Using Text Mining to Identify Research Trends in Management Information Systems Theses: A Topic Modeling Approach

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Abstract

This study employs topic modeling to analyze 386 master's and doctoral theses in the field of Management Information Systems (MIS) in Turkey between 2002 and 2024. Using Latent Dirichlet Allocation, the research uncovers key thematic areas such as digital transformation, system integration, process management, and user experience, alongside emerging trends in artificial intelligence, big data, and data mining. The findings reveal that MIS research increasingly addresses interdisciplinary challenges and provides practical solutions for societal and business needs. This study not only maps the evolution of research trends in the MIS field but also offers actionable insights to guide future academic and applied research. The results emphasize the pivotal role of MIS in advancing digital transformation and its potential to contribute significantly to addressing global challenges through technology-driven innovation.

Keywords: management information systems, topic modelling, text mining

Metin Madenciliği ile Yönetim Bilişim Sistemleri Tezlerindeki Araştırma Eğilimlerinin Belirlenmesi: Bir Konu Modellemesi Yaklaşımı

Öz

Bu çalışma, 2002 ve 2024 yılları arasında Türkiye'de Yönetim Bilişim Sistemleri alanında hazırlanmış 386 yüksek lisans ve doktora tezini analiz etmek için konu modelleme yöntemini kullanmaktadır. Gizil Dirichlet Ayrımı (Latent Dirichlet Allocation) yöntemiyle gerçekleştirilen araştırma, dijital dönüşüm, sistem entegrasyonu, süreç yönetimi ve kullanıcı deneyimi gibi temel tematik alanların yanı sıra yapay zekâ, büyük veri ve veri madenciliği gibi yükselen trendleri ortaya koymaktadır. Bulgular, YBS araştırmalarının giderek daha fazla disiplinler arası zorluklara odaklandığını ve toplumsal ile ticari ihtiyaçlar için pratik çözümler sunduğunu göstermektedir. Bu çalışma, Yönetim Bilişim Sistemleri alanındaki araştırma trendlerinin evrimini haritalamakla kalmayıp, gelecekteki akademik ve uygulamalı araştırmalara rehberlik edecek ve lisansüstü tezlere yön verebilecek uygulanabilir öneriler de sunmaktadır. Sonuçlar, Yönetim Bilişim Sistemleri alanının dijital dönüşümü ilerletmedeki kritik rolünü ve teknoloji odaklı yenilikler yoluyla küresel sorunların çözümüne önemli katkılarda bulunma potansiyelini vurgulamaktadır.

Anahtar Kelimeler: yönetim bilişim sistemleri, konu modelleme, metin madenciliği

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Introduction

Over the years, information technologies have profoundly changed our personal, social and institutional lives and significantly improved our quality of life. Management Information Systems (MIS) play a central role in the efficient and effective management of modern organizations. By ensuring the provision of accurate, timely and relevant information for decision making, MIS support organizations in achieving their strategic goals (Kasimati et al., 2023). Technological advances and globalization, combined with the growth of the knowledge economy and the rise of digital businesses, have further increased the importance of MIS. Its importance goes beyond commercial enterprises and extends to various sectors, including educational institutions. MIS plays a crucial role in the delivery of effective services in both education and administration. Moreover, the impact of information management processes on information systems has shown that processes such as information sharing, acquisition and application are essential for the success of MIS (Al-Emran et al., 2018; Hameed et al., 2024).

The effective use of MIS also brings significant benefits to complex processes such as supply chain management. The impact of information systems on the planning, procurement and delivery processes within supply chain management underscores their crucial role in helping organizations achieve strategic goals (Kakhki & Gargeya, 2019). In addition, the modular approach to managing information systems facilitates the integration of technological innovations in organizations and adds value to business processes (Sirkemaa, 2019). Consequently, MIS enables organizations to make data-driven decisions and thereby increase their efficiency and effectiveness. As a result, MIS has become an indispensable element of the modern business landscape. Proper management of these systems is critical to organizational success and solidifies their role as a cornerstone of modern business operations.

