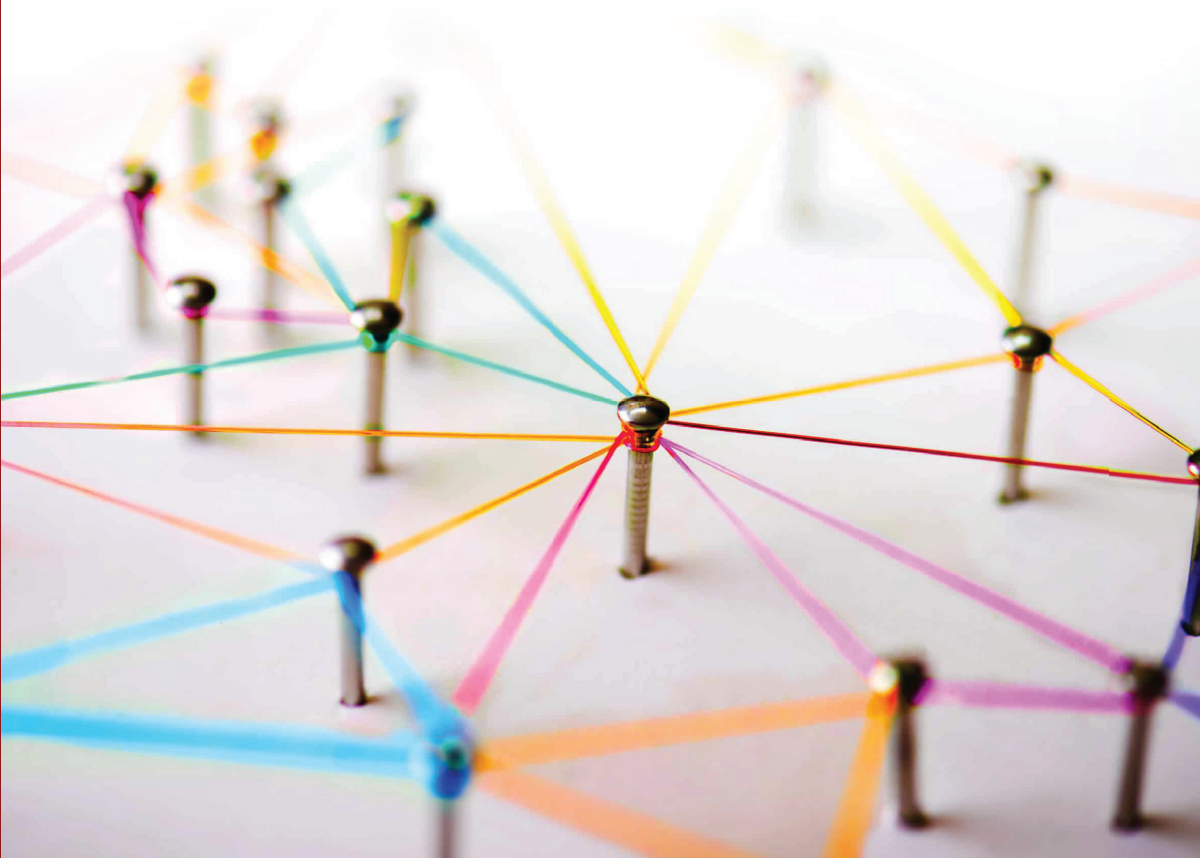


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## About the Journal

*BIMTECH Business Perspectives* is a scholarly Open Access journal of Birla Institute of Management Technology, India. The journal publishes original contribution in the functional areas of business management (see Aims and Scope). Furthermore, the journal is a platform for interdisciplinary studies that provide both empirical evidence and nuanced perspectives on business management in the national, regional, and global contexts. The contexts include, but not limited to, the contemporary economic, political, social, technological, and environmental challenges facing business stakeholders.

The journal brings out two issues per year, and it follows a double-anonymized peer-review process. All contributions should be well written in English. Submission to the journal should be relevant to one or more business and allied disciplines and backed by suitable methodology, sound analysis, practical perspectives, and managerial or policy implications.

To this end, *BIMTECH Business Perspectives* invites contributions from both the academic community and business practitioners. The journal publishes and disseminates original articles, review essays, perspectives, book reviews, interviews and invited pieces. Special theme-focused and/or guest-edited issues are also planned.

## Aims and Scope

The objectives of *BIMTECH Business Perspectives*, the journal, are to encourage and publish research in the field of business management. The terms business and management are both broadly defined. While the former encompasses both discipline and business problem-based research, the latter includes the management of firms, groups, industries, regulatory bodies, government, and other institutions. The journal has a special focus on emerging and functional areas of business management. Consistent with the policy, the journal publishes peer-reviewed research in financial markets, emerging economies, entrepreneurship and start-ups, emerging technology and innovation in business functions, consumer behaviour, human behaviour in management decisions, risk management, supply chain management, business strategy, and other domains having a direct or indirect bearing on business management. The journal encourages both quantitative and qualitative research methods to unearth relevant findings. The journal aims to nurture a debate among individuals and groups, which have keen interest in business and managerial processes. The journal encourages inter-disciplinary studies that may lead to new understanding of business and management functions. The journal welcomes research papers examining dynamics of business management in the backdrop of changes in the global business environment. The journal serves as a platform that connects thought-leaders and researchers from diverse fields to address crucial business and management issues. Published twice a year (June and December), *BIMTECH Business Perspectives* is an official publication of Birla Institute of Management Technology (BIMTECH), Greater Noida, India. The journal has been publishing in its current form since 2019. Prior to 2019, the journal was known as *Business Perspectives*, which had a publication history of more than a decade.

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# Message from Editor

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We are pleased to bring out the Volume 5, Issue 1 (June 2024) of *BIMTECH Business Perspectives* in partnership with Sage India under the Spectrum program. With the support of authors, reviewers, and readers, the journal has reached the fifth year of its journey. The journey so far has put a significant imprint on business and management research. The journal's viewership, downloads, and citation have also grown as expected.

This journal follows the open access model of publication that facilitates wider access to the research work published by authors. Furthermore, authors do not have to pay submission or open access fee for publishing in this journal. At a time when there are several critiques of the pay-to-publish model, our journal provides a trusted platform where research work can be published and shared globally without barriers.

In terms of research focus, we encourage original research involving emerging and functional areas of business management including, but not limited to, financial markets, emerging economies, entrepreneurship and start-ups, emerging technology and innovation in business functions, consumer behavior, human behavior in management decisions, risk management, supply chain management, and business strategy. While both quantitative and qualitative research methods are encouraged, we are open to studies that embrace new and evolving methodologies whether quantitative, qualitative, or mixed.

We are committed to timely review and publication of manuscripts submitted to the journal. Manuscripts submitted to the journal are sent for review after initial screening within one week of submission. Our endeavor is to provide authors with the first round of review comments within six to eight weeks' time. Subsequent reviews, wherever required, are done in a time-bound manner. A final decision on the submitted manuscript is expected within six months.

This issue of *BIMTECH Business Perspectives* carries five research papers. These research papers are as follows:

- (a) "Gamification in Digital Marketing: Proposing a Theoretical Framework Based on Uses and Gamifications Theory",
- (b) "Demystifying the Research Trend of Content Marketing: A Co-authorship and Co-occurrence Analysis",
- (c) "Workplace Ostracism and Turnover Intention in Organizations: A Meta-analytic Review",
- (d) "Determinants of Private Infrastructure Investment in India: A Post-liberalization Analysis", and
- (e) "Green Finance Initiatives to Improve Green Banking Practices in India."

These papers provide insightful and relevant finding that can be of use in the business management and economic policy domains.

Looking back, research articles on a variety of issues were published in the past four volumes. Some of these topics include valuation, capital structure decisions, currency market and its interactions, trade and economic performance, entrepreneurship issues, consumer brand identification, consumer behavior, impact of job burnout, green human resource management, impulse and revenge buying behavior, consumer attitude towards green products, tourism, brand attachment, brand equity, volatility of banking sector, governance and business ethics, among others. With every successive issue, our endeavor is to serve the research fraternity better and contribute to knowledge creation in the identified discipline and the associated functional and cross-functional areas.

We would like to place on record our gratitude to Director BIMTECH, our publication partner Sage India, and the editorial board members from diverse fields for providing direction and guidance for the growth and development of the journal. We also thank the authors who have entrusted their faith in the journal from different parts of the world. Our reviewers who are spread across geographies have contributed to every successive issue and we sincerely appreciate their contributions. With contribution of all stakeholders, the journal is on track to reach new heights.

We sincerely hope that our readers will find the content included in this issue contemporary and insightful. We are open to guest editorship, special issue proposals, and collaboration with academic conferences as publishing partners. Any such requests as well as suggestions for improvement may be sent to the editor by email ([editor@bimtech.ac.in](mailto:editor@bimtech.ac.in)).

Sincerely,

**Khanindra Ch. Das**

*Editor, BIMTECH Business Perspectives*

# Gamification in Digital Marketing: Proposing a Theoretical Framework Based on Uses and Gratifications Theory

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Shelleka Gupta<sup>1</sup>, Ronnie Dutt<sup>1</sup> , Antra Sharma<sup>1</sup>  
and Bonia Sharma<sup>1</sup>

## Abstract

Gamification is one of the most popular and exciting digital marketing tools. The use of gaming aspects in sectors other than gaming is called 'Gamification'. Several well-known companies like Nike, MakeMyTrip, Amazon, Paytm, Zomato, One Plus and Flipkart use this innovative marketing tool to share their informational and entertaining marketing content with potential consumers. Using gamified content, brands tap into their consumers' competitive nature and accelerate their engagement by rewarding them with discount coupons and other shopping benefits. Hence, owing to the amplified popularity and increased usage of gamification in marketing, this review article deliberates in detail about gamification as a digital marketing tool. The article proposes a theoretical framework based on the theory of uses and gratifications in the gamification context. Additionally, it also highlights the several positive outcomes marketers can enjoy using gamification in their digital marketing campaigns. Implications and future research agendas are also discussed.

## Keywords

Gamification, digital marketing, positive outcomes, uses and gratifications theory, theoretical framework

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## Introduction

The recent advancements in digital technologies have prompted business houses to utilise cutting-edge digital marketing techniques such as augmented reality, virtual reality and mixed reality to endorse their products and services (Dunakhe & Panse, 2022). In this vein, gamification is an emerging prominent tool that has taken the digital marketing world by storm (Mishra & Malhotra, 2021; Sharma et al., 2024). ‘Gamification’ refers to the use of gaming elements in the non-gaming business (Li et al., 2023). The various gaming elements include awards, point systems, medals, levels, quests, voting, ranking, betting, roles and virtual goods and avatars (Hewapathirana & Caldera, 2023; Pedreira et al., 2015; Seaborn & Fels, 2015). Gamification particularly utilises game design principles to create digital content and disseminate it via digital platforms such as websites, apps, emails and social media (Cook, 2023; Hwang & Choi, 2020). Famous brands like Nike, Starbucks, KFC, McDonalds, Goibibo, MakeMyTrip and Coca-Cola have launched fantastic gamification campaigns that have done tremendously well in keeping people engaged. According to Mordor Intelligence (2024), the global gamification revenue, which stands at USD 15.43 billion in 2024, is expected to grow to USD 48.72 billion by 2029. These financial figures are a testament to the fact that gamification is being practiced by marketers worldwide and is here to stay.

