

Decoding Business Applications of Generative AI: A Bibliometric Analysis and Text Mining Approach

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ABSTRACT

The integration of Generative AI into business and management stands out as a pivotal transformation. This paper employs bibliometric analysis to scrutinize academic perspectives on the applications of Generative AI across diverse business research fields. Concurrently, text mining based on tweets and websites is deployed to probe cutting-edge industry applications of Generative AI in business and management. The latent Dirichlet allocation (LDA) topic modeling method unveils the profound potential of Generative AI, i.e. 1) creating new interfaces for service providers and personalized experience; 2) creating new content to augment human creativity; 3) improving efficiency and productivity, and 4) enabling more new applications, business models and use in the practical business applications. Delving into the contemporary research topics in information systems, marketing, management, and other business research, this study undertakes a comprehensive bibliometric and thematic analysis to integrate findings from both contemporary academic research fields and business application spheres to identify the research gap and explore future research context in GenAI. Moreover, this study underscores the ethical and practical challenges that emerge, advocating for interdisciplinary study on GenAI. The paper concludes by providing suggestions for future research, underscoring the importance of combining technological expertise with a human-centered approach.

Keywords: Generative AI, GenAI applications, bibliometric review, text mining

INTRODUCTION

Generative AI (GenAI) has emerged as a transformative force across the entire spectrum of business and management. Since its advent, GenAI has demonstrated a capacity to reshape traditional business operations and strategies, offering capabilities that extend beyond those of conventional AI technologies (Van Dis et al., 2023). Distinctive features of GenAI, such as hyper-personalization, dynamic content creation, and enhanced automation, have set the stage for innovations that transcend traditional marketing paradigms. A survey by McKinsey illuminated the rapid adoption and reliance on GenAI among business leaders in the business operation and management aspect. The study revealed that a staggering 90 percent of business leaders across various sectors anticipate integrating GenAI solutions into their regular operations within the next two years (Deveau et al., 2023). Concurrently, a report by Boston Consulting Group (BCG) highlighted the economic advantages of GenAI, noting an observed productivity boost of 30%, attributed to the technology's cost-effectiveness and user-friendly nature (Ratajczak et al., 2023).

GenAI has the potential to significantly influence how businesses operate and innovate. It is anticipated to reshape processes ranging from lead identification through analytical systems, to enhancing information systems-backed marketing strategies that include AI-driven A/B testing and advanced SEO techniques. The system's potential also aligns with user-centric services, integrating tools like chatbots and virtual assistants, enabling dynamic content generation for digital platforms such as emails and websites, and providing real-time analytical insights (Paul et al., 2023). Within the information systems (IS) domain, applications like dynamic audience targeting for optimized selling recommendations and continuous churn modeling underscore the system's sophistication. Furthermore, GenAI's capabilities are being integrated into automated IS workflows, impacting areas such as product design systems and campaign nurturing platforms (Deveau et al., 2023). The technology is poised to reshape multifaceted business processes—from supply chain optimization and human resource management to platforms enabling strategic decision-making. As GenAI continues to integrate with a multitude of business tools and platforms, its transformative potential becomes even more apparent. This underscores the pressing need for an exhaustive exploration and comprehension of its applications, implications, and future trajectory across the broader business landscape.

While GenAI's transformative potential is evident, the academic landscape reflecting its application in business and management is still in its nascent stages. Given the novelty of GenAI, there is a growing number of literature that delves into its applications within the broad ambit of business and management. In light of the growing need for nuanced understanding, this study adopts a methodologically diverse approach to explore Generative AI's role in business and management. Grounded in bibliometric analysis, our primary aim is to systematically examine scholarly contributions to this burgeoning field. Simultaneously, we leverage text mining techniques to investigate the frontier applications of Generative AI within the industry. By amalgamating insights gleaned from both academic and practical perspectives, the article aspires to provide a nuanced panorama of the extant research and applications.

The review in this study based on bibliometric analysis and text mining not only aids in understanding the evolutionary trajectory of research on GenAI's business applications but also sheds light on potential gaps between the existing literature and practical arenas. Recognizing these gaps is of paramount importance, as it allows for the identification of areas ripe for further exploration. Conclusively, this article endeavors to offer recommendations for future research, ensuring that subsequent academic pursuits in this domain are both meaningful and impactful.

METHODOLOGY

In the context of our study, this Bibliometric approach, introduced by Pritchard (1969) is particularly pertinent to the rapidly evolving domain of GenAI in business and management. It offers a suite of analytical tools for assessing publication trends within a domain. This methodology facilitates the identification of current research trends and illuminates potential research avenues, serving as a valuable compass for scholars to gauge the domain's current landscape and discern existing research gaps (Feng et al. 2017). In complement to bibliometric analysis of the literature in various business research fields, we utilized text mining to capture state-of-the-art GenAI applications in industry, serving as a frontier for academic inquiry. This approach sourced real-time data from industry reports, technical blogs, and influential social media, filling the gap between scholarly literature and emerging industry practices. Hence, our study offers a timely, holistic view, bridging academic research and real-world applications of GenAI in business and management.

Search Strategy Design

For our bibliometric analysis, we selected the Web of Science and Scopus databases. These databases were chosen for their comprehensive coverage of scholarly articles, rigorous peer-review processes, and their widespread recognition as premier sources for academic research (Feng et al., 2017).

To ascertain the most relevant articles, our initial search strategy employed the combination of the terms "GenAI" and "business & management." This strategy was informed by an examination of existing literature reviews and alignment with the framework's guidance (Fraiwan & Khasawneh, 2023). To ensure a more exhaustive coverage, we further expanded and refined our search. The term "GenAI" was broadened to include variations such as "Generative AI" and "Generative Artificial Intelligence." Similarly, "business & management" was extended to encompass related domains like "marketing," "strategy management," and "organizational behaviour," among others. This iterative process, involving multiple searches, allowed for continuous optimization of our search query. A detailed list of the final queries employed can be found in APPENDIX. The culmination of this search strategy yielded a total of 304 articles from both databases for further analysis.