The rapid advances in information technology and their increasing integration into business processes have significantly increased the importance of MIS. MIS is interdisciplinary and interacts with various fields such as computer science, management science, economics and psychology (Hameed et al., 2024; Özköse et al., 2023). This discipline not only offers innovative solutions to meet the demands of the business world, but also has the potential to transform decision-making processes into data-driven practices. For example, a study using the Apriori algorithm found that MIS researchers are predominantly focused on areas such as e-commerce, information security and data analytics, demonstrating the evolving dynamics of the field (Sertçelik & Önder, 2023).

One effective method for identifying trends in the MIS field is through systematic review studies. A bibliometric and thematic analysis spanning 36 years of research highlights both foundational and emerging topics in MIS. These analyses provide valuable insights into future research directions by examining core themes and the most cited articles in the field of information systems management (Abedin et al., 2020). Another significant research focus is the impact of MIS on sustainable business performance and competitiveness. Specifically, the integration of information systems into human resource management and decision-making processes plays a critical role in determining how businesses perform in terms of sustainability and competitiveness (Djalic et al., 2021). Additionally, the role of information systems in sustainable development has proven to be a vital area of study. MIS contributes significantly to enhancing operational efficiency and optimizing supply chains for businesses. In this context, Green Information Systems (Green IS) initiatives address environmental sustainability challenges while also strengthening businesses' sustainable competitive advantages (Zeng et al., 2020). Another key research topic in the MIS domain is the relationship between Industry 4.0 and lean supply chain management. This area of study explores the role of information and digital technologies in supply chain management and aims to identify existing research gaps in this intersection (Núñez-Merino et al., 2020). These topics not only highlight the evolving priorities within MIS but also emphasize the field's critical contributions to advancing organizational sustainability and efficiency in a rapidly digitalizing world.

In the Turkish context, the academic and applied aspects of MIS have shown significant progress in recent years. The dissertations produced in this field serve as valuable resources to understand the historical development and academic contributions of the discipline. The analysis of these dissertations shows that MIS is predominantly approached using interdisciplinary methods that combine qualitative and quantitative techniques and is most closely related to management sciences, computer science and statistics (Baz & Koşar, 2023; Yarlıkaş, 2015). In addition, 403 PhD theses were written in Turkey between 2018 and 2022, highlighting a growing academic interest in the field (Baz & Koşar, 2023). Historically, MIS education in Turkey started at Boğaziçi University in 1995, and today 78 universities offer at least degree programmes in this discipline (Yavuz et al., 2023). However, strengthening the academic staff in the field of MIS and adapting the content of elective courses to the demands of the market are emphasized as essential steps to further strengthen the academic and practical importance of the discipline (Yavuz et al., 2023). Globally, bibliometric analyses show that the MIS field is being reshaped by emerging technologies such as artificial intelligence and data analytics, with research trends becoming increasingly diversified (Abedin et al., 2021; Özköse et al., 2023). Moreover, studies applying advanced analytical methods such as Latent Dirichlet Allocation (LDA) have provided deep insights into the core and emerging topics within MIS and offered a robust framework for understanding the literature (Çallı et al., 2021; Özköse et al., 2023).

Understanding the historical development and current trends in MIS is essential for anticipating the future directions of the discipline and identifying new research opportunities. This comprehensive perspective sheds light on the evolution of the field while emphasizing its crucial role in fostering innovation and efficiency across diverse sectors. MIS, as a discipline, continues to evolve rapidly alongside innovations brought forth by the digital age and technological advancements. Consequently, current trends in MIS are influenced by the technological developments and challenges specific to each era. For example, despite organizations having extensive capacities to collect large volumes of data, their ability to fully utilize this data remains limited due to inadequate tools and expertise. Advanced technologies such as artificial intelligence, machine learning, deep learning, and cloud/edge computing are now playing a pivotal role in enhancing information management practices (Gupta et al., 2023). Text mining, as a technique, enables the extraction of meaningful information from vast text datasets, uncovering hidden patterns and providing insights into the themes and research trends in MIS (Li & Lei, 2021). Such systemic analyses must be designed to guide academic literature and inform future research directions effectively.