The impeccable performance and delivery of captivating results have positioned gamification as a crucial topic of scholarly interest. Many research studies have investigated its impact on noteworthy industries, such as education (Oliveira et al., 2023; Panigrahi et al., 2018; Skritsovali, 2023), health (Alahäivälä & Oinas-Kukkonen, 2016; Al-Rayes et al., 2022; Gajardo Sánchez et al., 2023), finance (Khan et al., 2023; Lai & Langley, 2023), tourism (Elgarhy et al., 2024; Moro et al., 2019; Pradhan et al., 2023; Yılmaz & Coşkun, 2016), crowdsourcing (Lin & Ding, 2023; Molasy et al., 2023; Morschheuser et al., 2017), marketing and advertising (Behl et al., 2023; Hewapathirana & Caldera, 2023; Xi & Hamari, 2019), and services (Ciuchita et al., 2023; Huotari & Hamari, 2012; Weber et al., 2024). These studies indicate that gamification has a ubiquitous presence across varied sectors. However, the present article elaborates on gamification from the viewpoint of marketing. The pervasiveness of cell phones, digital media and the internet has created a foundation for gamification in marketing (Hsu & Chen, 2018). It has become an enticing marketing tool for brands since it prompts customers to come back to their products or services (Charry et al., 2023; Yılmaz & Coşkun, 2016). Notably, gamification in marketing attempts to induce consumers to buy instead of other gamified contexts that try to modify people’s behaviour (Bousba & Arya, 2022; Thorpe & Roper, 2019). The reason for the phenomenal success of gamification in marketing lies in its ability to satisfy the most fundamental human desires: recognition and reward, status, accomplishment, competitiveness and collaboration, self-articulation and altruism (Koivisto & Hamari, 2019). Consumers have an insatiable appetite for these desires both in real life and over the internet (Eisingerich et al., 2019; Jang et al., 2018). Gamification certainly takes advantage of this and gives them what they want.

Over the years, research pertaining to gamification in marketing has bloomed at an exponential pace. However, there are specific research gaps that need to be addressed. First, Abou-Shouk and Soliman (2021) stated that there is a dire need to explore gamification and its relation to multiple theories and constructs. Second, Noorbehbahani et al. (2019) mentioned that additional research in the gamification domain is still needed to establish its acceptance as an excellent marketing tool for the future. Lastly, an in-depth review of the existing literature revealed that there is a dearth of research studies that explain the consumption of gamified content on digital platforms (Sharma et al., 2024; Zhang et al., 2021). Hence, to fill these gaps, the present study uniquely contributes in multi-fold ways: (a) it proposes a theoretical framework based on uses and gratification theory that elucidates the motivations behind the consumption of gamified content on digital platforms; (b) it jolts down the various positive outcomes of implementing gamification in marketing campaigns; and (c) it suggests future research avenues in the context of gamification.

## **Objectives of the Study**

The research objectives of the study are:

1. To propose a theoretical framework based on the uses and gratification theory that explains the consumption of gamified content in the digital marketing context.
2. To list the positive outcomes marketers can enjoy by opting for gamification in digital marketing campaigns.
3. To put forth future research areas that can be explored to advance the literature related to gamification.

## **Research Methodology**

To attain the stated objectives, the current study performs an extensive literature review. Moreover, to articulate the review process, the study follows a well-established methodology proposed by Jabareen (2009). The proposed methodology has proven to be instrumental in developing theoretical frameworks across multi-disciplinary research studies (Basu et al., 2019; Ringelstein & Patel, 2023; Van Der Walddt, 2020) and, hence, is deemed appropriate. The methodology includes various phases that are customised to match the requirements of the present study. The different methodological phases are explained as follows:

### ***Phase I: Data Collection***

The review process commenced with the selection of pertinent existing literature that aids in achieving the research objectives. The terms for the literature search

were related to ‘Gamification’ and ‘Marketing’. Specifically, peer-reviewed journal articles indexed in prominent databases such as Scopus, Web of Science, EBSCO, ProQuest, ACM Digital Library and Google Scholar were considered for the study. Furthermore, grey literature such as web articles and working papers was also retrieved to augment the review.

### *Phase 2: Extensive Reading and Shortlisting of Journal Articles*

After collecting the journal articles from selected databases, extensive reading sessions were held to shortlist the articles for the study. These sessions enabled the authors to assess the suitability of each article for the review. Consequently, only those articles having the potential to meet the research objectives were shortlisted.

### *Phase 3: Analysis and Synthesis of Journal Articles*

The shortlisted articles were then analysed based on the research objectives. The authors here adopted a deductive approach to conduct the review. As a result, the review attributed to the synthesis of the proposed theoretical framework based on uses and gratifications theory. The review also revealed favourable outcomes and future research avenues related to gamification.

### *Phase 4: Reporting of Results*

The last step involved the reporting of results in different sections framed in accordance with the research objectives of the study.

## **Concept of Gamification**

Gamification has emerged as one of the most anticipated and appealing trends in digital marketing (Stylos & Vassiliadis, 2023; Zhang et al., 2021). The strength of ‘gamification’ resides in revamping services and systems to replicate game-like experiences, leading people to be involved in a specific behaviour (Behl et al., 2023; Hamari et al., 2014). The concept of gamification is an equitable blend of utilitarian and hedonic information systems (Koivisto & Hamari, 2019), which cements its position as a promising futuristic marketing tool. Utilitarian information systems are designed to improve the efficiency of a given work and serve informational needs (Van Der Heijden, 2004). In contrast, hedonic information systems are designed to offer enjoyable experiences and are used for recreation, amusement and the delight of utilising the system itself (Ryan & Deci, 2000). Gamification represents an astonishing combination of both information systems, that is, it tends to increase productivity through entertainment-driven tasks and delivers the information to the desired audience by creating fun experiences,

ultimately facilitating engagement and sales (Charry et al., 2023; Hamari & Koivisto, 2015).

The term 'gamification' was first coined in a research article in 2010 and was defined as 'the use of game mechanics and dynamics in computer systems to alter user behaviour' (Morillas Barrio et al., 2016). Since its conceptualisation, gamification has grabbed the attention of academics and practitioners and has been elucidated by eminent scholars across different contexts. Vesa et al. (2017) and Deterding et al. (2011) defined gamification as 'a method of design that improves systems and services by offering chances for experiences that are inspired by games'. Kapp (2012) mentioned that gamification involves 'using game-based mechanics, graphics, and concepts to captivate audiences, motivate action, foster education, and solve issues'. From the standpoint of the service industry, Huotari and Hamari (2012) described gamification as 'a process of upgrading a service with opportunities for gameful experiences to increase value generation'. With gamified websites into focus, Raj and Gupta (2018) proposed gamification as 'a marketing technique used to enhance a website's visual appeal and design and raise customer engagement with the website and the businesses it is linked to'. Zichermann and Linder (2010) defined gamification as 'the art and science of converting routine interactions with clients into games that achieve your company objectives'. The synthesis of these definitions depicts that gamification is a universal marketing tool aiming to deliver a gameful experience to consumers along with informational and entertainment value. It holds the power to enhance the service experience, resulting in satisfied consumers for the business houses.

## **Explaining Gamification in Digital Marketing: A Uses and Gratifications Perspective**

With the growing interest in gamification, academicians and practitioners delved deep into this field and investigated it through the lens of multiple theories. These theories belonged to various disciplines, such as psychology, sociology and consumer behaviour. Utilising these theories, scholars developed theoretical frameworks, conducted empirical and qualitative studies and thus advanced the literature related to gamification. Some of the prominent theories that have been applied in the context of gamification include Self-Determination Theory (Seaborn & Fels, 2015), Maslow's Need Hierarchy Theory (Kim, 2013; Lin & Zhu, 2012), Flow Theory (Hamari & Koivisto, 2014), Cognitive Evaluation Theory and Psychological Need Theory (Bostan & Catak, 2016) and Satisfaction Theory (Hamari & Keronen, 2017). However, the contemporary study by Abou-Shouk and Soliman (2021) professed that there is still a need to further explore gamification and its relation to novel theories and dimensions. Also, after a deep review of the literature, it has been observed that there is a paucity of research studies that explain the consumption of gamified content on digital platforms (Sharma et al., 2024; Zhang et al., 2021). Hence, to fill these gaps, the present study adopts the 'uses and gratifications theory' as a base to propose a

theoretical framework disclosing the major motivations that drive consumers to consume gamified content on digital platforms.

The uses and gratifications theory (U&G) states that individuals actively choose media to meet specific needs and desires (Katz et al., 1973). It emphasises that people select media content that aligns with their interests and fulfils their diverse needs, including information, entertainment, social integration, or personal identity (Rubin, 1994; Ruggiero, 2000). This theory recognises that each person's psychological and social differences influence their media choices and how they engage with content (Alhabash & Ma, 2017; Falgoust et al., 2022). It also underlines that the more a media source satisfies an individual's needs, the more likely they will continue using it (Kircaburun et al., 2020; Phua et al., 2017). This perspective accounts for the active role of audiences in selecting, interpreting and interacting with media, offering insights into why and how people engage with different forms of media. In this line, by applying U&G theory in the gamification context, the present study answers why consumers consume and engage with gamified content on digital platforms. Moreover, as gamified content is an amalgamation of digital content and gaming elements, U&G studies related to digital content platforms, formats and online games were thoroughly reviewed while developing the theoretical framework (see Table 1).

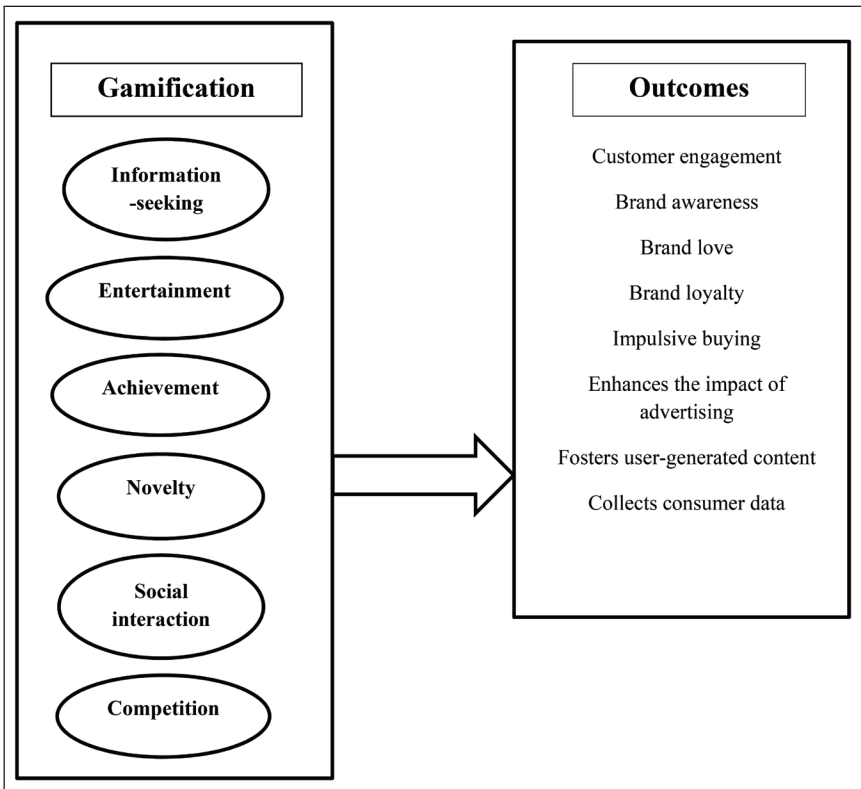
The U&G studies (see Table 1) demonstrate that consumers have multifold motives to engage with digital content platforms, formats and online games. Hence, based on the deductive review method, our study proposes a theoretical framework guided by the uses and gratifications theory. The proposed framework coherently describes why consumers interact with gamified content on digital platforms such as social media, the company's website, online brand communities, vlog channels and blog pages. The theoretical framework elaborates on six pioneer motivations to consume and engage with gamified content: *Information-seeking*, *Entertainment*, *Achievement*, *Novelty-seeking*, *Social Interaction* and *Competition* (see Figure 1). Following is a detailed explanation of the six major motivations identified under U&G theory:

**Information-seeking:** In the context of gamification, 'information-seeking' refers to the process by which consumers actively look for knowledge in a gamified setting to accomplish their objectives, deepen their understanding and perform better (Arya et al., 2023; Panigrahi et al., 2018). It is a theoretical construct for understanding how consumers interact with information in gamified systems and incorporates elements from cognitive psychology, information science and game design (Arness & Ollis, 2023; Sharma et al., 2024). Information-seeking behaviour can take many different forms in gamification, including missions and quests, in-game resources, tutorials and manuals and feedback.