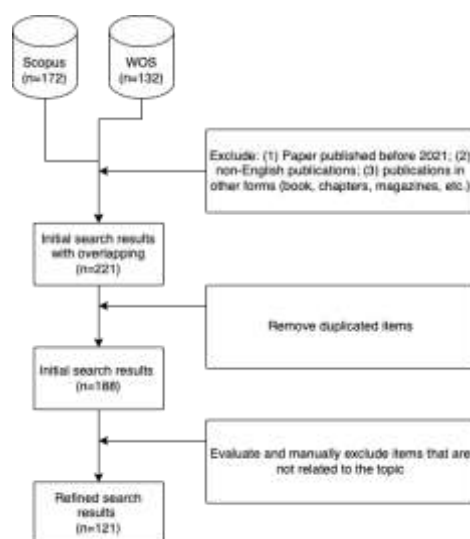


Figure 1: Procedures of the literature search and selection

Search Result Assessment

For a meticulous and comprehensive analysis, our search spanned two leading databases: Scopus, yielding 172 documents, and Web of Science (WOS), with 132 documents. To ensure the timeliness and relevance of the articles, we filtered the results to include only those published between 2021 and 2024. Prioritizing the global lingua franca of academic research, we limited our selection to articles written in English, further refining our dataset to 156 documents from Scopus and 121 from WOS. Recognizing the nascent nature of research on GenAI in business and management, and the fact that a significant chunk of the latest insights stem from conference proceedings, we decided to include both journal articles and conference papers in our dataset. Collating the results from both databases, we had a cumulative count of 221 documents. To streamline this dataset further, duplications were removed, reducing the list to 188 articles. A thorough manual review was then initiated to ensure that each article was not only relevant but also offered substantial insights into the applications of GenAI in business and management. This rigorous selection process culminated in a refined list of 121 pivotal articles for our analysis. The detailed progression of

our literature search and selection is elucidated in Figure 1. Figure 1 illustrates the number of articles published each year to identify trends over time, categorizing articles based on their primary focus within business and management (e.g., marketing, strategy, organizational behavior). This step provided a preliminary understanding of the research landscape and highlighted the most influential contributors and publications in the domain.

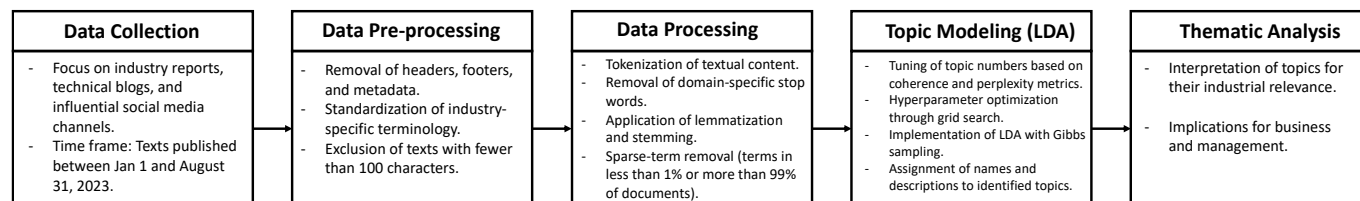


Figure 2: Procedures of text mining

Text Mining

We tailored a text mining framework to focus on tweets, industry reports, technical blogs, and influential social media channels. The data collection phase captured texts published between Jan 1 and August 31, 2023, to ensure timeliness and relevance. During the pre-processing stage, headers, footers, and metadata were removed, and industry-specific terminology was standardized. Texts with fewer than 100 characters were excluded to maintain content substance. The subsequent data processing stage involved tokenization, domain-specific stop-word removal, lemmatization, and stemming. Sparse terms—those appearing in less than 1% or more than 99% of the documents—were also eliminated. For topic modeling, Latent Dirichlet Allocation (LDA) was employed with tuned hyperparameters and Gibbs sampling (Taecharungroj, 2023). The resulting topics were then named, described, and subjected to thematic analysis to interpret their industrial relevance and implications for business and management. Furthermore, we conducted exploratory analysis and visualization by generating summary statistics and a word cloud to visually represent the frequency of words in the descriptions. Finally, we provided insights based on the word cloud and other analyses, explaining the significance and implications of the findings. This comprehensive approach provides a real-time snapshot of the state-of-the-art applications of GenAI in the targeted domain.

In-depth Bibliometric and Thematic Analysis

The final step involved a comprehensive bibliometric analysis, utilizing tools to map out citation networks and identify key clusters of research. This helped in discerning the most influential works and tracing the evolution of research themes over time. Concurrently, a thematic content analysis was performed. Articles were grouped based on recurring themes, which allowed for the identification of major research streams, emergent trends, and potential gaps in the literature. The combination of both bibliometric and thematic analyses ensured a holistic understanding of the state of research on GenAI in the realm of business and management.

RESULT & DISCUSSION

Bibliometrics Findings

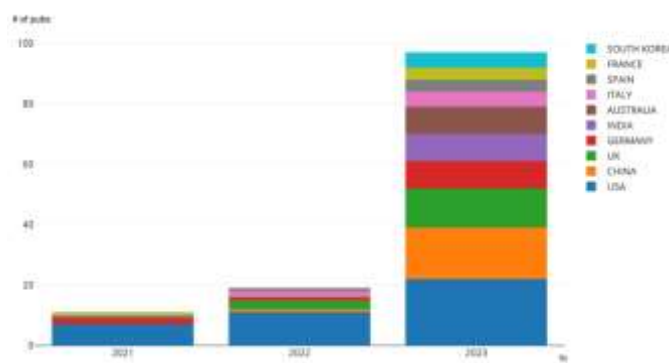


Figure 3: Number of Publications per Year (Clustered by Countries)

Publication overview and trends

Over the selected years, there was a consistent annual increase in the number of publications related to GenAI in business and management. Notably, the year 2023 witnessed a significant surge in publications, indicating heightened interest and contributions in that period (Figure 2).