Holistically, trends in the MIS domain encompass the integration of advanced technologies, sustainability and competitiveness, information management, and Industry 4.0-related innovations. However, existing research in the field is largely derived from journal publications or expert opinions. This study distinguishes itself by employing an innovative approach to analyzing research trends at the national level, specifically within postgraduate theses. The need for this study is driven by the rapidly evolving technological landscape and the increasing complexity of business operations. By conducting a detailed analysis of theses published within the field of MIS, this research aims to provide valuable insights into current trends, challenges, and opportunities. Additionally, it seeks to identify gaps in the literature and propose new research topics that align with the emerging needs of the discipline.

Method

In the current study, a comprehensive data set of master's and doctoral theses in the field of "Management Information Systems" was compiled by the National Theses Center using the Python library Selenium. A total of 388 theses published between 2002 and 2024 were collected. After excluding those with missing abstracts, 386 theses were included in the analysis. In the text pre-processing phase, important steps such as text cleaning, tokenization, normalization and lemmatization were carried out to prepare the data for analysis. For topic modeling, LDA method

was used to uncover latent thematic structures in the text corpus. The methodological steps undertaken are described in detail under specific subheadings to ensure clarity and replicability.

Data Collection

Creating a corpus for text-based content analysis through topic modeling is a critical step that directly influences the success of the analysis. This study focuses on examining master's and doctoral theses conducted in the "*Management Information Systems*" departments of universities. Using Python's Selenium library, data such as the titles, publication years, categories, topics, publication locations, and abstracts of theses were scraped from the National Theses Center's website. As a result of the web scraping process, a total of 388 theses published between 2002 and 2024 were retrieved. Upon reviewing the dataset, it was observed that some abstracts were missing, leading to the exclusion of these theses from the corpus. Ultimately, a refined dataset comprising 386 theses was created for analysis. Theses from universities without established MIS departments, but where MIS-related research was conducted, were not included in this study due to the scope of the dataset.

Data Pre-processing

Text preprocessing is a critical step in preparing unstructured or semi-structured text for analysis using natural language processing tools. The primary tasks involved in this process include text cleaning, tokenization, normalization, filtering, language processing, lemmatization, and stemming. Text cleaning involves removing elements irrelevant to linguistic processing, while tokenization splits text into individual words or sentences. Normalization standardizes text to a consistent format, including tasks such as converting text to lowercase, transforming numbers into words, and removing HTML tags and special characters. Filtering entails the removal of stop words and other high-frequency or low-frequency terms that lack semantic value.

In the natural language processing domain, additional sub-tasks such as part-of-speech tagging, word sense disambiguation, and semantic structuring play important roles. Part-of-speech tagging assigns linguistic classes to words, defining their grammatical role in the text. Word sense disambiguation predicts the appropriate meaning of a word based on its context, while semantic structuring involves parsing methods to represent the meanings of lexical elements within sentences. Lemmatization, which consolidates various forms of a word under a single term through morphological analysis, is often preferred over stemming for producing more interpretable and meaningful terms, particularly in topic modeling.

Text transformation involves converting preprocessed text data into vector representations compatible with various text mining algorithms. This process encompasses two primary tasks: feature extraction and feature selection. Feature extraction methods, such as Bag-of-Words and Vector Space Model, represent text documents in vector form. Feature selection, on the other hand, reduces the dimensionality of the dataset by selecting a subset of the most significant features. Content analysis can be divided into two main categories: dictionary-based methods derived from linguistics and algorithmic methods from statistics and computer science. Dictionary-based approaches include techniques like computational content analysis, sentiment analysis, and automated content analysis. Algorithmic methods, rooted in machine learning, emphasize classification (supervised) and clustering (unsupervised) techniques (Antons et al., 2020). This comprehensive preprocessing and analysis framework ensures robust data preparation and meaningful insights for applications in computational text analysis and topic modeling.

Topic Modelling

Topic modeling is a technique that can be used to cluster digital documents by identifying groups of words, so-called "topics", that have hidden relationships in the text. Basically, it is an unsupervised text mining method that applies statistical models to data and assumes that texts consist of topics and that topics are in turn formed by co-occurring words (Aggarwal & Zhai, 2012).

