

A SYSTEMATIC LITERATURE REVIEW ON: DIFFUSION OF INNOVATION THEORY (2020–2024)

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Abstract

This study aims to conduct a Systematic Literature Review (SLR) on the application and development of the Diffusion of Innovation (DOI) Theory across various research contexts between 2020 and 2024. The theory, introduced by Everett M. Rogers, is typically used to explain how innovations are adopted, spread, and sustained in social systems. However, with the rapid development of digital transformation, artificial intelligence, and new technologies, there is a need to reassess how this theory has been applied and developed in recent years. This study uses the PRISMA method, following the stages of identifying, screening, and analyzing articles from databases such as Scopus and Google Scholar. A total of 20 relevant articles were reviewed and categorized based on the research field, methods used, and key findings. The results show that the DOI theory remains relevant in various fields, such as information technology, healthcare, education, digital finance, and the public sector. The development of the theory has shifted its focus from technological characteristics and users' rational decisions, towards psychological, social, organizational, and environmental factors. Several factors such as trust, perceived security, management support, organizational readiness, and user experience have been shown to be key determinants of successful innovation adoption. These findings indicate that DOI theory has now evolved into a more human-focused, flexible, and context-appropriate model, thus being able to explain the innovation adoption process amidst the digital era, the pandemic, and increasingly rapid technological advances.

Keywords: *Diffusion of Innovation Theory, Systematic Literature Review, Technology Adoption, Diffusion of Innovation, 2020–2024*

1. Introduction

Innovation plays a crucial role in driving technological development, enhancing organizational competitiveness, and influencing societal change. One of the most influential theoretical frameworks for understanding how innovations are accepted and spread is the Diffusion of Innovation Theory, first developed by Everett M. Rogers in 1962. This theory explains the process of innovation diffusion through four main elements: the innovation itself, communication channels, the time dimension, and the social system. Over time, this theory has become increasingly used in various fields such as business, education, healthcare, information systems, and digital transformation. In the last five years, particularly from 2020 to 2024, the world has experienced major changes due to technological acceleration, the COVID-19 pandemic, demands for sustainability, and the emergence of artificial intelligence technology. This situation has revived academic interest in the diffusion of innovation theory, particularly in examining its continued relevance and ability to explain the process of innovation adoption amidst rapid environmental change. Recent research has begun to highlight the link between DOI theory and new conceptual models, digital technology ecosystems, and human behavioral factors in the innovation adoption process. Although this theory has been widely used, there is still a need to thoroughly evaluate its development and application in recent times. Therefore, this study aims to conduct a systematic literature review (SLR) to map developments, research trends, areas of application, and emerging themes in research using the Diffusion of Innovation theory during the 2020–2024 period. The hope of this review is to provide a comprehensive overview of the position of DOI theory in current research, identify research gaps, and demonstrate how this theory continues to adapt to changes in technology and society in today's digital era.

2. Research Methodology

This study uses the Systematic Literature Review (SLR) method to search for, analyze, and combine various studies that apply or develop the Diffusion of Innovation (DOI) theory from 2020 to 2024. The SLR method was chosen because it is able to provide a comprehensive picture of theoretical progress, research trends, and things that are still less open to further research. This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which consist of four systematic stages: identification, screening, eligibility, and inclusion. Each stage was conducted in a structured manner to ensure the articles used were relevant, valid, and aligned with the research objectives.

The following is an explanation of each stage:

1. Identification

At this stage, researchers determine relevant keywords and search for articles from several trusted scientific databases. The databases used included Scopus and Google Scholar as a complement. The search strategy employed a combination of the keywords "Diffusion of Innovation Theory" and "2020–2024." The search was limited to English-language articles, published between 2020 and 2024, and available in full-text format.

2. Filtering

Articles obtained from the identification stage were then filtered to eliminate duplicate articles and ensure relevance to the research topic. Researchers read the title and abstract of each article to evaluate its relevance to DOI theory. Articles that did not align with or did not directly address DOI theory were excluded from the list.