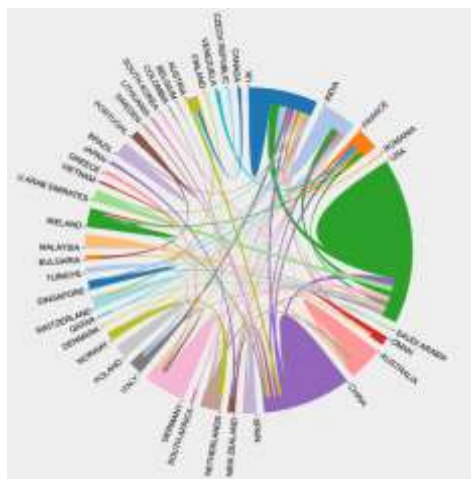


Figure 4: International Research Network

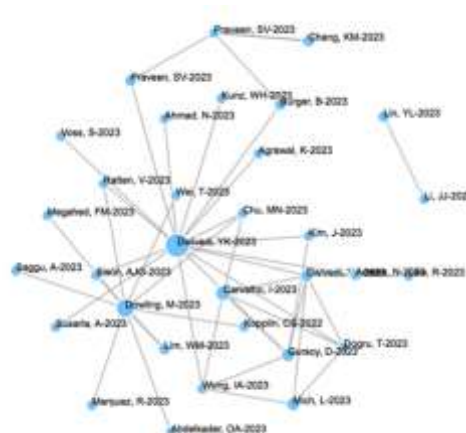


Figure 5: Co-Citation Analysis

Geographical and institutional distribution

In terms of institutional contributions, organizations from the United States emerged as the leading contributors, accounting for the highest number of publications. Institutions from China and the United Kingdom followed closely, ranking second and third, respectively. Interestingly, research institutions from 42 different countries have contributed to this domain, forming a vast and intertwined international research network (See Figure 3). This highlights the global interest and collaborative nature of research on the applications of GenAI in business and management.

Thematic content analysis

Table 1: Bibliometric Thematic Content Analysis

Theme	Topic	#
Information Systems		13
	Hospital Information Systems (HIS)	2
	Tourism Information Systems (TIS)	6
	General Management Information Systems	3
	Organizational Information Systems Performance	2
Management, Operation & Supply Chain		14
	Operations and Supply Chain Management	6
	Organizational Behavior	2
	Other	6
Marketing		44
	Personalized Customer Experience	3
	Chatbots	3

	Dynamics of Consumer Interaction	4
	Marketing Analytics	4
	Content Creation	5
	Fusion of Digital Marketing	3
	Other	22
Other Buiness & Management		50

We discerned overarching themes from the titles, keywords, and abstracts of the articles. The analysis unveils four profound potentials of Generative AI, i.e. 1) creating new interfaces for service providers and personalized experience; 2) creating new content to augment human creativity; 3) improving efficiency and productivity, and 4) enabling more new applications, business models and use in the practical business applications (Table 1).

Text Mining Findings



Figure 6: The Generative AI Application Landscape

Source: Sequoia Capital's generative AI Landscape

Industry overview and trends

GenAI, with its diverse applications, is prominently featured across a myriad of domains, underscoring its adaptability and wide-ranging utility. Our text mining analysis reveals that text and video applications are at the forefront of this technological surge, with each domain boasting representation from 29 companies (Figure 6). This trend underscores the burgeoning emphasis the industry places on content creation, manipulation, and analysis. Not far behind, audio and image applications are emerging as significant players with each domain being represented by 26 companies, highlighting the escalating importance of multimedia in the GenAI arena. Conversely, the gaming sector appears to be a more specialized niche within the GenAI industry, with a mere 5 companies staking a claim, suggesting potential avenues for future exploration and development.

Geographical and institutional distribution

In an analysis of GenAI applications across industries, distinct geographical and institutional patterns emerge. Geographically, San Francisco, California, stands out as a predominant hub, hosting a significant number of GenAI applications. This is followed by other prominent cities like New York, London, Tel Aviv, and Berlin, emphasizing the global dispersion of GenAI innovations. Institutionally, Y Combinator emerges as the foremost supporter of GenAI ventures, funding a substantial number

of applications. Other notable institutions, such as Techstars and Tiger Global Management, also play pivotal roles in fostering the growth of GenAI applications.

Thematic content analysis

Table 2: Text Mining Analysis

Topics	Representative Words	Shortened Detailed Description	Relevant Industry Involved	Relevant Business Field
Virtual Assistants	virtual, assistants, automate, customer, support, handling, inquiries, completing, transactions	Automate customer support and inquiries.	IT, E-commerce, Retail, Hospitality	IS (e.g. HCI), Marketing (e.g. CRM), Management (e.g. Service Operations, Organization Behavior)
Recommendation Systems	recommendation, systems, analyze, user, data, offer, personalized, recommendations, products, services	Personalize product and service recommendations.	E-commerce, Media, Entertainment	IS, Marketing
Data Augmentation	data, augmentation, generate, synthetic, data, augment, existing, datasets, improving, machine, learning, models	Enhance ML datasets with synthetic data.	IT, Healthcare, Automotive, Research	IS, Marketing, Management
Fraud Detection	fraud, detection, analyze, data, patterns, identify, flag, suspicious, activities, mitigating, financial, risk	Identify suspicious activities, mitigate risk.	Banking, E-commerce, Insurance	IS, Finance, Auditing
Financial Forecasting	financial, forecasting, ai, predictive, analysis, market, trends, aiding, strategic, decision, making	Aid in market trend prediction and decision-making.	Banking, Stock Market, Investment Firms	Finance, IS
Content Generation	content, generation, automate, creation, various, content, types, articles, blog, posts, social, media	Automate creation of articles, social media.	Media, Advertising, E-commerce	IS, Marketing
Creative Design	creative, design, assist, generating, graphic, designs, logos, product, packaging	Assist in graphic design and branding.	Advertising, Media, E-commerce, Retail	Marketing, IS
Image/Video Synthesis	image, video, synthesis, create, realistic, images, videos, advertising, entertainment, purposes	Create visuals for advertising and entertainment.	Entertainment, Advertising, E-commerce	Marketing, IS
Virtual Try-On	virtual, try, augmented, reality, enable, virtual, trials, fashion, beauty, products, e, commerce	Enable virtual trials via augmented reality.	E-commerce, Fashion, Beauty	Marketing, IS
Supply Chain Optimization	supply, chain, optimization, analyze, optimize, production, inventory, logistics, improve, efficiency, reduce, costs	Improve production and logistics efficiency.	Manufacturing, E-commerce, Retail, Logistics	IS, Operations Management and Supply Chain,
Language Translation	language, translation, facilitate, cross, language, communication, through, translation, natural, language, processing	Facilitate global communication via NLP.	E-commerce, Media, International Business	Marketing
Game Development	game, development, generate, game, assets, non, player, characters, enhanced, gaming, experiences	Generate assets and characters for games.	Entertainment, Gaming Industry	Marketing, IS
Drug Development	drug, development, accelerate, discovery, development, process, pharmaceuticals	Accelerate pharmaceutical research and discovery.	Healthcare, Pharmaceuticals, Biotechnology	Marketing, IS, Economics