As a statistical method for analyzing textual data, topic modeling aims to uncover the underlying topics in the text. This process is often supported by machine learning algorithms and usually involves the following steps: First, text pre-processing is performed to clean the data by removing irrelevant elements such as punctuation and numbers and reducing words to their basic forms (Blei, 2012). A document term matrix is then created which shows the frequency of words in each document. A modeling algorithm, usually LDA, is then applied to identify latent topics in the text. LDA assumes that each document is a mixture of different topics and that the topics consist of certain groups of words (Asmussen & Møller, 2019).

Once the results are generated, the detected themes are visualized, the word distributions are analyzed, and the themes are interpreted. These steps are crucial to evaluate the meaningfulness of the identified themes and to refine the model if necessary. Topic modeling is widely regarded as a powerful tool for automatically understanding and categorizing the content of large text datasets (Jelodar et al., 2019). Its applications span numerous areas, including analyzing social media, evaluating customer feedback and identifying trends in literature.

Latent Dirichlet Allocation

Topic modeling is an unsupervised classification method, similar to numerical data clustering (Grün & Hornik, 2011). One of these methods, LDA, is a probabilistic model where words are the fundamental data units. In LDA, each document contains N words, and a corpus comprises M documents (Blei et al., 2003). The key assumptions of LDA are as follows: each document is a mixture of specific topics, and each topic is a mixture of words (Grün & Hornik, 2011). Words in a document implicitly refer to certain topics, and the words associated with these topics represent groups of words belonging to those topics. LDA traces back which words constitute the documents and determines which topics these words are associated with, ultimately estimating which topics might have generated which documents (Nabli et al., 2018). During this process, the topic of each word in each document is iteratively updated over a certain number of iterations (see Figure 1).
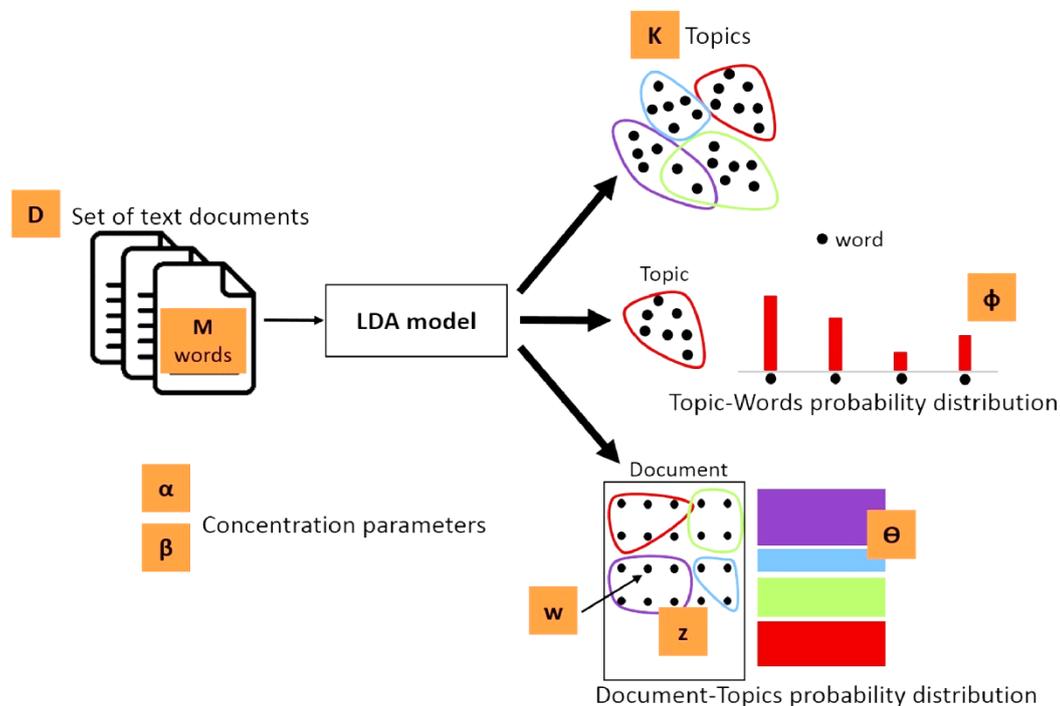

Figure 1. LDA Working Principle (Nabli et al., 2018)

The working principle of LDA follows these steps:

- Step 1: Each word is randomly assigned a topic.