**Entertainment:** 'Entertainment' in gamification refers to the enjoyment, pleasure and satisfaction that consumers experience in a gamified environment (Arya et al., 2023; Li et al., 2015). This construct dwells on features like comedy, surprise and excitement (Chan-Olmsted & Wang, 2022), which improve emotional interactions and make gamified activities more appealing. By infusing entertainment elements

**Table 1.** Summarisation of U&G Studies.

Research Study	Context	Motivations for Content Consumption
Sherry et al. (2006)	Online games	Arousal, competition, challenge, diversion, fantasy and social interaction.
Wu et al. (2010)	Online games	Enjoyment, achievement and social interaction.
Yee et al. (2012)	Online games	Immersion, achievement and social interaction.
Whiting & Williams (2013)	Social media	Information-seeking, communication, amusement, information sharing, leisure, convenience utility, social engagement, surveillance/knowledge of others, passing the time and opinion expression.
Li et al. (2015)	Online games	Hedonic gratification (enjoyment, imagination and escape), utilitarian gratification (success) and social gratification (social engagement and social involvement).
Saridakis et al. (2016)	Social media	Information, personal identity, social interaction, entertainment, integration and empowerment.
Khan (2017)	YouTube	Entertainment, social interaction and information-seeking.
Hollebeek & Macky (2019)	Digital content platforms & formats	Functional, hedonic and authenticity.
Yoo et al. (2020)	OTT platforms	Enjoyment, social interaction, efficiency and information-seeking.
Machado et al. (2020)	Facebook and Instagram	Facebook—entertainment, rewards, social influence and information-seeking. Instagram—entertainment, social influence and rewards.
Menon (2022)	Instagram reels	Socially rewarding self-promotion, escapism, novelty, trendiness, entertainment, surveillance and recording.
Chan-Olmsted & Wang (2022)	Podcast	Information, entertainment and audio platform superiority.
Chen & Peng (2023)	Social media	Information-seeking and sharing, social interaction, escapism and relaxation, expression and exhibition and trendiness.
Arya et al. (2023)	Online games	Trendiness, novelty, entertainment, intimacy and interaction.
Arness & Ollis (2023)	Social media	Information-seeking, entertainment, surveillance, escapism, social connection and self-expression.



**Figure 1.** Proposed Theoretical Framework.

into gamified systems, marketers can build experiences that are not simply educational or utilitarian but also entertaining, intriguing and memorable (Lai & Langley, 2023; Wu et al., 2010). This helps to increase engagement, motivation and pleasure, resulting in more effective and successful gamification applications in a variety of contexts, including education, marketing, finance, healthcare and workplace productivity.

**Achievement:** ‘Achievement’ in the gamification environment encompasses ‘goal-setting, progress tracking, and rewards’ to inspire and involve consumers in attaining specific benchmarks or milestones inside a game (Yee et al., 2012). In gamification, achievement is a key tool for driving consumer behaviour and promoting valuable growth. It fosters a sense of progress and advancement as consumers work towards their objectives and accrue accomplishments (Li et al., 2015; Moro et al., 2019). Progression systems, such as levelling up, unlocking novel content, or gaining access to new features, give consumers a tangible depiction of their journey and encourage them to continue participating and investing in the gamified experience (Yılmaz & Coşkun, 2016).

**Novelty:** ‘Novelty’ in gamification denotes the incorporation of new, surprising and unique elements into a gamified system to grab attention, arouse curiosity and maintain engagement (Arya et al., 2023). In gamification, novelty is essential to boost consumers’ interest and motivation via new and interesting experiences that break away from monotony and repetition (Menon, 2022; Sherry et al., 2006). Novelty can be accomplished by using distinctive themes, locations and narratives that set a particular gamified system apart from others and yield an immersive experience.

**Social Interaction:** ‘Social interaction’ in gamification highlights the social qualities of a gamified system that allow for communication, cooperation, competitiveness and community development (Arya et al., 2023; Wu et al., 2010). Gamification platforms frequently include social networking features that enable consumers to communicate and establish relationships with others (Chen & Peng, 2023; Li et al., 2015). These features may include friend lists, messaging options and individual profiles, which enhance social interactions and help to create and manage social networks.

**Competition:** In the context of gamification, ‘competition’ symbolises the inclusion of competitive features and dynamics into a gamified system to imbibe a sense of challenge and accomplishment (Jaskari & Syrjälä, 2023; Sherry et al., 2006). In gamification, competition benefits from the innate human need for comparison and motivates consumers to strive for perfection, improve their skills and achieve their tasks (Xi & Hamari, 2019). Gamified systems regularly award victory badges, trophies, or accolades to consumers who exhibit excellent performance or proficiency in certain tasks or activities (Li et al., 2023). These prizes act as indicators of accomplishment and status, encouraging them to compete with one another and seek recognition and prestige.

This comprehensive description aptly demonstrates the importance of evoking and satisfying these six motivations that excite customers to consume and engage with gamified content on digital platforms, paving the way to several positive outcomes for the brands.

## **Positive Outcomes of Gamification as a Tool of Digital Marketing**

The various positive outcomes that gamification as a tool of digital marketing yields for the brands in the current market scenario are explained as follows:

### ***Customer Engagement (Bousba & Arya, 2022; Charry et al., 2023; Eisingerich et al., 2019)***

Gamification can be a valuable digital marketing tool for business houses trying to increase and engage their customer base. By necessitating customer involvement and interaction, gamification establishes itself as an excellent tool for increasing

customer-brand engagement on digital platforms. Contemporary research has evidenced that gamified mobile applications and websites could strengthen customers' interactivity, passion and involvement with a specific brand and enable them to effectively participate and exchange ideas with others in brand community conversations and activities.

### ***Brand Awareness (Abou-Shouk & Soliman, 2021; Eppmann et al., 2018)***

With increased customer engagement, gamification offers an impactful foundation for business houses to raise awareness among consumers across a variety of digital channels, including social media, mobile applications and brand communities. Academics and professionals in the marketing field have concluded that companies should use immersive marketing techniques like gamification to boost consumer engagement, which raises brand awareness by instigating a sense of familiarity among the target audience.

### ***Brand Love (Hsu & Chen, 2018)***

Brand love may be described as 'the level of deep inner attachment a pleased consumer feels to a specific brand'. Previous research has proved that the capability of an online game to deliver hedonic values such as fun, excitement, entertainment and pleasure often promotes a feeling of love among users. Similarly, digital gamified content makes customers feel happy and entertained, rendering them to love the brands.

### ***Brand Loyalty (Behl et al., 2023; Hwang & Choi, 2020)***

Customers' level of commitment to a specific brand, or their likelihood of repurchasing it under different circumstances, is known as 'brand loyalty'. Prior research studies have shown that gamification can substantially escalate brand loyalty among consumers owing to the higher levels of engagement and trust it generates. Moreover, it has also been found that gamified applications and websites are known to have multiplying effects on consumer brand loyalty as compared to non-gaming ones.

### ***Impulsive Buying (Jang et al., 2018; Zhang et al., 2021)***

Gamification can act as an effective means for brands to promote impulsive buying among consumers who visit their websites and social media pages on a regular basis. Prominent brands such as Nykaa, Dominos and Earth Rhythm provide limited-time offers and discount vouchers to potential customers via gamified content valid for a few minutes. Consequently, consumers immediately make purchases to grab the limited-time deal, leading to increased sales and revenue for the brands.

### *Enhances the Impact of Advertising (Ghosh et al., 2021; Mishra & Malhotra, 2021)*

The extant literature attests to the mitigating effect of gamification on the negative consequences of traditional advertising. In-game advertisements (IGA) are often viewed as an intrusion when interrupting the normal progression of an online game. Hence, marketers must design and develop in-game advertisements with greater significance to reap their great potential and optimise profits. To achieve this goal, the cultivation of the concept of ‘advergame’ is a welcoming step. These games are intentionally designed to serve as advertisements for brands, with entertainment content resembling traditional gaming forms. Advergames combine the fun gaming element with brand knowledge and, therefore, positively engage potential consumers without any feeling of interruptive advertising.

### *Fosters User-generated Content (Moro et al., 2019)*

Business houses can use gamification to capitalise on low-cost user-generated content (UGC) that enhances brand engagement and awareness and attracts new consumers. For instance, Duolingo, a language-learning app, mobilises gaming elements such as progress metres and coins to create user-generated content. The app rewards users with coins for achieving benchmarks and motivates them to share their accomplishments on social media. Along with publishable UGC, Duolingo invites user feedback on the overall training experience, which leads to improved app visibility and promotion.

### *Collects Consumer Data (Cook, 2023; Noorbehbahani et al., 2019)*

Companies can leverage gamified content to persuade customers to share their personal information, making future marketing campaigns more manageable and impactful. Surveys, quizzes and polls are excellent tools for gamifying customer data collection. This is especially true when participants may win incentives like in-app badges or discounts on specific products or offerings. Brands like The Derma Co. and Snitch tacitly design their promotional campaigns using gamification to collect consumers’ demographics and contact details to dispense future marketing offers.

## **Implications**

The present study boasts of theoretical as well as practical implications. First, the study contributes to the extant body of literature related to gamification. It proposes a theoretical framework based on the theory of uses and gratifications. The literature review depicts that consumers have diverse motivations to consume digital content on digital platforms, formats and online game portals. Based on the deductive review methodology, this study put forward a theoretical framework

incorporating six pioneer motivations: information-seeking, entertainment, achievement, novelty-seeking, social interaction and competition. These motivations define why consumers consume and engage with gamified content on various digital platforms and, therefore, can also be studied as ‘sub-constructs of gamification’ (see Figure 1). Moreover, the present study also deliberates in detail on the role of gamification in modern-day marketing and how it benefits marketers in achieving customer-centric goals, such as engagement, awareness and loyalty.