Music Composition	music, composition, generate, original, musical, compositions, background, music, various, applications	Create original compositions and background music.	Entertainment, Advertising, Media	Marketing, Law
Healthcare Diagnosis	healthcare, diagnosis, assist, analyzing, medical, images, x, rays, mris, accurate, disease, diagnosis	Assist in medical imaging for disease diagnosis.	Healthcare, Medical Devices, Hospitals	IS, Marketing, Management

Utilizing Latent Dirichlet Allocation (LDA) and extracting the key points from our text mining analysis results, we present an overview of GenAI applications across various industries and their corresponding business fields (Table 2). Key topics include Virtual Assistants, Recommendation Systems, Data Augmentation, and Fraud Detection, among others. These applications span a broad range of sectors, from IT and E-commerce to Healthcare and Entertainment. Each topic is accompanied by representative words and a brief description of its function. In the following sections, we will elaborate on the findings of the roles of GenAI in various research contexts and industrial applications in each of the three research fields, i.e. information systems, marketing, and management.

Synthesized Analysis by Topics Information Systems

Academia Findings (Literature Insights):

Information systems, at its core, revolve around the effective collection, organization, and dissemination of information to facilitate decision-making and streamline operations. In recent years, the infusion of GenAI into various information systems has catalyzed a transformative shift, offering both unprecedented opportunities and intricate challenges. Within the theme of information systems, our analysis unveils three pertinent examples in the application of GenAI: Hospital Information Systems, Tourism Information Systems, and General Management Information Systems.

(1) *Hospital Information Systems (HIS)*: The integration of AI, and particularly models like ChatGPT, into healthcare communication, presents a paradigm shift. A recent paper delves into the potential of ChatGPT to enhance communication within healthcare settings, catering to both patients and healthcare professionals. By providing real-time, accurate, and personalized information, such AI models can address the prevailing challenges of healthcare communication (Cheng et al., 2023; Praveen & Vajrobol, 2023; Santandreu-Calonge et al., 2023). However, a salient point made by the authors is the need for prudence. While AI's potential is undeniable, it cannot and should not eclipse the role of human healthcare providers. Researchers posit that AI's true potential in healthcare might be realized when used in tandem with other AI tools, offering more nuanced and tailored responses (Santandreu-Calonge et al., 2023). For practitioners, the underpinning implication is clear: while ChatGPT and similar tools can augment patient care and communication, an over-reliance or misplaced trust could be counterproductive.

(2) *Tourism Information Systems (TIS)*: The hospitality and tourism sector, characterized by its dynamic and customer-centric nature, stands to gain immensely from GenAI. Research in this area underscores the transformative potential of ChatGPT within this industry (Dogru et al., 2023; Dwivedi et al., 2023; Law et al., 2023; Tuomi, 2023). However, as with any technological integration, challenges loom large, be it from the standpoint of businesses, customers, or regulatory bodies. This study serves as a beacon for those in the hospitality sector keen on integrating tools like ChatGPT. While the potential benefits are manifold, ranging from enhanced customer service to more streamlined operations, the pitfalls, particularly during the service delivery phase, warrant attention. For businesses, the key takeaway is twofold: the integration of GenAI can be a game-changer, but it necessitates a holistic understanding and upskilling of personnel to harness its full potential.

(3) *General Management Information Systems*: Management, in its multifaceted roles from strategy formulation to functional oversight, is witnessing a silent revolution with the advent of GenAI. Korzynski et al. (2023) extrapolates the implications of tools like ChatGPT across various managerial layers. Whether it's strategic decision-making, knowledge management, or even more granular administrative tasks, GenAI looms as a pivotal influencer. This paper not only expands the discourse on GenAI's role in management but also accentuates the need for empirical studies to discern its tangible impacts. For those at the helm of organizations, the insights from this study are invaluable. GenAI, in all its promises, beckons a recalibration of traditional management practices, offering a blend of efficiency and innovation.

(4) *Organizational Information Systems Performance*: The empirical study by Chu (2023) on the influence of ChatGPT on organizational performance offers a quantitative lens to gauge the technology's efficacy. Drawing from the DeLone and McLean's Information Systems Success model, the research highlights the quality dimensions of ChatGPT that drive user satisfaction and, by extension, organizational performance. Service quality emerges as a key driver, underscoring the importance of effective AI-human interactions. For businesses, this study offers a blueprint for leveraging ChatGPT to drive both user satisfaction and organizational growth. It also carved a niche in the academic landscape by quantitatively exploring the interplay between user satisfaction, ChatGPT, and performance.