- Step 2: For every word w in each document, the current topic-word assignment is updated with a new assignment. The new topic k is determined by the product of probabilities p1×p2, which calculate the likelihood of w being assigned to k. In other words, two probabilities are calculated for the topics assigned to each word.

- Step 3: p1= (topic 't'/document 'd') ratio, which represents the proportion of words in document ddd currently assigned to topic ttt. p2=(word 'w'/topic 't') ratio, which represents the proportion of assignments of topic t to word w across all documents. LDA calculates p1×p2 and uses this to determine the most appropriate topic k for each word w.

- Step 4: This process repeats multiple times until the document-topic and topic-term distributions stabilize, reaching a steady state. This stable point represents the convergence of LDA.

LDA operates under the assumption that all current topic-term distributions, except for the current term, are accurate. Hence, it attempts to update the term-topic assignment with a new topic that has a probability of p1×p2 (Blei et al., 2003; Blei, 2012).

Results

The study presents the number of postgraduate theses published annually in the field of MIS. The highest number of master's theses was observed in 2023 with 64 theses, followed by 2019 with 58 theses and 2022 with 57 theses. The distribution of master's theses counts for other years is detailed in Figure 2. For doctoral theses, the highest publication numbers were recorded in 2023 with 11 theses and in 2022 with 10 theses. No theses were published in the years 2002, 2004, 2005, 2006, 2009, 2011, 2012, 2013, 2014, 2015, or 2016. As of May 2024, the National Theses Center website lists 19 master's theses, and two doctoral theses published for the year 2024.
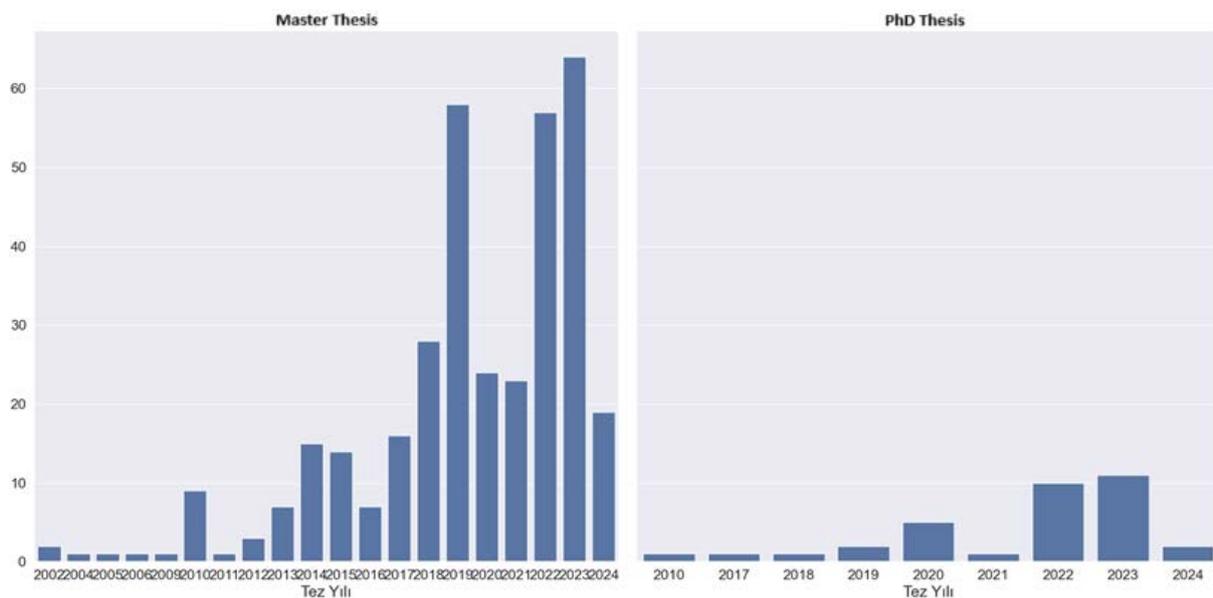

Figure 2. Theses Publication Counts by Year and Type

To uncover research trends, the texts of relevant theses were analyzed, and word clouds were generated. Word clouds are utilized to visualize the key concepts of academic studies and their interrelations. Each word cloud in Figure 3 highlights frequently recurring keywords such as "use*,*" "*study*," "*system*," and "*information*". For instance, in Topic 3, words like "*information*," "*system*," "*study*," and "*datum*" stand out, while Topic 7 features terms such as "*information*," "*system*," "*technology*," "*process*," and "*web*". This indicates that these terms are central to all topics and that the studies predominantly focus on technology use, process management, and information systems.