Second, the study yields valuable insights for digital marketers who embed gamification in their digital marketing strategy. The current study professes the vitality of considering the six prime motivations while designing the gamified content. Ensuring the efficient and effective satisfaction of these motivations will multiply the impact of gamified content, reaping several advantages for the customers as well as marketers. The current article also lists the various positive outcomes marketers can enjoy using gamification. These outcomes include customer engagement and awareness, increased brand love and loyalty, impulsive buying, advertising effectiveness, user-generated content creation and consumer data collection. All these favourable outcomes attest to the growing spectrum of gamification in the marketing domain.

## **Limitations and Future Research Agendas**


The study also unveils future research agendas for academics and practitioners. First, as the study is conceptual, an empirical investigation is suggested to validate its proposed theoretical framework. Future research scholars can test the theoretical framework in relation to multiple moderators, mediators and outcomes to enrich the gamification literature. Second, the study claims to be a literature review; however, it does not employ any particular literature review technique that might be able to capitulate answers to the research questions in a more presentable manner. Hence, future research scholars can apply well-known literature review techniques such as systematic literature review, bibliometric analysis, scoping review and framework-based literature review to explore the study’s research questions. Lastly, as gamification in marketing is a recent blooming trend, it will be interesting to note the impact of artificial intelligence on its design and delivery. Furthermore, future studies can also focus on studying gamification and its innovative presence in the virtual world of the metaverse.

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# Demystifying the Research Trend of Content Marketing Research: A Co-authorship and Co-occurrence Analysis

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## Abstract

Nowadays, content marketing is a marketing strategy used by marketers to organize, produce, and share information in order to draw in certain audiences and persuade them to make purchases. As a result, marketers are devoting a significant amount of time in producing quality content that raises awareness of their brand and piques the interest of their target audience. Consequently, the purpose of the research is to examine various published articles in content marketing to identify key themes and the extent to which research has influenced content marketing utilizing bibliometric analysis of 414 papers published in Scopus database between 1999 and 2023. The result of the study depicts that content marketing is growing at fast pace with the growing use of digital and social media marketing. The top three nations contributing to the field of content marketing are the “United States,” the “United Kingdom,” and “Germany.” Five themes have been identified as follows: Integrated digital marketing ecosystem, strategic B2B digital branding, AI-driven consumer-centric marketing, crafting a data-infused digital narrative: unveiling the intricate dance between big data, consumer behavior, and digital content marketing, and exploring the dynamic landscape of modern commerce. In accordance to the results, the primary authors and contributions in the field have been recognized, facilitating the formulation of guidelines and directions for potential research.

## Keywords

Content, social media, social media platforms, social media marketing, content marketing, bibliometric analysis

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## Introduction

These days, consumers spend more time on social media for a number of reasons, from exploring brands to actually purchasing the products and services (Ponde, 2019). Consumers' transition from conventional to digital media has enabled marketers to reach, inform, engage, sell, learn about, as well as provide services to their intended audience more effectively and economically (du Plessis, 2022). As a consequence of this fundamental consumer transition from conventional to digital media, marketers are consistently seeking possibilities to grasp by developing product, pricing, place, and marketing strategies that are appropriate to this market (Kim et al., 2021).

Content marketing has transitioned from an emerging field of study to a well-established discipline, marked by a proliferation of publications in recent decades (Ahmad et al., 2016). Content marketing has evolved into one of the world's most successful marketing strategies for marketers using digital and social media by creating and spreading social media content that improves users' daily lives (Chen et al., 2021). The term "content marketing" has gained popularity in the marketing world, and during the past 10 years, it has developed into a widely used strategy (Chen et al., 2021). Content marketing is not a new idea, but this concept has existed for as long as marketing exists (Chen et al., 2021). Instead of being perceived as a unique concept at first, it was initially incorporated into ordinary advertising (Ata et al., 2023). Although the term "content marketing" was initially used in the late 1990s, it was not until 2008 or 2009 that it truly came into its own. According to Ruffolo (2017), the concept of content marketing is the one that is continuously developing.

The idea of content marketing was first put up by Pulizzi, who stated that in order to draw in or hold onto customers, businesses should produce and distribute a variety of informative or attention-grabbing content (Zhu, 2019). A marketing approach that combines different marketing techniques, including online and offline channels, by supplying customers with knowledge that makes them smarter is known as content marketing (Forrest, 2019). It is an art to engage with clients in an unobtrusive manner (Thaha et al., 2021).

Some of the definitions of content marketing have gained a lot of traction, such as the one provided by the institute of content marketing, which states that it is a "strategic marketing approach focused on creating and distributing valuable, relevant, and consistent content to attract and retain a clearly defined audience and, ultimately, to drive profitable customer action." This definition describes content marketing as a digital marketing strategy in which businesses continuously provide authentic, open, and informative content for a target buyer profile (Chen et al., 2021). In line with content marketing, brands should generate high-quality content that engages the audience (Ahmad et al., 2016). Social media should be utilized to activate content and encourage audience engagement, conversation, and amplification through sharing of content, irrespectively of whether it has been published or posted on owned, sponsored, or social media platforms (Rathore et al., 2016).

The utilization of content marketing as a marketing tool has become an increasingly prevalent trend. It generates enormous benefits and has an impact on practically every industry. The emergence of digital and social media marketing has

facilitated customers' access to product information during the decision-making process, hence establishing an opportune environment for digital content to impact consumer behavior. Due to its ability to present goods and services before they are actually purchased, content marketing (such as social media) can have an impact on consumers' ultimate judgments.

Content marketing tends to provide value to customers and create awareness regarding different aspects among customers (Ruffolo, 2017). Success of content marketing depends on how closely the content aligns with the goals of the organization. Consequently, the core of any marketing plan should be producing worthwhile and interactive information (Content Marketing Institute, 2017). The aim of content marketing is to create and provide pertinent content to the target audience that leads to accomplishment of organizational objectives (Ata et al., 2023). Target markets must be precisely identified and fully comprehended in order for content marketing to be successful (Rathore et al., 2016). Afterward, content tailored to specific interests or topics can be created and shared, whether its on the company's blog, website, or social media profiles, or within established social media groups with a substantial presence (Wong An Kee & Yazdanifard, 2015). Instead of a company attempting to position itself as a leader on social media, it is imperative to join an established group as a member (Metrick, 2018). Customers will regard the target market as credible and trustworthy if they think the marketer's assistances are honest and dependable (Ruffolo, 2017).

Considerable scholarly research has elucidated the significance of content marketing in businesses. A few concentrated on development and innovations (Binh Nguyen et al., 2023; Chamboko-Mpotaringa & Tichaawa, 2021). Although previous research has been important, practice is always evolving, necessitating timely interpretation of theory (Binh Nguyen et al., 2023). It is crucial to create and broaden the scope of research questions pertaining to business content marketing (Binh Nguyen et al., 2023). This study gives an overview of the content marketing sector to scholars, particularly those who are new to the topic, as well as organizations fascinated by and intending to implement content marketing in order to grow and survive (Binh Nguyen et al., 2023).

Low and MacMillan (Low & MacMillan, 1988) suggested that "as a body of literature develops, it is useful to stop occasionally, take inventory of the work that has been done, and identify new directions and challenges for the future." However, it was believed that conventional review techniques would predominate (Kumar et al., 2020). A qualitative or narrative review is another name for the prevalent review. In this context, the implementation of such review methods was evaluated without the presence of suitable conditions, rendering the findings invalid (Hodgkinson & Ford, 2014; Zupic & Čater, 2015). Authors of narrative reviews must sift through every data record using only their own discretion and sense of judgment (Liu et al., 2023). The manual implementation approach appears to be subjective and may be susceptible to prejudice (du Plessis, 2022). Concurrently, numerous datasets gathered from the research field can be processed using a bibliometric literature review approach. Practitioners can process data totally through computer assistance with the use of bibliometrics analysis methodologies, which expedites, simplifies, and improves efficiency of the process (Binh Nguyen et al., 2023). Additionally, the bibliometric

approach makes it possible to visualize research data using graphs and maps, something that is challenging to accomplish using conventional methods (Pandey et al., 2020). The bibliometric approach and systematic literature review method are two complementary strategies, rather than hostile (Binh Nguyen et al., 2023; Pandey et al., 2020). Scholars and marketers are lavishing more and more attention to content marketing (Chanpaneri et al., 2021). However, research needs to be coherently synthesized based on prior literature in order for a discipline to flourish (du Plessis, 2022). As a result, a quantitative literature analysis can help to improve understanding of a field by revealing the main issues raised in earlier studies and their relationships across time (Lamberton & Stephen, 2016). Furthermore, Liu et al. (2023) stated that it was critical to detect existing “intellectual structures” from publications and center efforts on areas of current interest in order to boost academic influence and establish researchers’ reputations. Therefore, there is an urgent need for quantitative evaluations of study fields that cover a large amount of ground and yield a wealth of data (Kumar et al., 2020). In the meantime, co-citation analysis, which is a component of the bibliometric approach, enables the discovery of knowledge systems through scientific mapping (Zupic & Čater, 2015). Co-occurrence analysis used to study the potential relationship of two bibliographic items that appear in the same field. Additionally, scholars can concentrate on hot and growing study topics that are visually outlined by a co-keyword analysis (Zupic & Čater, 2015). This research reviewed the body of literature on content marketing, drawing on the aforementioned arguments and the bibliometric technique. The following queries were answered:

- RQ1: What is the annual growth rate of publications for content marketing from 1999 to 2023?
- RQ2: Where are the most eminent content marketing researchers employed, and in which nations and sources?
- RQ3: Which research network(s) include the primary authors and content marketing-related documents?
- RQ4: In the field of content marketing, what are the themes derived from the co-occurrence of all keywords?

## **Review of Literature**

Due to the development of internet and mobile app technologies, the use of digital and social media has increased which makes communication simpler than in past decades (Leung et al., 2017). New opportunities are opened up by the utilization of digital and social media marketing for selling and marketing goods and services as well as for attracting, educating, and enthralling customers (Ponde, 2019). Digital marketing via social and mobile media has revolutionized the daily lives of millions of people, leading to the adoption of widespread social media practices and the development of numerous customer interactions (Kim et al., 2021). Digital marketing is anticipated to continue to take precedence as technology advances (Lamberton & Stephen, 2016).

Because modern customers spend so much time on social media, marketers have developed tactics and methods for communicating with them on these networks (Kim et al., 2018). Marketers need to develop the engaging content that provides the information. In recent years, as technology and the internet have developed, content marketing has become an increasingly prominent marketing strategy (Forrest, 2019). According to Hollebeck and Macky (2019) and Pham et al. (2022), content marketing emerged as a result of the growth of digital marketing, the necessity to draw attention to product and service-related information, and the intensifying rivalry. According to Lou and Xie (2021) and Rowley (2008), this idea relates to producing and providing clients with valuable content that is relevant to them in order to draw and keep them. Online platforms like business websites, forums, online communities, blogs, vlogs, social media, and even mobile apps are used for content-marketing initiatives (Binh Nguyen et al., 2023; Yoo & Gretzel, 2011). Potential buyers can learn more about a product or service through content marketing, including shared experiences of utilizing it on a specific internet platform. Using such content as a resource enables others to make more informed judgments (Binh Nguyen et al., 2023; Yoo & Gretzel, 2011). On the commercial side, engaging content that grabs customers' attention is necessary to generate sales due to elasticity of demand and strong competition (Chamboko-Mpotaringa & Tichaawa, 2021; Wang & Chan-Olmsted, 2020). Hence, the implementation of content-marketing strategies by enterprises, which typically focus solely on product and service details, such as pricing and usage, location, and amenities offered, is no longer adequate. Furthermore, customers' expectations and requirements throughout their information searches are getting more specific and changing quickly (Arora & Lata, 2020). Hence, it is vital to possess a comprehensive comprehension and awareness of current developments in the realm of content marketing (Rowley, 2008). Based on these elements, companies may develop an engaging content marketing plan that appeals to a wide range of customers' needs and is both distinctive and entertaining (Wang & Chan-Olmsted, 2020).