Industry Findings (Text Mining Insights):

In the evolving landscape of information systems, GenAI's integration with predictive analytics, particularly in sectors like healthcare and social networks, presents novel research prospects. This amalgamation underscores GenAI's transformative potential across various information system domains. For instance, in the realm of virtual assistants, GenAI is streamlining the automation of customer support by adeptly handling inquiries and facilitating transactions. Simultaneously, recommendation systems, enhanced by GenAI, are now more adept at analyzing user data to furnish tailored product and service suggestions. Furthermore, GenAI's prowess in data augmentation is evident as it can ingeniously produce synthetic data, thereby enriching existing datasets and bolstering machine learning results. In the domain of fraud detection, the analytical capabilities of GenAI come to the fore, discerning data patterns to pinpoint and counteract suspicious activities, which plays a pivotal role in financial risk mitigation. Moreover, the fusion of AI and predictive analysis under the banner of GenAI is reshaping financial forecasting, offering invaluable insights into market trends and aiding in judicious decision-making. Yet, as the adoption of GenAI tools gains momentum, the information systems community is confronted with challenges, namely addressing inherent biases, assuring transparency, and grappling with the ethical implications from a decidedly human-centric standpoint. Consequently, there's a burgeoning call within the academic community for a comprehensive longitudinal study to gauge GenAI's sustained impact on information systems, aiming to elucidate both its merits and potential challenges.

Management, Operation & Supply Chain

Academia Findings (Literature Insights):

The domain of Management, Operation, and Supply Chain sits at the crossroads of efficiency, strategy, and optimal resource allocation. With the advent of GenAI, especially tools like ChatGPT, there's an unfolding narrative that delves deep into the potential shifts, advantages, and complexities that such technologies bring. Diving into this theme, our discussion spans two primary topics: Operations and Supply Chain Management, and Organizational Behavior.

(1) Operations and Supply Chain Management:

Emerging technologies like GenAI and ChatGPT are rapidly reshaping the contours of operations and supply chain management. A recent exploration by Fosso Wamba et al. (2023) in this realm sourced insights from practitioners in the UK and USA to discern the tangible benefits, prevailing challenges, and emergent trends that these technologies promise. The findings underscore a paramount advantage: efficiency. Both those who have embraced and those who are yet to adopt GenAI/ChatGPT in operations and supply chain management tout increased efficiency as a critical benefit. Yet, the path isn't devoid of hurdles, with concerns around security, inherent risks, and ethical implications taking center stage. Other study (Chowdhury M. et al., 2023; Frederico G.F., 2023) also reveal that GenAI/ChatGPT can catalyze a shift towards a learning culture centered on efficiency, fostering lifelong learning and knowledge sharing. For businesses, the message is clear: while GenAI can redefine collaboration and communication within the supply chain, enhancing both efficiency and flexibility, it's imperative to be cognizant of and mitigate the associated risks.

(2) Organizational Behavior:

The impact of AI on organizational behavior is profound. A systematic review (Bankins et al., 2023) pinpoints key themes that emerge with AI integration: the dynamics of human-AI collaboration, shifting perceptions of algorithmic capabilities, evolving worker attitudes towards AI, and the broader labor implications. For businesses, the study offers critical takeaways: the importance of transparency in AI integration, the need for open communication channels, and the imperative of aligning AI systems with overarching organizational objectives.

Industry Findings (Text Mining Insights):

In the ever-evolving domain of management, operations, and supply chain, GenAI is emerging as a vital research vector, offering profound insights and transformative possibilities. A pivotal area of interest is the potential metamorphosis of managerial practices propelled by the harmony between AI and human interaction. There's an evident inclination towards harnessing GenAI for risk management, emphasizing the potency of AI-human collaboration in charting out robust risk mitigation strategies. This is further bolstered by the significant strides made in supply chain optimization. Through GenAI, there's an enhanced capability to meticulously analyze and optimize facets of production, inventory, and logistics, driving both operational efficiency and cost reduction.

Moreover, a contemporary focus rests on integrating AI to amplify supply chain transparency. This not only facilitates ethical sourcing, ensuring that supply chains are devoid of malpractices but also accentuates the importance of aligning technology seamlessly with human-centric needs and values. While the aforementioned delve deep into operations and supply chain, it's noteworthy that GenAI's influence transcends these realms. For instance, in the broader spectrum of business management, GenAI is facilitating cross-language communication through advanced natural language processing, enabling organizations to communicate and operate globally with ease.

Marketing

Academia Findings (Literature Insights):

GenAI's profound influence in the marketing domain underscores the trend towards interdisciplinary collaboration, particularly with social sciences like sociology and psychology. As articulated by Davenport et al.(2020), the fusion of AI with marketing fosters a holistic understanding of consumer behavior, refining marketing strategies and contributing richly to the discipline. Within this theme, two sub-categories emerge: Marketing, i.e. Internal Marketing Transformation, emphasizes how businesses

employ GenAI to transform their internal marketing strategies, workflows, and decision-making processes. Customer Experience focuses on applications that augment the consumer experience, leveraging GenAI to provide more tailored services and products. These advancements not only redefine the interactive touchpoints between businesses and consumers but also underscore the nuances of personalization, automation, and engagement.

(1) *Marketing Analytics*: Haluza and Jungwirth (2023) spotlighted the potential of GenAI models like GPT-3 in offering lucid insights into intricate societal megatrends. These AI models are adept at generating innovative solutions to global challenges. However, alongside their capabilities, there's an impending need for a rigorous ethical discourse, especially when these models are deployed for scientific research paper generation.

(2) *Content Creation*: A pivotal aspect of modern marketing is content creation. Taecharungroj (2023) emphasizes the transformative potential of ChatGPT in this realm. By harnessing the capabilities of ChatGPT, marketers can craft content that not only engages but deeply resonates with their target demographics. The implication is a more profound engagement, leading to potentially higher conversion rates.

(3) *Fusion of Digital Marketing*: Delving into the confluence of ChatGPT and digital marketing, investigates the multifaceted impact of this technology on customer experience. The findings underscore a generally positive influence of ChatGPT on customer experience. However, this effect isn't universal; it is modulated by factors like business type, technological familiarity, demographic variables like age and gender, and educational background (Fosso Wamba S. et al., 2023). Such findings have significant ramifications for businesses. While the incorporation of ChatGPT in digital marketing endeavors is promising, there's an imperative to understand and cater to the diverse profiles of their consumers. Tailoring the ChatGPT experience based on these moderating factors can be the linchpin in optimizing customer experience in the digital realm.