3. Eligibility

Articles that pass the screening stage are then examined further to ensure that the contents of the article are in accordance with the research objectives. Researchers read articles thoroughly to assess whether the research actually applies, tests, or develops DOI theory in a particular context.

4. Inclusion

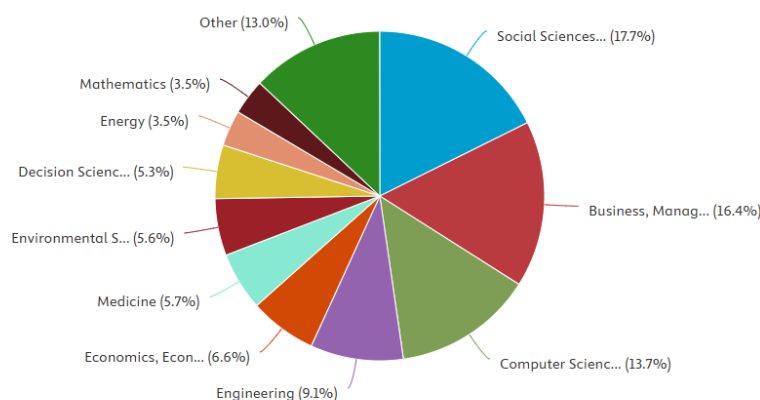
Articles that met all eligibility criteria were then included in the final analysis.

The article serves as the basis for the data synthesis process and discussion of the results of the systematic literature review.

3. Results and Discussion

This study uses the Systematic Literature Review (SLR) method to examine the application of the Diffusion of Innovation (DoI) theory from 2020 to 2024. The search was conducted on several scientific article storage sites such as Scopus and Google Scholar using the keyword "Diffusion of Innovation Theory." The initial search yielded 2,409 articles. After filtering based on specific criteria, such as publication year, topic relevance, and availability of full access, as well as rejecting articles that were duplicated, irrelevant, or did not clearly explain the use of DoI theory, 20 articles were selected as primary sources for analysis.

Documents by subject area

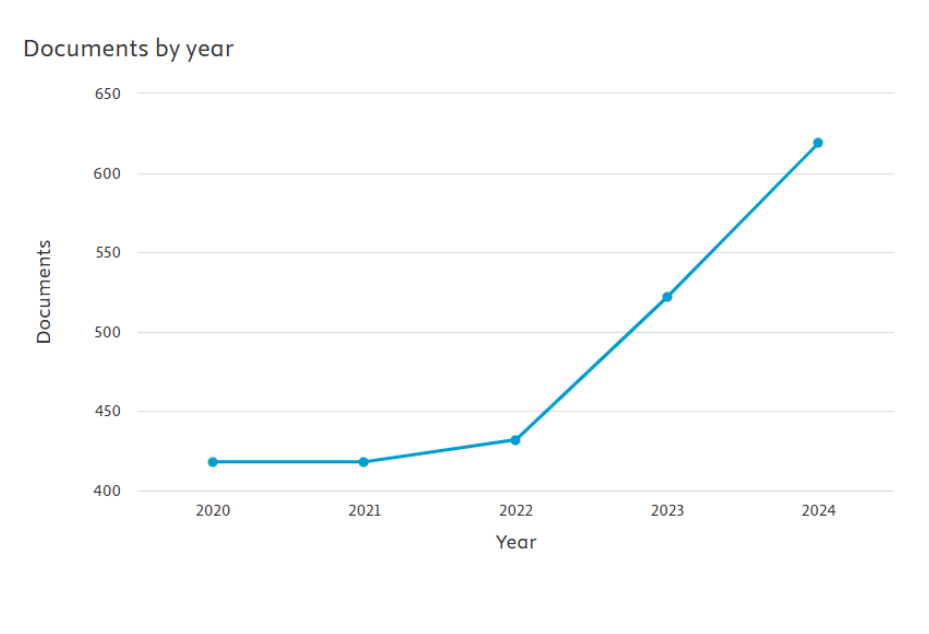


Based on data analysis on the Scopus platform, the Social Sciences and Business, Management & Accounting fields dominate, accounting for approximately 34.1% of all publications. This indicates that the Diffusion of