An innovative method of marketing emerged employing content to assist, amuse, and educate internet users as the antiquated marketing forms on the web become unappealing and confused (Poradova, 2020). Through the creation and sharing of social media content that improves customers' daily lives, one of the most successful marketing tactics in the world today is content marketing (Kusuma & Aravinda, 2021). As a result, several academic studies on a range of subjects have been conducted, including affiliate marketing, digital marketing, social media marketing, video marketing, search engine optimization (SEO), and many more (Appel et al., 2020). As well as researchers, academicians, and marketing experts are showing interest in exploring the content marketing (du Plessis, 2022). Various researchers worked on conceptual development, importance of content marketing in context of customer relationships and brand identity, and challenges faced by firms in creating engaging content to achieve marketing goals (du Plessis, 2022). Therefore, content marketing is at a growing stage still there is a need of exploring more about content marketing research through bibliometric analysis (Kim et al., 2021). In light of this, the study's objective is to assess the many paradigms of published works on content marketing. Furthermore, this study also seeks to identify the dominant themes in this field of study. In-depth analyses of scholarly publications created and released

between 1999 and 2023 on this groundbreaking area of content marketing are presented in this study by researchers from various nations.

## Objective of the Study

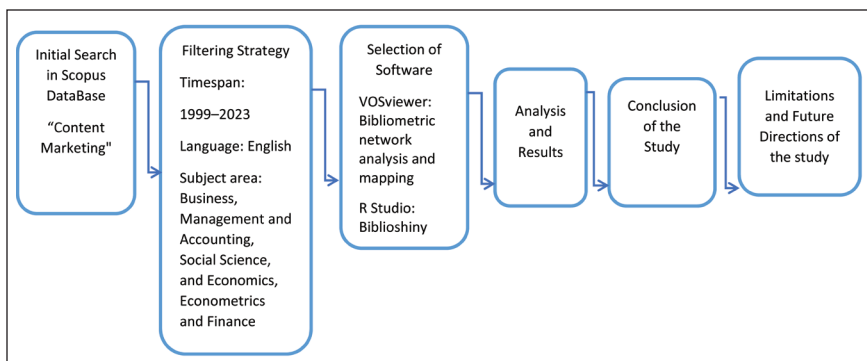
1. To conduct an all-inclusive bibliometric study to assess the current state of the literature on content marketing from 1999 to 2023 centering on the level of involvement from the authors, sources, and countries.
2. To recognize the network research of co-occurrence of all keywords to determine current popular themes.

## Methodology

The structure and methodology in this study are influenced by the methodologies used by a bibliometric study (Farrukh et al., 2022; Noor et al., 2020). However, many researchers (Ghorbani et al., 2022; Leung et al., 2017; Liu et al., 2023; Noor et al., 2020; Paquette, 2013; Pham et al., 2022; Zhang et al., 2022) utilized bibliometric analysis to mapping the structure, trends, dynamics, and themes. Figure 1 represents the overview of the methodology consisting of six steps starting from the selection of the database to the conclusion of the present bibliometric study.

### Data Collection

This study applied a screening technique to locate and extract pertinent research publications for inclusion from the Scopus database. The quality research papers can be chosen by authors because Scopus is an excellent database that includes prestigious journals, subject fields, study types, study languages, keyword selection, published articles or press articles, publication years, and many more. More than 25,000 journals, 360 trade periodicals, 81 million curated papers, 17 million researcher profiles, 80,000 institution profiles, and 7,000 publishers are all



**Figure 1.** Overview of Methodology.

included in the Scopus database. In contrast to other databases like Web of Science, Google Scholar, Scientific Electronic Library Online, and Research Gate, this study used Scopus to extract the publications on content marketing. The present study selected the Scopus database and performed a search with the keyword “content marketing” in the article titles, keywords, and abstracts of the publications in the Scopus database in order to quantitatively analyze the bibliographic data pertaining to content marketing between 1998 and June 2022. After the dataset has been loaded, it is determined that there are a total of 404 publications in total, with the earliest known date being 1998. However, the authors have applied the filtering strategy of language and subject area. Therefore, this study included only papers in English from the following two subject areas: “business, management, and accounting” and “economics, econometrics, and finance.” The study only included papers written in English; all other articles were disregarded.

This research examined those studies that are related to content marketing by exploring certain keywords from 1999 to 2023. Initially, 569 publications associated with “content marketing” were derived; however, 414 articles were kept because they are pertinent to publications related to “content marketing,” and irrelevant articles were excluded from the study. Finally, 414 articles from the study were extracted into an Excel CSV file and Bibtex file that contained useful data about each publication, including the names of the authors, the subject categories, the names of the journals, the types of publications, the countries, the organizations, keywords, and references.

## Software

VOSviewer and Rstudio both software tools are utilized in the study to analyze the retrieved studies. Both are an easy and effective software tools that have been extensively utilized for creating and visualizing the intellectual structure and networks in several study domains (van Eck & Waltman, 2010). VOSviewer software presents a significant amount of data in a single graphical map based on similarity visualization technique (Noor et al., 2020). As a result, map constructed in VOSviewer utilizing a text mining approach consists of associated terms, and with these terms a single cluster or theme is made (van Eck & Waltman, 2010). As a result of “citation analysis,” “bibliographic coupling,” and “co-occurrence analysis,” several clusters or themes of “countries,” “journals,” “institutions,” “sources,” and “keywords” were found in the titles and abstracts of published works (van Eck & Waltman, 2010). To illustrate the proximity of various “keywords,” “authors,” “journals,” “organizations,” and “countries” in particular research streams, these clusters are colored differently (van Eck & Waltman, 2010).

## Results

In this part, the key conclusions from the scientific studies on content marketing are compiled. The goal of this analysis is to establish the groundwork for future research in this field (Leung et al., 2017).

## Description of the Study

The basic overview of the data is helpful in acquiring an understanding of the available literature on the topic (Chen et al., 2021). The results from the data that was extracted from the Scopus database are summarized in Table 1. From 1999 to 2023, 414 publications from 252 periodicals are included in our collection. The average number of citations for the documents published this time period in the Scopus database was 13.18. The explosive growth of academic publications in the domain of content marketing is indicated by higher average citations per article. Additionally, the findings indicated that 810 authors contributed in the field of content marketing. Furthermore, 151 documents had a single author. Furthermore, authors of single-author documents accounted for 124 out of the total. This demonstrates the importance of the growth of content marketing, as evidenced by the number of studies completed in conjunction with other writers.

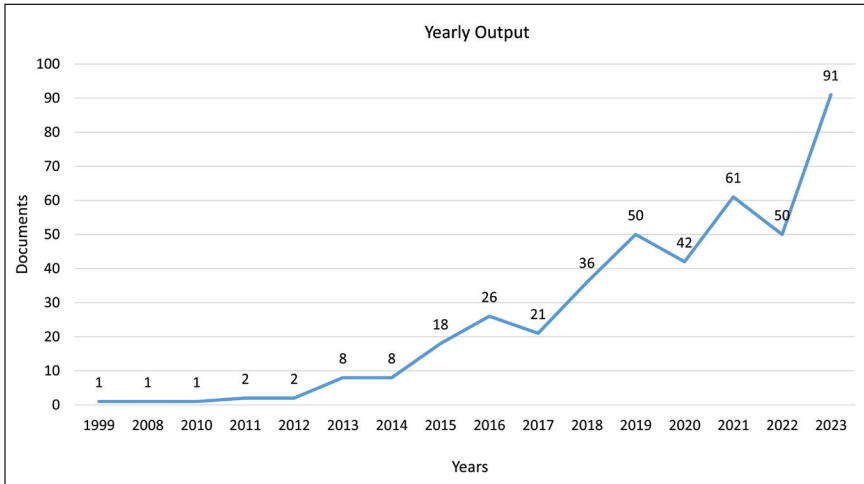
## Performance Analysis

The major trends shown in Figure 2 show the annual scientific output in the area of content marketing. Studies on content marketing and related topics were first conducted in 1999, however, researchers mostly abandoned content marketing studies during the decade (2000–2010). As a result, production started in effect after 2010, and research in this area has been growing rapidly over time. After 2019, it showed a declining trend, exhibiting 42 publications in 2020. After that, annual content marketing publications have expanded progressively from 42 to 61 in 2021 and show noteworthy growth in the “content marketing” field. Again, it shows decline in the manuscript production from 61 to 50 in the year 2022.

**Table 1.** Summary Statistics.

Description	Results
<b>Main Information about Articles</b>	
Timespan	1999:2023
Sources (journals, books, etc.)	252
Documents	414
Annual growth rate %	20.68%
Document average age	4.29
Average citations per doc	13.18
<b>Document Contents</b>	
Keywords plus (ID)	418
Author's keywords (DE)	1,132
<b>Authors</b>	
Authors	810
Authors of single-authored docs	124
Single-authored docs	151
Coauthors per doc	2.23

**Source:** Rstudio.



**Figure 2.** Annual Scientific Production in Content Marketing.

**Source:** Generated using MS Excel.

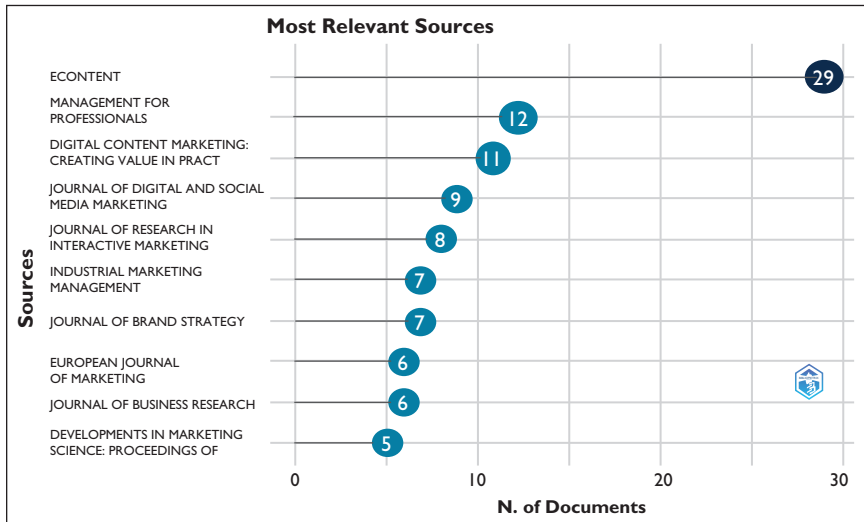
The possible reason for declining behavior is content that requires quality, consistency, and priority. In the year 2023, 93 manuscripts related to content marketing have been published in this database.