(4) *Personalized Customer Experience*: The allure of personalized shopping experiences, bolstered by tools like ChatGPT, is undeniable. Konya-Baumbach et al., (2023) delve deep into this domain, elucidating the profound impact of anthropomorphic chatbots on various facets of the shopping experience. From engendering trust and intent to purchase to fostering word-of-mouth recommendations, these chatbots have showcased significant efficacy. Interestingly, their effectiveness is not monolithic but varies based on the shopping context. Hedonic scenarios, for instance, witness a more pronounced positive effect. For businesses in the retail sector, the insights from this study are invaluable. While anthropomorphic chatbots can undoubtedly enhance the shopping experience, understanding the context and tailoring interactions accordingly can amplify their impact manifold.

(5) *Chatbots*: Exploring the domain of AI-powered chatbots, Adam et al. (2021) underscores their influence on user compliance within customer service contexts. Building on foundational research surrounding Computer-Assisted Systems (CAS) and their embodied variants, the study posits that even disembodied entities can foster a sense of social presence and induce user compliance via verbal cues. A salient insight from this research is the pivotal role of anthropomorphic design cues, such as identity and empathy, in enhancing compliance with chatbot-driven requests. Moreover, the study offers a contrarian viewpoint, suggesting that masquerading chatbots as humans might neither be necessary nor desirable. For businesses contemplating the deployment of AI-based chatbots in customer self-service, the key takeaway is twofold: transparency in revealing the non-human nature of the interlocutor and the strategic infusion of anthropomorphism to enhance human likeness.

(6) *Dynamics of Consumer Interaction*: In a comprehensive exploration, Paul et al. (2023) dissect the intricate relationship between AI-driven tools and consumer behavior, with a focus on the broader implications for marketing strategies. Their research underscores the multifaceted benefits of integrating ChatGPT in marketing—ranging from enhanced consumer engagement, and incisive insights into consumer behavior, to personalization. However, it's equally imperative to acknowledge the attendant challenges. Issues of bias, potential misinformation, and overarching ethical considerations emerge as areas of concern. As businesses increasingly lean on AI tools, understanding these dynamics becomes crucial not just from an engagement perspective but also for maintaining ethical transparency and trustworthiness.

Industry Findings (Text Mining Insights):

In the modern marketing domain, GenAI emerges as a formidable force, offering expansive research horizons particularly in the customization of content tailored for distinct user demographics. One of the most profound applications is in content generation, where GenAI is automating the creation process, spanning from articles to social media content. This automation is further accentuated in the realm of creative design, as GenAI assists in churning out graphic designs, logos, and even intricate product packaging, elevating the branding experience. Beyond static content, the arena of image and video synthesis witnesses GenAI's capability to craft realistic visuals, serving both advertising and entertainment sectors. An exciting frontier is the incorporation of GenAI in 'virtual try-on' systems, leveraging augmented reality to provide users with immersive experiences as they virtually trial fashion and beauty products, a boon for e-commerce platforms.

However, the widespread deployment of GenAI in marketing brings forth intricate challenges. A significant apprehension lies in GenAI's influence on consumer trust, questioning the authenticity of AI-generated content. Hence, there is a pressing need to harmonize GenAI's capabilities with human decision-making and emotional engagement, ensuring that ethical considerations aren't overshadowed. It's pivotal to strike a balance between AI-driven analytics and human oversight, ensuring that the enhanced customer experience doesn't come at the cost of genuine human interaction. The increasingly human-like demeanor of AI chatbots, integral for user adherence, warrants meticulous research. Identifying the optimal degree of "human-likeness" can

redefine AI-user dynamics across sectors. Additionally, the cultural dimensions of AI reception, coupled with the ethical intricacies of hyper-personalization and the mandate to disclose AI's involvement, underscore areas ripe for exploration.

Summary

By combining insights from both academia and industry, we aim to provide a comprehensive understanding of the research imperatives that can address the evolving challenges and opportunities in the deployment of Generative AI across business and management domains.

In the field of Information Systems, the intersection of Generative AI with existing AI systems such as predictive analytics offers a rich research avenue. As GenAI begins to reshape the contours of healthcare communication and social network information flow, an imperative arises to study its synergetic integration with tools like predictive analytics. Such research could unveil comprehensive solutions that amplify the benefits of each individual system. However, the current literature may not fully address how these theoretical ethical considerations manifest in tangible business outcomes. Concurrently, the ethical dimensions of GenAI in these sensitive sectors warrant rigorous academic scrutiny. A human-centered approach to GenAI's ethical considerations, biases, and transparency requirements is a pressing academic priority. Furthermore, there's a distinct gap in studying the real-world implementation of AI-human collaboration and its challenges. Moreover, a longitudinal perspective, assessing the long-term efficacy and efficiency of GenAI in information systems, would provide invaluable insights into its sustained impact.

In the field of Management, Operation & Supply Chain, the transformative potential of GenAI in operations and supply chain management presents a plethora of research opportunities. Prioritizing research on risk mitigation strategies, particularly those that combine AI's capabilities with human expertise, is paramount. Investigating the equilibrium of human-manager collaboration in AI-augmented settings could redefine managerial practices. The nuances and complexities introduced by GenAI have led to a notable gap: the study of practical consumer engagement through AI in real-world industry settings. In the management echelon, the dynamics of human-manager collaboration with AI tools are ripe for exploration. Unraveling this balance, which ensures decision-making efficiency while retaining the indispensable human touch, could redefine managerial paradigms. Furthermore, as GenAI enhances supply chain transparency, scholarly inquiry should extend to traceability and ethical sourcing, always considering how technology can best serve human values and needs.