Figure 3. Topics Word Cloud

Between 2002 and 2024, a topic modeling and LDA analysis were conducted on 386 master's and doctoral theses published in the MIS field. The findings from the analysis are presented in Figure 4.

Figure 4. Topic Modeling Map of Theses

As seen in Figure 4, the larger bubbles indicate that these topics are heavily researched within the MIS field. Specifically, the concentration of studies related to keywords such as "system," "information," "digital," "technology," "process," "service," and "management" is noteworthy. This highlights the prominence of areas such as digital transformation, information management, system integration, system design, management and optimization, as well as business process management and optimization in MIS research. Medium-sized bubbles are associated with keywords like "system," "project," "product," "technology," "security," "application," "service," and "experience." These keywords emphasize the significance of studies on project management, product management, general management strategies, information security, information systems management, user experience, and user-centric services. Smaller bubbles represent more specific and less frequently

researched areas, associated with keywords such as "test," "analysis," "model," "system," "security," and "environment." These studies focus on research methods, modeling, network security, and environmental factors.

In the study, theses contributing the highest "Contribution %" for each "Dominant Topic" were examined to provide an in-depth analysis of specific topics. The "Contribution %" of each theses to its "Dominant Topic" reflects the academic significance of the topic and the unique contribution of the study. Table 1 lists the theses sorted by their contributions to each dominant topic, including the titles, years, types, and contribution percentages. This analysis clearly indicates which study contributes the most to each topic. As shown in Table 1, the contribution percentages of the top studies for each dominant topic range between 98.78% and 99.69%. These high percentages underline the depth and significance of these studies in their respective topics. For instance, the study titled "*Data mining analysis on domestic violence against women: A case of Turkey*" achieved a contribution percentage of 99.40%, making it one of the top contributors to Dominant Topic 1.

Table 1. Theses That Provide the Highest Contribution for Each Dominant Topics

Topic No	Theses Year	Theses Type	Dominant Topic	Contribution %	Topic Terms
Data mining analysis on domestic violence against women: A case of Turkey	2020	Master	1	99.40	use, study, make, datum, decision, analysis, process, information, system, method, test, result, research, develop, application, management, model, provide, aim, social
Ankara Yildirim Beyazit University Esenboğa Campus map applications	2020	Master	2	99.68	information, use, system, technology, study, student, make, development, datum, process, research, management, application, service, result, university, user, also, develop, provide
A study on determinants of friendship relations in social networks	2017	Master	3	95.56	use, system, study, datum, information, social, user, research, application, technology, brand, medium, examine, analysis, service, factor, aim, method, result, model
Design and application of indoor guidance system with beacon technologies for hearing impaired individuals	2023	Master	4	99.19	system, use, process, study, technology, datum, information, research, management, application, student, business, result, social, consumer, make, development, base, aim, also
Why banks adopt mobile banking: The case of Turkey	2018	Master	5	98.78	use, mobile, banking, network, technology, study, research, system, service, process, datum, intelligence, bank, design, application, customer, artificial, important, user, method
An automatic speech recognition system proposal for organizational development	2023	Master	6	99.69	study, use, system, datum, information, process, technology, increase, development, application, management, result, analysis, make, develop, model, aim, method, research, decision
A decision support system for fake news detection in Turkish language with supervised machine learning algorithms	2022	Master	7	99.45	system, information, use, management, study, datum, process, technology, make, service, develop, method, model, application, social, project, web, need, result, life
Modelling and analysis of an enterprise network and its security structures	2010	Master	8	99.54	use, study, information, process, model, datum, result, system, technology, analysis, method, research, work, user, also, base, effect, development, service, business
Design and development of project production systems via artificial intelligence in organizations	2023	PhD	9	99.64	study, use, datum, process, system, student, make, level, information, decision, analysis, develop, business, technology, project, game, problem, application, model, result
Measuring the impact value of social media marketing applications on the city branding process: An experimental research on Konya city branding	2024	Master	10	99.57	use, study, technology, result, research, model, level, system, test, information, analysis, security, social, datum, student, accord, develop, obtain, development, increase