### *Influential Journals in the Field of Content Marketing*

Table 2 provides the names of the top 10 most productive journals out of 252 journals on this topic, the number of publications and citations received by these journals. The most influential journal in terms of publications is “eContent,” which has published 29 articles followed by *Management for Professionals* having 12 articles. To carry out these top journals, the chosen form of analysis is “citation” and the unit of analysis is “sources” in the VOSviewer. *Journal of Interactive Marketing* having 903 citations is the top journal in terms of citations that is followed by the *Journal of Research in Interactive Marketing* with 338 citations. However, the *Industrial Marketing Management* is in the third position in terms of citations. Additionally, the *Journal of Products and Brand Management* and *Journal of Marketing* are on the least in terms of citations.

### *Contribution by Countries*

Table 3 and Figure 4 display the relative contributions of the various countries to the field of content marketing research. A bibliometric study revealed that the United States ranked top with 79 publications and 2,095 citations, followed by the United Kingdom with 34 publications and 613 citations as depicted in the figure. Germany and China secured third and fourth positions in terms of document contribution.



**Figure 3.** Most Influential Sources in Terms of Publications.

Source: Biblioshiny.

**Table 2.** Most Influential Sources in Content Marketing Publications.

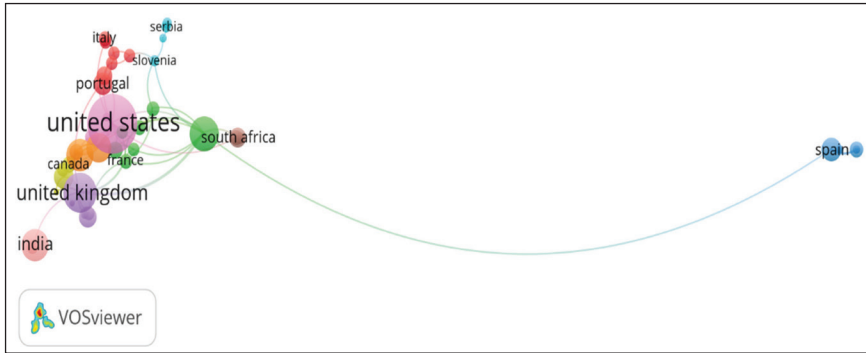
Sr. No.	Sources	Documents	Citation
1	<i>Journal of Interactive Marketing</i>	3	903
2	<i>Journal of Research in Interactive Marketing</i>	9	338
3	<i>Industrial Marketing Management</i>	7	335
4	<i>Journal of Marketing Management</i>	3	155
5	<i>Business Horizons</i>	2	145
6	<i>European Journal of Marketing</i>	6	140
7	<i>Sustainability (Switzerland)</i>	6	139
8	<i>Journal of Business Research</i>	6	124
9	<i>Journal of Marketing</i>	2	123
10	<i>Journal of Product and Brand Management</i>	2	85

Source: VOSviewer.

**Table 3.** Top Countries.

Sr. No.	Country	Documents	Citation
1	United States	79	2,095
2	United Kingdom	34	613
3	Germany	26	1,048
4	China	24	281
5	India	23	172
6	Australia	20	249
7	Spain	13	414
8	Finland	12	391
9	Indonesia	11	66
10	Portugal	11	36

Source: VOSviewer.



**Figure 4.** Contribution of the Countries.

**Source:** VOSviewer.

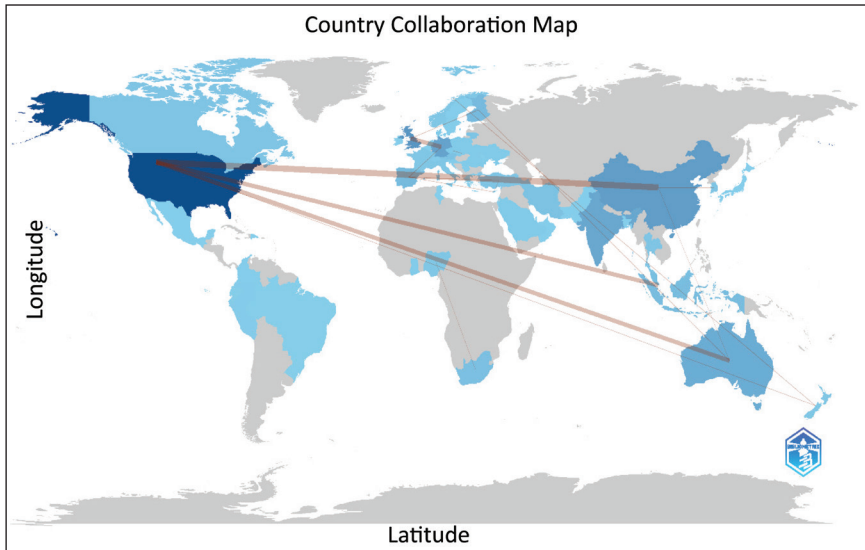
Authors from India have secured the fifth position having 23 documents with 172 citations in terms of contribution in content marketing. However, Portugal and Indonesia are on the least in this list of most productive countries.

### *Collaboration Among Countries*

The country collaboration map on content marketing papers is displayed in Figure 5. Out of the total collaborators, the USA emerged as the leading one, followed by United Kingdom, China, India, and so on. Remaining countries had only one publication with other nations, making them the least engaged in undertaking research on content marketing. Nonetheless, it is noteworthy that the United States of America rated highest when it came to author collaboration with authors from other nations. The USA has collaborated significantly with many countries like China, the United Kingdom, Australia, Singapore, New Zealand, etc. In comparison to other countries, this analysis shows that developed countries contribute more to the research on content marketing.

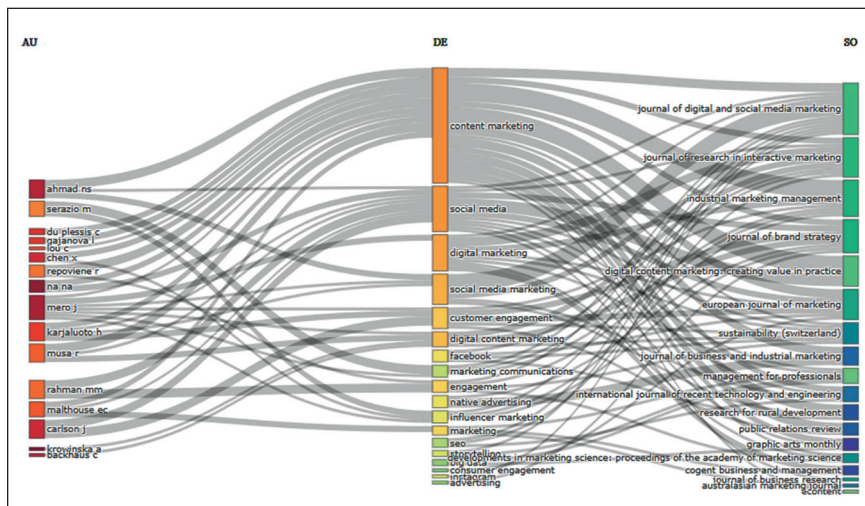
### *Relationship Between Author, Keywords, and Sources*

Figure 6 shows how authors, keywords, and sources are related to each other. The journal name appears in the right column, the authors' names are listed in the left column, and keywords are included in the center column. This proved that the most common keyword used by authors to describe their contributions was "content marketing." In multiple research articles, the terms "social media," "marketing," "social media marketing," "digital content marketing," and countless others with a strong link to content marketing have also been used. An example of a new trend is the publishing of content on social media by companies who want to engage with their customers through both online and offline channels. For instance, Fortune 500 firms are increasingly utilizing well-known social media platforms like Twitter, Facebook, YouTube, and company's Blogs in their



**Figure 5.** Country Collaboration Map.

Source: Biblioshiny.



**Figure 6.** Three Field Plot.

Source: Biblioshiny.

marketing communication campaigns. The keywords listed above were also discovered to be included by prior researchers who used content marketing as their keywords. Furthermore, it is evident from the data that content marketing is prioritized over other keywords. The grounds for this assumption may be supported by the extensive usage of digital marketing when compared to other semantic

language that can be used to signify the same things. Almost all journals made an equal contribution, despite some, like *Journal of Research in Interactive Marketing* and *Journal of Digital and Social Media Marketing*, being the forerunners in this area of social media marketing. So, further study in this area may be beneficial.

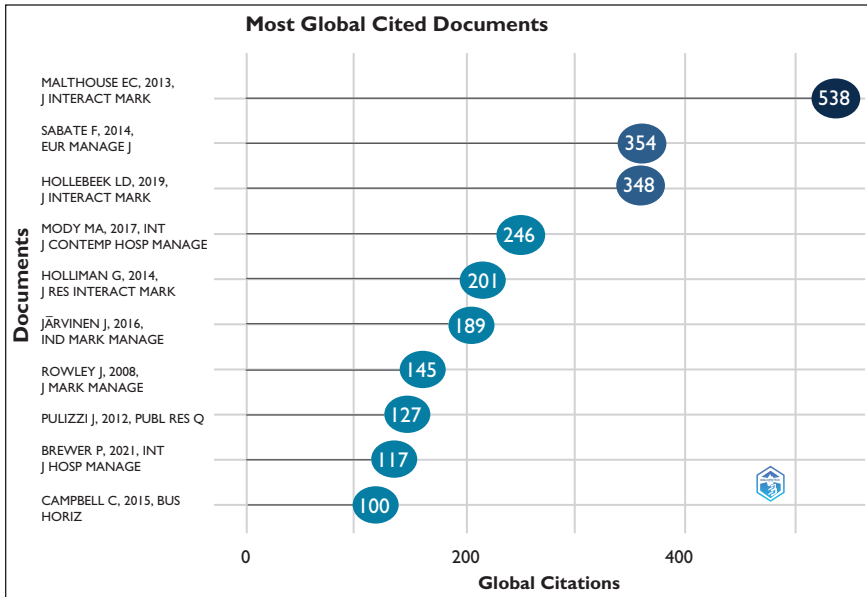
### Highly Cited Documents

Table 4 and Figure 7 give the information about the top 10 publications. The *Managing Customer Relationships in the social media Era: Introducing the Social CRM House* is at the top out of 414 publications having 538 citations followed by *Factor Influencing Popularity of Branded Content in Facebook Fan Pages* authored by Sabate in 2014 having 354 citations. However, *Hard or Soft Sell? Understanding White Papers as Content Marketing* is on the least having only 100 publications.

**Table 4.** Top Publications.

Sr. No.	Document	Author	Citation	Total Citation per Document
1	<i>Managing Customer Relationships in the Social Media Era: Introducing the Social CRM House</i>	Malthouse (2013)	538	44.83
2	<i>Factor Influencing Popularity of Branded Content in Facebook Fan Pages</i>	Sabate (2014)	354	32.18
3	<i>Digital Content Marketing's Role in Fostering Consumer Engagement, Trust, and Value: Framework, Fundamental Proposition, and Implications</i>	Hollebeek et al. (2019)	348	58
4	<i>The Accommodation Experience Scope: A Comparative Assessment of Hotels and Airbnb</i>	Mody (2017)	246	30.75
5	<i>Business to Business Digital Content Marketing: Marketer's Perception of Best Place</i>	Holliman (2014)	201	18.77
6	<i>Harness Marketing Automation for B2B Content Marketing</i>	Jarvinen and Taiminen (2016)	189	21
7	<i>Understanding Digital Content Marketing</i>	Rowley (2008)	145	8.53
8	<i>The Rise of Storytelling as the New Marketing</i>	Pulizzi (2012)	127	9.77
9	<i>Does Marketing Ethics Really Have Anything to Say? A Critical Inventory of the Literature</i>	Gaski (1999)	117	29.25
10	<i>Hard or Soft Sell? Understanding White Papers as Content Marketing</i>	Campbell and Marks (2015)	100	10

**Source:** Biblioshiny.



**Figure 7.** Most Cited Documents.

**Source:** Biblioshiny.

### Co-occurrence of Keywords in Content Marketing Publications

The study’s goal is to undertake a thematic analysis of 414 content marketing publications using co-occurring keywords detected in the publications’ titles, keywords, and abstracts. This map was created to identify relevant study areas where these content marketing publications were influential, and how they could be organized logically. The units of analysis in VOSviewer were “co-occurrence analysis” and “all keywords.” Additionally, we selected a threshold level of three minimum keyword occurrences. According to Figure 7, the keyword network visualization map was created using the co-occurrence frequencies of the top obtained keywords out of 1,550 keywords.