In the field of Marketing, GenAI's foray into marketing introduces a myriad of research possibilities. A prime area of focus is the AI's capability to craft hyper-personalized marketing content tailored to individual user personas. Yet, the degree of perceived "human-likeness" and how this perception varies across sectors and cultural contexts remains underexplored. As GenAI systems become more entrenched in marketing, understanding their nuanced impact on consumer trust, especially concerning perceived authenticity, emerges as a research imperative. Moreover, given the expanding role of GenAI in digital marketing, content creation, and marketing analytics, future research could beneficially explore how these technologies can be designed to respect and enhance human decision-making and emotional engagement. With the global reach of businesses, investigating the cultural dynamics influencing AI reception becomes essential. This would involve understanding how GenAI can be optimally leveraged in these digital landscapes to provide genuinely useful insights and solutions, without compromising ethical norms or human-centric values. Special emphasis should be given to the role of human oversight in interpreting and acting upon the insights generated by AI in marketing analytics. Moreover, the realm of customer experience, enriched by GenAI, beckons a multifaceted and human-centric research approach. The anthropomorphic attributes of AI chatbots, given their significance in user compliance, present a compelling avenue for investigation. Understanding the optimal level of human-likeness across different sectors could redefine AI-customer interactions. Additionally, as personalization pushes boundaries, the ethical dimensions of extreme customization, coupled with the obligation to clearly signal AI's involvement, require deeper exploration.

CONCLUSION

The advent of Generative AI (GenAI) heralds a new era in the business domain, bringing forth transformative potential across a spectrum of sectors ranging from information systems, to supply chain operations and marketing. Our comprehensive study, grounded in bibliometric analysis, critically appraises academic discourse surrounding GenAI in business and management. Concurrently, utilizing text mining techniques, we delve into cutting-edge industrial applications of GenAI. By synthesizing these twin perspectives, we aim to identify gaps between practical applications and scholarly investigations in the field, revealed salient power of GenAI.

First, creating new interfaces and personalizing experiences: AI has the capability to create new interfaces for service providers, transforming the way users interact with businesses. For example, chatbots and virtual assistants powered by AI can offer personalized and conversational experiences, addressing user queries, providing recommendations, and guiding customers through various processes. These interfaces can be available 24/7, enhancing customer engagement and satisfaction. There is a notable shift towards employing GenAI for enhancing customer experience and streamlining operations. The role of anthropomorphic attributes in GenAI chatbots, for instance, has been underscored for its potential in augmenting user compliance and deepening engagement (Adam et al., 2021; Atlas, 2023; Konya-Baumbach et al., 2023). Second, generating new content and augmenting Human Creativity: GenAI algorithms can generate new and original content across various domains. They can create articles, stories, artwork, music, even movies based on given inputs or patterns. By augmenting human creativity, GenAI empowers content creators and artists to explore new possibilities, generate ideas, and produce high-quality content more efficiently. This collaboration between GenAI and human creativity can result in unique and captivating content experiences.

Third, improving efficiency and productivity: GenAI technologies, such as machine learning and automation, significantly improve efficiency and productivity in various business processes. GenAI-powered systems can improve themselves continuously to automate repetitive tasks, data analysis, and decision-making processes, allowing employees to focus on more complex and strategic activities. This leads to time savings, reduction in human errors, and increased overall productivity in industries ranging from manufacturing and logistics to customer service and data analysis. Specifically, the integration of GenAI in the supply chain and operations sectors underscores efficiency as a paramount benefit, albeit with a set of unique challenges including security concerns and ethical implications. Last but not least, enabling new applications and uses: The versatility of GenAI allows businesses to explore innovative solutions and uncover new opportunities for growth and development. GenAI opens doors to new applications and uses that were previously unimaginable, e.g., personalized marketing strategies. The infusion of GenAI in marketing demonstrates its potential to refine strategies by offering a deeper understanding of consumer behavior, opening avenues for hyper-personalized content creation and innovative solutions to global challenges.

This study contributes to the IS literature by leveraging a two-pronged approach: text mining to scrutinize existing business applications and a bibliometric review to assess the current academic investigations on GenAI. We identify new research opportunities by investigating the gap between real-world GenAI applications in business and management and the extant IS/Business research, thereby identifying novel research contexts and perspectives for future investigations.

Nevertheless, the study has certain limitations. Due to the nascent nature of the research area, there was a scarcity of literature available for scrutiny, potentially overlooking emergent themes or subtle insights. It's crucial to highlight that our data was primarily drawn from Scopus and Web of Science. In subsequent research, we plan to diversify our sources by integrating data from databases such as EBSCO and Google Scholar, aiming for a more expansive and holistic view. Yet, in light of these constraints, the knowledge gleaned from this investigation is of paramount importance. The necessity to comprehend the progression and present status of research on GenAI in the business sphere is undeniable. As global businesses attempt to adapt to an ever-changing technological frontier, understanding the transformative potential and hurdles presented by GenAI becomes vital in steering through this uncharted territory.

In conclusion, as GenAI tools like ChatGPT continue to push the boundaries of what's possible in the business sector, it becomes imperative for scholars and industry practitioners alike to maintain a rigorous engagement with these technological advancements. The harmonization of business strategies with advanced AI technologies not only amplifies existing paradigms but also delineates new trajectories for innovation. This study serves as a preliminary roadmap for navigating this complex, evolving landscape, highlighting areas that warrant immediate scholarly attention.