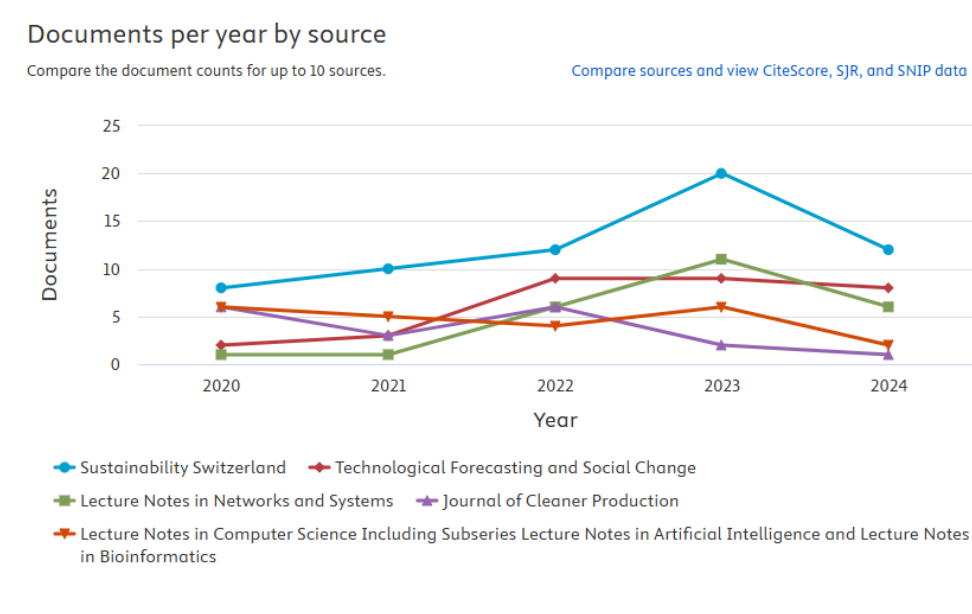
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Innovation Theory concept is most widely used in social and management research, particularly in terms of societal behavior in adopting innovation, organizational change, and the dissemination of new ideas in society and the business world. Furthermore, Computer Science contributed significantly, at 13.7%, demonstrating the theory's application in the context of information technology, digital systems, and how humans interact with computers. Furthermore, Engineering and Economics, Econometrics, and Finance also contributed to the application of this theory, particularly in technological and economic areas. This demonstrates the multidisciplinary nature of DOI theory and its adaptability to various research fields.



Based on data analysis from Scopus on the topic of Diffusion of Innovation Theory during the period 2020 to 2024, a total of 2,409 documents were found, indicating a trend of continuous increase in publications every year. In general, this trend shows that research on Diffusion of Innovation Theory has experienced increasingly rapid growth over the past five years. This increase in the number of publications reflects the increasingly widespread use of DOI theory in various disciplines, such as social, technological, management, and environmental, as a theoretical framework for understanding how innovation spreads in modern societies.



In general, the analysis shows that the diffusion of innovation theory is widely published in journals covering topics such as sustainability, technology, and social change. This suggests that the theory is highly relevant in explaining how innovations are adopted and the shift towards sustainability across various fields of modern research. The selected articles come from various countries and fields, including information technology, health, education,

business, and the public sector. This demonstrates that DoI theory remains highly relevant and applicable in various fields in today's digital age. One of the important developments in the Diffusion of Innovation Theory (DOI) literature from 2020 to 2024 is the shift in focus from technological and economic approaches to social and psychological ones. Previous research focused more on objective factors such as relative advantage, complexity, and compatibility as key factors in the adoption process. However, recent research has shown that the diffusion of innovation is influenced not only by the nature of the innovation itself but also by factors such as feelings, social judgment, and trust among individuals within a society.

