. Future research would benefit from cross-database comparisons and the inclusion of interdisciplinary literature to ensure a broader scope of coverage. Longitudinal studies are also recommended to assess the changing trajectory of IS effectiveness over time and to evaluate the impact of evolving user expectations and system capabilities.

In summary, the study confirms the value of bibliometric methods in tracking the progression of IS effectiveness research and offers a foundation for future scholarship. By identifying key trends, dominant theories, and research voids, the findings encourage deeper theoretical innovation and international collaboration. This is essential for equipping organizations with robust, adaptive frameworks that can guide IS implementation in an increasingly digital and complex world.

Acknowledgments

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