### Cluster 1: Integrated Digital Marketing Ecosystem

This theme reflects the interconnected nature of various elements like advertising, blogging, branded content, branding, consumer engagement, content marketing, content strategy, Facebook, human connection, the Internet, native advertising, relationship marketing, social networks, storytelling, Twitter, and YouTube within the digital marketing landscape. Within this theme, it can be explored that how businesses and brands create a cohesive strategy that integrates different channels and platforms to engage with consumers. Emphasize the importance of storytelling and human connection in building relationships through various digital mediums, such as social networks, blogs, and video content. Highlight the role of branding and

content strategy in shaping a consistent and memorable online presence. The “integrated digital marketing ecosystem” theme underscores the need for a comprehensive and unified approach to leverage the diverse tools available in the digital realm.

### *Cluster 2: Strategic B2B Digital Branding*

This theme encompasses various aspects of B2B (business to business) marketing, digital transformation, and online strategies that businesses use to build and promote their brands in the digital space. This theme shows how businesses strategically leverage digital marketing tools, such as social media marketing, Instagram, internet marketing, marketing automation, SEO, and online marketing to enhance their B2B presence. Emphasize the role of branding in B2B marketing and how businesses communicate and engage with their target audience through digital channels. “Strategic B2B digital branding” reflects the importance of a thoughtful and well-executed approach to digital marketing for B2B enterprises, emphasizing the integration of various tools and technologies to establish a strong online presence and drive business success.

### *Cluster 3: AI-Driven Consumer-Centric Marketing*

This theme encapsulates the integration of artificial intelligence, consumer behavior analysis, content marketing strategy, digital content, customer relationships, marketing strategy, public relations, sales, social networking, and strategic planning to create a comprehensive and effective approach to modern marketing. It shows how businesses leverage artificial intelligence to understand consumer behavior, personalize content marketing strategies, and enhance customer relationships. Emphasize the role of digital content creation and distribution in reaching and engaging target audiences. Discuss how strategic planning guides the integration of AI technologies into marketing strategies, optimizing sales processes, and utilizing social networking platforms for effective outreach. “AI-driven consumer-centric marketing” highlights the importance of aligning marketing efforts with customer needs and preferences, using AI as a tool to enhance the overall consumer experience and drive strategic planning for successful outcomes in the digital era.

### *Cluster 4: Crafting a Data-Infused Digital Narrative: Unveiling the Intricate Dance Between Big Data, Consumer Behavior, and Digital Content Marketing*

This theme delves into the heart of modern marketing strategies. From deciphering consumer engagement patterns through big data analytics to harnessing the influential power of social media and user-generated content, the narrative explores the delicate balance of building trust and fostering loyalty. With a spotlight on the dynamic realms of influencer marketing, the theme showcases how authentic

engagements and transparent storytelling contribute to a robust digital ecosystem. Ultimately, it paints a holistic picture of a data-driven landscape where understanding consumer behavior is not only paramount but also serves as the compass guiding brands toward sustained consumer trust, engagement, and loyalty in the ever-evolving realms of digital marketing.

### *Cluster 5: Exploring the Dynamic Landscape of Modern Commerce*

This theme delves into the intricate web of consumer behavior, electronic commerce, marketing, purchase intention, and sustainability. Unveiling the evolving patterns of consumption behavior in the digital era, the narrative centers on the synergies between e-commerce platforms, strategic marketing initiatives, and the increasingly pivotal role of sustainability in shaping consumer choices. Examining the delicate balance between driving purchase intentions and fostering sustainable practices, this theme seeks to unravel how businesses can harmonize their strategies to meet the growing demand for ethical and eco-conscious consumption in today's interconnected global marketplace.

## **Conclusion and Implications**

### *Discussion and Conclusion*

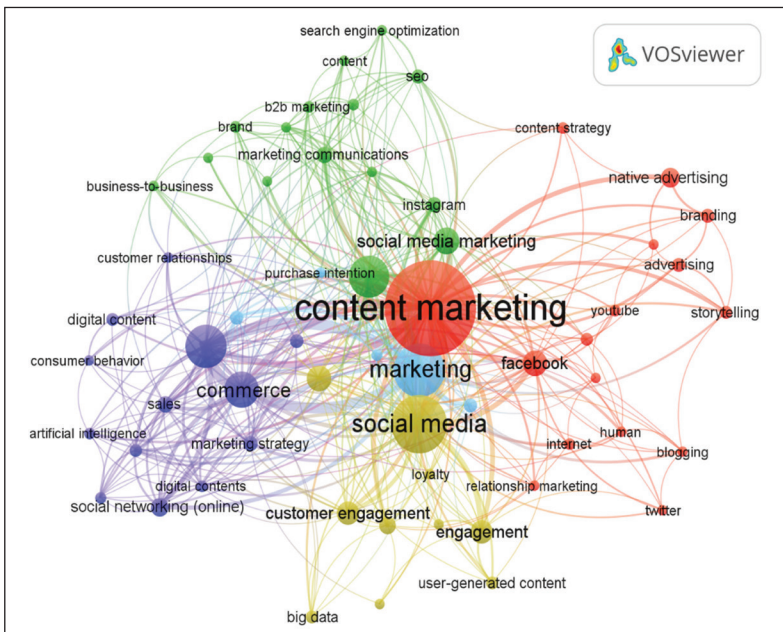
The study used bibliometric analysis (like performance analysis and science mapping) to review content marketing research published in the Scopus Database between 1999 and 2023. Bibliometric analysis is a technique that allows researchers to identify themes in order to contribute new findings to the existing literature through facilitating the comprehensive review of literature on a certain topic (Farrukh et al., 2022). The expansion of the area of content marketing research started in 2010, it can be asserted with certainty. In the last 10 years, the phrase “content marketing” has gained popularity. Both practitioners and academicians will benefit from bibliometric analysis of the content literature in a variety of ways. Academic researchers and digital marketers will first and foremost benefit from this study's insights on the history, development, and current state of content marketing. The content marketing domains that have been the focus of the most research will also be included in this publication, enabling scholars to identify areas that still require further study. According to the data, “content marketing” is the most often utilized keyword in the majority of research. Along with content marketing, other topics like social media marketing, social media, digital marketing, digital content marketing, customer engagement, and so forth should also be researched. The study also shows how content marketing research has attracted a lot of interest since 2010, as a result of the growth of the internet and social media. Firms all over the world are putting more efforts on creating engaging content for engaging customers and brand communication as social media tempts consumers to communicate for the brands (Rowley, 2008). The top publications related to content marketing were *Managing Customer Relationships in the Social*

*Media Era: Introducing the Social CRM House and Factor Influencing Popularity of Branded Content in Facebook Fan Pages.*

The study also studied “thematic trends” of content marketing research by segregating keywords into five themes. As revealed in Figure 8 and Table 5, five themes of keywords are integrated digital marketing ecosystem, strategic B2B digital branding, AI-driven consumer-centric marketing, crafting a data-infused digital narrative: unveiling the intricate dance between big data, consumer behavior, and digital content marketing, exploring the dynamic landscape of modern commerce. Social media marketers must consequently ensure that digital and social media are being used appropriately for customer relationship management and brand communication. Third, the study shows that the USA and United Kingdom are the countries with the highest prevalence of content marketing literature. Future studies should concentrate on the opportunities for content marketing in other parts of the world, particularly in developing nations.

### Limitations of the Study

Despite significant efforts to complete this study, limitations related to data collection and analytical shortcomings cannot be avoided. First, the present study excludes major databases, such as “Web of Science, Google Scholar, and many others,” which becomes a major limitation of the study. Other pertinent keywords were not taken into consideration because just the keyword “content marketing”



**Figure 8.** Co-occurrence of Keywords.

**Source:** VOSviewer.

**Table 5.** Themes Derived from Keywords.

Clusters	Keywords	Theme
Cluster 1	Advertising, blogging, branded content, branding, consumer engagement, content marketing, content strategy, Facebook, human, internet, native advertising, relationship marketing, social network, storytelling, Twitter, YouTube	Integrated digital marketing eco system
Cluster 2	B2B marketing, brand, business to business, content, digital marketing, digital transformation, Instagram, internet marketing, marketing automation, marketing communication, online marketing, search engine optimization, SEO, social media marketing	Strategic B2B digital branding
Cluster 3	Artificial intelligence, commerce, consumer behavior, content marketing strategy, content marketing, customer relationships, digital content, digital contents, marketing strategy, public relations, sales, social networking (online), strategic planning	AI-driven consumer-centric marketing
Cluster 4	Big data, consumer behavior, consumer engagement, digital content marketing, engagement, influencer marketing, loyalty, social media, trust, user generated content	Crafting a data-infused digital narrative: unveiling the intricate dance between big data, consumer behavior, and digital content marketing
Cluster 5	Consumption behavior, electronic commerce, marketing, purchase intention, sustainability	Exploring the dynamic landscape of modern commerce

was used to explore the articles. To keep the analysis simple and easier to understand, only one keyword “content marketing” was chosen. Therefore, other prominent keywords like “content marketing,” “social media,” “social media marketing,” “digital content marketing,” and “marketing.” Only two techniques “co-occurrence and co-authorship analysis techniques” have been used in the study. Besides, due to the limitations of bibliometric analysis, definitions of the themes of the clusters might be biased.

### *Future Research Directions*

Other researchers may incorporate other bibliometric analysis techniques, such as bibliographic coupling, co-citation analysis in VOSviewer software to explore the underlying research areas and generate meaningful insights. Future studies may consider using a variety of databases (e.g., Web of Science, Google Scholar etc.) and analyzing all the records collected. Given that content marketing is a component of social media marketing, it may be useful to look at how marketing research has evolved in the context of social media and digital marketing.

Finally, different countries have varying levels of digitization (Chamboko-Mpotaringa & Tichaawa, 2021). Businesses in wealthy nations are more able to innovate technologically than those in developing nations in this regard. For marketers to make this distinction, they must take in and utilize the knowledge of industrialized nations. Scholars and marketers ought to carry out bibliometric research at the national level as a result. It would be beneficial to comprehend scientific information, current content-marketing trends, and suggest suitable marketing tactics in order to maintain competitiveness.