For example, research conducted by Alana Dillette and Sandra Suh-Ah Ponting (2021) shows that in emergency situations like the COVID-19 pandemic, industry players need mental fortitude, interpersonal trust, and emotional resilience to embrace innovation. These findings demonstrate that technological factors are not the only factor determining innovation success, but also a person's confidence and comfort in accepting sudden change. In addition to discussing health, research conducted by Mohammad Al Zoubi, Yasmeen Alfari, Baha Fraihat, Ali Otoum, Maher Nawasreh, and Ashraf Alfandi (2023) shows that the acceptance of BI innovation is not only influenced by the nature of the innovation itself, but also by the level of organizational maturity, support from superiors, and the readiness of the project management team. The results of this study extend the Diffusion of Innovation (DOI) theory by showing that success in disseminating innovation depends on organizational structure and management capabilities, in addition to existing technological factors.

Furthermore, research conducted by Hway-Boon Ong, Nahariah Jaffar, Voon-Choong Yap, & Mariati Norhashim (2023) used the Diffusion of Innovation (DOI) theory to analyze factors influencing the use of internet and mobile banking services in Malaysia. This research falls within the field of digital finance and information technology. The results showed that the use of digital banking services is influenced not only by traditional technological factors such as relative advantage and complexity, but also by psychological and social factors, such as trust in technology, perceptions of security, and user experience. This study emphasizes that the successful adoption of digital innovation in the financial sector depends heavily on how users perceive risk and security, not just on the ease or superiority of the technology itself. These findings broaden the understanding of DOI theory by emphasizing that psychological aspects and user experience are crucial to the adoption process of digital innovation, particularly in the context of financial services, which depend on user trust.

Research by Tankiso Moloi & Hassan Obeid (2024) shows that the use of Artificial Intelligence (AI) in financial reporting is significantly influenced by various factors, such as technology, organization, and the environment. The results of this study indicate that progress in AI implementation depends not only on the technical capabilities of the system but also on support from top management, human resource readiness, pressure from government regulations, and stakeholder expectations. Research conducted by Bokolo Anthony Jr. and his team in 2022 focused on the application of the Diffusion of Innovation (DOI) Theory in higher education, particularly in terms of the adoption and use of blended learning (BL). A systematic review of 94 articles showed that the success of blended learning innovations depends not only on the technological aspects but also on how students, lecturers, and administrators perceive them. The study found that DOI theory is often used to explain how students and lecturers accept and implement digital learning innovations, which combine face-to-face and online learning. Furthermore, the study also found that the success of blended learning depends on institutional support, technological readiness, management strategies, and the level of user trust in the digital system. These findings help enrich the understanding of the application of DOI theory in education, emphasizing the importance of integrating technological, pedagogical, and social contextual factors in supporting the adoption of learning innovations in higher education.

4. Conclusion

Based on a systematic review of 20 articles published between 2020 and 2024, it can be concluded that the Diffusion of Innovation (DOI) theory has evolved significantly in recent years. This theory now focuses not only on the characteristics of innovations and how adopters think rationally, but also considers psychological, social, organizational, and environmental aspects of the innovation adoption process. From the results of the literature analysis, there are several main directions for the development of DOI theory, namely:

1. There is greater attention to psychological and social aspects.

The innovation adoption process is now influenced by trust, perceived safety, experience with the innovation, and social interactions. Innovations tend to be more easily accepted when an individual or organization feels comfortable, confident, and emotionally motivated.

2. Organizational factors and support from management are also major concerns.

The successful dissemination of innovation depends heavily on organizational structure, human resource readiness, and leadership support. Research shows that organizations with a ready structure and management are more likely to implement innovations, whether in the business, financial, or information technology sectors.

3. This theory is also able to describe the adoption of innovation in various fields, ranging from information technology, education, health, to the public sector.

DOI has proven to be flexible in explaining cultural differences, social contexts, and the dynamics of cooperation in the process of spreading innovation.

4. This theory has adapted to the development of the digital era and advanced technology.

In the era of digital transformation and AI adoption, innovation acceptance is influenced by virtual interactions, digital value exchange, and user psychosocial factors. Now, DOI is evolving into a more comprehensive model, focusing on user experience, trust, and convenience, not just technological functionality.

Overall, DOI theory remains relevant and adaptable in explaining how innovations are accepted and expanded.

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