Table 2. Topics and Terms

Topic No	Terms per Topic	Topics Summarize
Topic 1	use, study, make, datum, decision, analysis, process, information, system, method, test, result, research, develop, application, management, model, provide, aim, social	Research and development processes, decision-making and analysis
Topic 2	information, use, system, technology, study, student, make, development, datum, process, research, management, application, service, result, university, user, also, develop, provide	Technology and system information, educational studies
Topic 3	use, system, study, datum, information, social, user, research, application, technology, brand, medium, examine, analysis, service, factor, aim, method, result, model	User research and applications, system studies
Topic 4	system, use, process, study, technology, datum, information, research, management, application, student, business, result, social, consumer, make, development, base, aim, also	Management and research in technology and business applications
Topic 5	use, mobile, banking, network, technology, study, research, system, service, process, datum, intelligence, bank, design, application, customer, artificial, important, user, method	Mobile banking and network technology, customer applications
Topic 6	study, use, system, datum, information, process, technology, increase, development, application, management, result, analysis, make, develop, model, aim, method, research, decision	Process and system development, educational applications
Topic 7	system, information, use, management, study, datum, process, technology, make, service, develop, method, model, application, social, project, web, need, result, life	Management systems, technology services, project development
Topic 8	use, study, information, process, model, datum, result, system, technology, analysis, method, research, work, user, also, base, effect, development, service, business	Process information, system analysis, and technological impacts
Topic 9	study, use, datum, process, system, student, make, level, information, decision, analysis, develop, business, technology, project, game, problem, application, model, result	Decision-making processes, business technology applications
Topic 10	use, study, technology, result, research, model, level, system, test, information, analysis, security, social, datum, student, accord, develop, obtain, development, increase	Technology security, research and development, educational studies

The topics and terms identified in the study are summarized in Table 2. The publication years of the studies provide insights into the temporal development and level of interest in these topics. For example, a theses published in 2023 titled "*Design and application of indoor guidance system with beacon technologies for hearing impaired individuals*" achieved a contribution percentage of 99.19% in Dominant Topic 4. This indicates that research on beacon technologies and their application for individuals with hearing impairments has become a significant research area in recent years. Key terms offer a general overview of each study's content. They reveal the focus areas and contributions of the study. For instance, a study includes key terms such as "*use, study, make, datum, decision*" reflecting its focus on data mining and decision support systems.

Discussion and Conclusion

In the study, theses conducted in the field of MIS between 2002 and 2024 were examined, and topic modeling was performed on these theses using the LDA method. The findings of the study reveal significant increases in the number of theses in the field of MIS over the years, with academic productivity accelerating during certain periods. This increase can be associated with the growing academic interest in digital transformation and the integration of information systems. It was observed that research has focused on technology-oriented topics and has made significant contributions in this area.

The LDA analysis conducted within the scope of this study found that MIS research largely focuses on topics such as system integration, process management, information systems, and digital transformation. An analysis of key terms reveals that knowledge and technology management is a central theme in MIS research. This finding is consistent with the results of related trend studies in the literature (Kakhi & Gargeya, 2019; Özköse et al., 2023). In particular, the impact of digitization processes on business management and information systems integration constitutes a significant portion of these studies. Additionally, specific topics such as user experience, data analysis, and security have been identified as important research areas. These findings confirm that MIS is a field that responds to the increasing technological needs of a rapidly digitizing world.

Key topics highlighted in the theses include data mining, decision support systems, and user-centered technological solutions. These studies emphasize the potential of MIS for developing technologies aimed at practical applications and its contributions to projects with societal benefits as indicated by Hameed et al. (2024). Research in areas such as data mining and artificial intelligence has made significant contributions to the relevant literature, while topics such as mobile banking and information security have gained increasing interest in recent years. In this context, it can be said that graduate theses produced in the field of MIS in Turkey have a wide range of applications and offer solutions to both business and societal challenges.