REFERENCES

- Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, 31(2), 427–445. <https://doi.org/10.1007/s12525-020-00414-7>
- Atlas, S. (2023). *ChatGPT for Higher Education and Professional Development: A Guide to Conversational AI*.
- Bankins, S., Ocampo, A., Marrone, M., Restubog, S., & Woo, S. (2023). A multilevel review of artificial intelligence in organizations: Implications for organizational behavior research and practice. *JOURNAL OF ORGANIZATIONAL BEHAVIOR*. <https://doi.org/10.1002/job.2735>
- Cheng, K., Li, Z., He, Y., Guo, Q., Lu, Y., Gu, S., & Wu, H. (2023). Potential Use of Artificial Intelligence in Infectious Disease: Take ChatGPT as an Example. *ANNALS OF BIOMEDICAL ENGINEERING*. <https://doi.org/10.1007/s10439-023-03203-3>
- Chowdhury M., Rifat N., Latif S., Ahsan M., Rahman M.S., & Gomes R. (2023). ChatGPT: The Curious Case of Attack Vectors' Supply Chain Management Improvement. *IEEE International Conference on Electro Information Technology*. <https://doi.org/10.1109/eIT57321.2023.10187385>
- Chu, M.-N. (2023). Assessing the Benefits of ChatGPT for Business: An Empirical Study on Organizational Performance. *IEEE Access*, 11, 76427–76436. <https://doi.org/10.1109/ACCESS.2023.3297447>
- Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42. <https://doi.org/10.1007/s11747-019-00696-0>
- Deveau, R., Griffin, S. J., & Reis, S. (2023). *AI-powered marketing and sales reach new heights with generative AI*. McKinsey & Company.
- Dogru, T., Line, N., Mody, M., Hanks, L., Abbott, J., Acikgoz, F., Assaf, A., Bakir, S., Berbekova, A., Bilgihan, A., Dalton, A., Erkmén, E., Geronasso, M., Gomez, D., Graves, S., Iskender, A., Ivanov, S., Kizildag, M., Lee, M., ... Zhang, T. (2023). Generative Artificial Intelligence in the Hospitality and Tourism Industry: Developing a Framework for Future Research. *Journal of Hospitality & Tourism Research*. <https://doi.org/10.1177/10963480231188663>
- Dwivedi, Y. K., Pandey, N., Currie, W., & Micu, A. (2023). Leveraging ChatGPT and other generative artificial intelligence (AI)-based applications in the hospitality and tourism industry: Practices, challenges and research agenda. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-05-2023-0686>
- Feng, Y., Zhu, Q., & Lai, K.-H. (2017). Corporate social responsibility for supply chain management: A literature review and bibliometric analysis. *Journal of Cleaner Production*, 158, 296–307. <https://doi.org/10.1016/j.jclepro.2017.05.018>

- Fosso Wamba S., Queiroz M.M., Chiappetta Jabbour C.J., & Shi C.V. (2023). Are both generative AI and ChatGPT game changers for 21st-Century operations and supply chain excellence? *International Journal of Production Economics*. <https://doi.org/10.1016/j.ijpe.2023.109015>
- Fraiwan, M., & Khasawneh, N. (2023). *A Review of ChatGPT Applications in Education, Marketing, Software Engineering, and Healthcare: Benefits, Drawbacks, and Research Directions*.
- Frederico G.F. (2023). ChatGPT in Supply Chains: Initial Evidence of Applications and Potential Research Agenda. *Logistics*. <https://doi.org/10.3390/logistics7020026>
- Groos, O. V., & Pritchard, A. (1969). DOCUMENTATION NOTES. *Journal of Documentation*, 25(4), 344–349. <https://doi.org/10.1108/eb026482>
- Haluza, D., & Jungwirth, D. (2023). Artificial Intelligence and Ten Societal Megatrends: An Exploratory Study Using GPT-3. *Systems*, 11(3), 120. <https://doi.org/10.3390/systems11030120>
- Konya-Baumbach, E., Biller, M., & Von Janda, S. (2023). Someone out there? A study on the social presence of anthropomorphized chatbots. *Computers in Human Behavior*, 139, 107513. <https://doi.org/10.1016/j.chb.2022.107513>
- Korzynski, P., Mazurek, G., Altmann, A., Ejdy, J., Kazlauskaitė, R., Paliszkievicz, J., Wach, K., & Ziemba, E. (2023). Generative artificial intelligence as a new context for management theories: Analysis of ChatGPT. *Central European Management Journal*, 31(1), 3–13. <https://doi.org/10.1108/CEMJ-02-2023-0091>
- Law, R., Lin, K., Ye, H., & Fong, D. (2023). Artificial intelligence research in hospitality: A state-of-the-art review and future directions. *International Journal of Contemporary Hospitality Management*. <https://doi.org/10.1108/IJCHM-02-2023-0189>
- Paul, J., Ueno, A., & Dennis, C. (2023). ChatGPT and consumers: Benefits, Pitfalls and Future Research Agenda. *International Journal of Consumer Studies*, 47(4), 1213–1225. <https://doi.org/10.1111/ijcs.12928>
- Praveen, S., & Vajrobol, V. (2023). Can ChatGPT be Trusted for Consulting? Uncovering Doctor's Perceptions Using Deep Learning Techniques. *Annals of Biomedical Engineering*. <https://doi.org/10.1007/s10439-023-03245-7>
- Ratajczak, D., Kropp, M., Palumbo, S., de Bellefonds, N., Apotheker, J., & Paizanis, G. (2023). *How CMOs Are Succeeding with Generative AI*. Boston Consulting Group.
- Santandreu-Calonge, D., Medina-Aguerreberre, P., Hultberg, P., & Shah, M. (2023). Can ChatGPT improve communication in hospitals? *Profesional de la Informacion*. <https://doi.org/10.3145/epi.2023.mar.19>
- Taecharungroj, V. (2023). “What Can ChatGPT Do?” Analyzing Early Reactions to the Innovative AI Chatbot on Twitter. *Big Data and Cognitive Computing*, 7(1), 35. <https://doi.org/10.3390/bdcc7010035>
- Tuomi, A. (2023). AI-Generated Content, Creative Freelance Work and Hospitality and Tourism Marketing. *Information And Communication Technologies in Tourism 2023*, 323-328. https://doi.org/10.1007/978-3-031-25752-0_35
- Van Dis, E. A. M., Bollen, J., Zuidema, W., Van Rooij, R., & Bockting, C. L. (2023). ChatGPT: Five priorities for research. *Nature*, 614(7947), 224–226. <https://doi.org/10.1038/d41586-023-00288-7>

APPENDIX: Query for Literature Search

("Generative AI" OR "Generative Artificial Intelligence" OR "ChatGPT" OR "OpenAI") AND ("Marketing" OR "Consumer" OR "Advertising" OR "Strategic management" OR "Organizational behavior" OR "Operations management" OR "Information systems" OR "Business" OR "Digital transformation" OR "Human resources" OR "Employee engagement" OR "Recruitment" OR "Talent management" OR "Finance" OR "Risk management" OR "Investments" OR "Supply chain" OR "Logistics" OR "Inventory management" OR "Entrepreneurship")