According to the word clouds and topic modeling results, themes such as information systems, process management, and technology usage emerge as frequently studied topics in the field of MIS. These studies primarily focus on the digitization of business processes and the optimization of system integration. This finding aligns with the results of systematic literature reviews and trend studies in the field (Abedin et al., 2020; Gupta et al., 2023). More specific areas, such as user experience and information security, are also prominent research topics, with growing importance in MIS studies. Thus, the findings indicate that MIS is at the center of technology-oriented research and contributes to digitization processes. This result parallels trend studies suggesting that the future of MIS lies in the effective integration of technology and data (Özköse et al., 2023). Furthermore, the analysis shows that there are very few studies in the field of MIS, especially on MIS education. However, it is believed that effective use of learning approaches and instructional technologies can significantly increase the effectiveness of computing education (Kılıç-Çakmak et al., 2017). It should be considered that the integration of technology into education can not only increase student achievement, but also provide innovative solutions to facilitate the understanding of complex disciplines such as MIS. Accordingly, a greater focus on MIS education can enhance the discipline's contributions in both academic and practical areas.

In light of the findings of this study, it is recommended that future research in the field of MIS looks more closely at topics such as digital transformation, information security and user experience. By adopting interdisciplinary approaches, research can be conducted on broader applications in areas such as information systems management and process optimization. Furthermore, the inclusion of technologies such as artificial intelligence, big data, and data analytics in MIS studies can expand the theoretical and practical knowledge base in this field (Yavuz et al., 2023). Studies in MIS should also be encouraged to produce solutions to societal challenges. In this context, the more effective use of technologies such as data mining, artificial intelligence, and decision support systems in projects aimed at societal benefits can make significant contributions to both literature and practical applications. Institutions can support academic projects aimed at developing innovative solutions in the areas of digitization and technology integration, thereby advancing these fields further.

In conclusion, this study provides a roadmap for future studies by identifying academic research trends in the field of MIS. While MIS continues to deepen its focus on topics such as digitization, technology management, and process optimization, it is clear that studies addressing broader societal and economic issues should be encouraged. Additionally, supporting studies that offer technology-based solutions to societal challenges will accelerate the development of MIS as a field that provides both academic and practical benefits.

Limitations and Future Directions

In the study, graduate theses published in the field of MIS in Turkey between 2002 and 2024 were examined. While these theses were analyzed in detail based on specific parameters, the study has some limitations. Theses written before the establishment of MIS departments in universities and prepared in other departments (e.g., production management, marketing, quantitative methods) were not included in the study. The exclusion of these theses, which address topics believed to be relevant to the MIS field, is a limitation. Future studies are recommended to include theses from different departments conducted before the establishment of MIS departments to prevent potential misclassifications related to the field. The analysis of the theses in this study was carried out using text mining and word frequency methods. However, such methods can lead to misinterpretations if certain words are frequently used without considering their context. Some terms in the theses may appear to belong to MIS topics based on their frequency, but the broader context of the theses may not support this conclusion. To mitigate this limitation, future studies could involve domain experts reviewing a subset of these theses for validation. A broader expert evaluation is believed to play a significant role in improving the reliability of the study and reducing misclassifications. Since the text mining method was used in this study, the analysis was limited to the abstracts and basic information of the theses. Due to time and resource constraints, it was not possible to analyze the full texts of the theses. Future studies could expand the scope of this research to include full-text analysis of the theses, which could enable more accurate classification of topics and yield more reliable results. The current study only examined graduate theses conducted in Turkey. Future research could also include theses from different countries, enabling comparative studies that provide deeper insights into the MIS field on a global scale.

Authors' Contributions

Mehmet Kokoç; conceptualization, methodology, data curation, writing – original draft, writing – review & editing. *Memnüne Kokoç*; methodology, writing – original draft, writing – review & editing. *Özge Tuncer*; methodology, formal analysis, validation, writing – original draft.

Ethics

There are no ethical issues related to the publication of this article.

Conflicts of Interest

There are no conflicts of interest.

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