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### **Websitology**

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# Workplace Ostracism and Turnover Intention in Organizations: A Meta-analytic Review

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## Abstract

Workplace ostracism (WO) poses a significant threat to organizational well-being, with implications for employee turnover intention (TI). This meta-analysis explores the relationship between WO and TI across 32 studies involving 10,553 participants from diverse sectors and countries. The findings reveal a significant positive correlation ( $r = 0.31$ ) between WO and TI, indicating that employees experiencing ostracism are more likely to contemplate leaving their jobs. Despite substantial heterogeneity ( $I^2 = 93.07\%$ ), moderators such as participants' average age and the percentage of females show limited impact on the relationship. Sector-based subgroup analysis suggests a consistent impact of WO on TI across various employment sectors. The study provides practical insights for managers, emphasizing the importance of addressing WO to enhance employee retention and well-being. Recommendations include fostering inclusive cultures and implementing targeted interventions to mitigate the negative effects of ostracism in diverse organizational settings.

## Keywords

Workplace ostracism, turnover intention, meta-analysis, systematic literature review, moderators

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## Introduction

Employees spend a significant part of their lives at the workplace, and the experience of being ignored or excluded, known as workplace ostracism (WO), can have profound consequences. WO is defined as “the degree to which an individual perceives that he or she is being ignored or excluded by others” (Ferris et al., 2008), and it has implications for both individuals and organizations (Howard et al., 2020). Various terms, such as isolation (Williams, 2000; 2007), rejection (Prinstein & Aikins, 2004), social exclusion (Twenge et al., 2002), being out of the loop (Jones et al., 2009), and abandonment (Baumeister et al., 1993), can be used interchangeably with the term WO. Surveys indicate that 19%–66% of employees experience workplace isolation (Fox & Stallworth, 2005). Being part of an organization is linked to job success, while social exclusion is associated with organizational issues and intentions to leave (Ferris et al., 2008).

This unique meta-analysis aims to uncover trends in the relationship between WO and turnover intention (TI). Past research presents conflicting results: Some studies report a strong positive correlation, while others find no significant relationship (Penhaligon et al., 2013; Lim et al., 2016). To reconcile these inconsistencies, we draw on Social Identity Theory (SIT; Tajfel & Turner, 1982), Conservation of Resources Theory (COR theory; Hobfoll, 1989), and Belongingness Theory (BT; Baumeister & Leary, 1995). Additionally, a meta-analysis clarifies conflicting findings and explores potential moderators using the Meta Essential tool. Our decision to focus on TI, rather than actual turnover behavior, is practical and aligned with common research practices. Moreover, Steel and Ovalie’s (1984) meta-analysis reveals a robust association between TI and actual turnover. It emphasizes that TI are more effective predictors of turnover than affective variables such as job satisfaction, career satisfaction, and organizational commitment. Therefore, in our study, we opted for TI as the dependent variable rather than actual turnover, considering the reasons mentioned above.

WO is a significant concern, impacting employee well-being and organizational performance. This study addresses the pervasive impact of WO on employees and organizations, including issues of TI, team dynamics, and overall workplace morale. Despite growing awareness of the detrimental effects of WO, a comprehensive understanding of its nuanced relationship with TI remains elusive. Our meta-analysis contributes to this understanding, offering insights into organizational practices and interventions to cultivate healthier workplaces.

Our study identified a crucial gap in the literature regarding the relationship between WO and TI. While prior research extensively explores this association, a comprehensive understanding of potential moderating factors remains underexplored. To address this gap, our study employs a moderator analysis, delving into contextual and individual-level factors influencing the strength or direction of the observed relationship. By systematically examining potential moderators, we aim to offer valuable insights beyond the traditional understanding of the WO–TI association, contributing to a more nuanced perspective for researchers and practitioners. This approach enhances the comprehensiveness of our study within the broader context of advancing knowledge in the field.

## Literature Review and Hypothesis Development

### *Workplace Ostracism*

WO is a prevalent issue that many employees face (Ferris et al., 2008). It involves employees being deliberately excluded from social interactions and opportunities, often involving mistreatment (Harvey et al., 2018). This exclusion can be a result of intentional offense, forbidding, suspension, or intimidation, causing individuals to feel isolated and discouraging others from associating with them (Williams & Gerber, 2004). Surprisingly, WO is a common occurrence in workplaces, yet there is limited research on its causes (Hitlan et al., 2006). In a workplace, co-workers and supervisors provide social and emotional support that fulfills individuals' needs for social connection and recognition. WO can take two forms: supervisor ostracism and co-worker ostracism. However, there is limited research on how these forms of ostracism affect employee behavior.

#### *Supervisor Ostracism*

Supervisor ostracism (SO) refers to a supervisor's actions, which include ignoring, avoiding, or neglecting an employee, ultimately eroding the individual's sense of communal status and dignity (Shapiro et al., 1994). Supportive leadership, on the other hand, has been shown to have positive effects, such as reducing stress and enhancing overall job performance (Rhoades & Eisenberger, 2002). When employees experience SO, it results in detrimental effects on their confidence, competence, and overall well-being. This negative impact often leads to emotional overwhelm, as highlighted by the work of Halbesleben and Bowler (2005).

#### *Co-worker Ostracism*

Co-worker ostracism (CO) is described as an employee's perception of how much they are ignored by their colleagues and kept silent, excluded from the conversation, or excluded from group activities. CO can also be interpreted as "the degree to which a person believes he or she is being ignored or excluded by others" (Ferris et al., 2008). According to Robinson et al. (2013), when the act of engaging another member of the organization is socially appropriate, but an individual or group fails to take the action, it is known as CO.

### *Turnover Intention*

TI, as defined by Thoresen et al. (2003), is an expression of an employee's desire to leave their current organization (Price, 2001). TI refers to the desire to quit one's job due to workplace isolation (Bothma & Roodt, 2013), actively seeking alternative employment (Turkoglu & Dalgic, 2019), or due to dissatisfaction, employees seek new job opportunities (Mobley et al., 1978). High turnover negatively affects company performance by disrupting operations (Setyanto & Hermawan, 2018). In response, organizations prioritize employee retention as a competitive survival strategy (Lockwood, 2006). Employees contemplating leaving their jobs undergo psychological processes such as assessing job satisfaction, exploring options, and weighing the pros and cons (Mobley, 1977). Employee

turnover incurs significant organizational costs such as recruitment, training, and potential errors during adjustment (Yang, 2008). It can lead to stress, psychological issues, and burnout for both organizations and employees (Dysvik & Kuvaas, 2010), compromising service quality, especially during peak periods (Choi, 2006).

### *Workplace Ostracism and Turnover Intention*

Here, we suggest that experiencing WO increases the likelihood of TI. This connection is based on three underlying reasons.

#### *Conservation of Resource Theory*

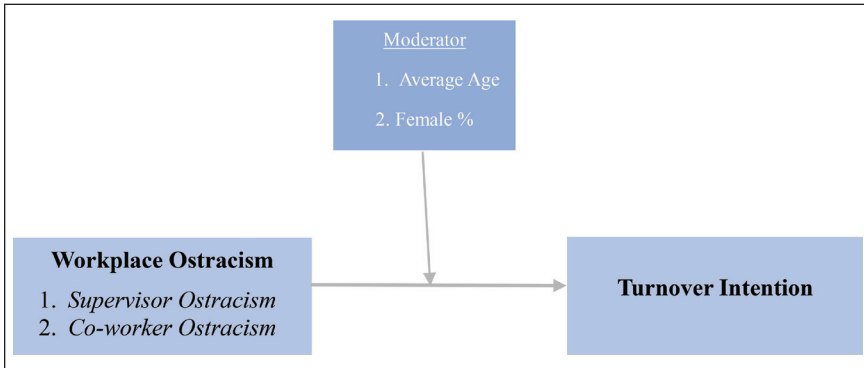
According to the COR theory by Hobfoll (2001), people are naturally inclined to build, develop, and safeguard their possessions, jobs, respect, and financial assets. The COR theory by Hobfoll (1989) posits that individuals strive to preserve and acquire resources to meet personal and professional goals. The COR theory proposes that when employees feel left out or excluded, they are likely to experience a reduction in their available resources (Turkoglu & Dalgic, 2019). This heightened vulnerability can lead to increased anxiety and a decrease in positive work attitudes (Leung et al., 2011). Workplace resource loss leads to emotional distress and psychological strain, which are significant contributors to burnout (Schaufeli & Enzmann, 1998). As burnout intensifies, employees may feel overwhelmed, which in turn diminishes their commitment, increases the likelihood of contemplating job departure, and ultimately contributes to higher turnover rates (Farasat et al., 2021). Empirical studies, such as Kim and Stoner (2008), establish a link between burnout and increased turnover. Research indicates that WO leads to higher TI among affected employees (Ferris et al., 2008; Zheng et al., 2016).

#### *Belongingness Theory*

Belongingness is a basic human need (Allen, 2020). According to Baumeister and Leary (1995), BT emphasizes the essential desire for meaningful and lasting interpersonal relationships. The BT suggests that ostracism threatens the inherent need for belonging, which is crucial for success, safety, and survival (Scott et al., 2014). Not feeling like you belong can result in physical, emotional, and social distress. People who experience exclusion attempt to ease the emotional distress it causes (Wang et al., 2021). Additionally, WO, seen as an unfavorable work environment factor, can make individuals feel unwelcome, leading to a separation between the person and the organization (Lyu & Zhu, 2019). Studies using scenarios, like ball-tossing experiments, show that ostracized individuals prefer working alone or with a new group rather than with the one that excluded them (Williams, 2007). O'Reilly et al. (2015) found that ostracized employees are more inclined to leave their positions compared to those who feel included.

#### *Social Identity Theory*

SIT suggests that the way people see themselves and connect with others influences their attitudes and actions (Tajfel, 1978). The literature on socialization suggests that individuals are more likely to form and maintain favorable relationships within an organization when their values match those of the organization (Brewer & Gardner,



**Figure 1.** Proposed Model of the Association Between WO and TI.

1996). This implies a sense of belonging and identification with the organization and its members, aligning with SIT (Tajfel, 1978). Conversely, employees whose values do not align may face social isolation, strengthening their feelings of being outsiders. According to SIT, being excluded at work diminishes crucial aspects like connection, respect, control, and a sense of meaningful existence, which are vital for organizational well-being (Kim & Ishikawa, 2021). WO unofficially undermines the authority, independence, and responsibilities that an individual should rightfully receive from the organization. This prevents the person from forming a psychological connection to the organization or group (Williams & Sommer, 1997), hinders the ability to establish a meaningful presence through their work, and results in TI among affected employees (Williams et al., 1998).

Based on the COR theory, BT, and SIT, this study hypothesizes that WO contributes to increased TI (see Figure 1).

$H_1$ : WO is positively associated with TI.

### *Meta-analytical Review of the Studies*

This study employed a meta-analysis based on Borenstein et al. (2009) methodology and followed PRISMA guidelines (Tikito & Souissi, 2019) for a systematic review. Pearson correlation coefficients measured the effect size in each study, interpreted using Cohen's benchmarks (Cohen, 1992). Random effects model calculated sample-weighted average correlations. Forest plots visually depicted WO and TI correlations. Homogeneity analysis utilized  $Q$  and  $I^2$  statistics to assess study similarity and heterogeneity. Significant  $Q$ -values indicated heterogeneity, with  $I^2$  quantifying differences among effect sizes (Borenstein et al., 2009).

### *Moderators for the Study*

Past research has indicated that specific individual characteristics, such as age and gender, might be influenced by WO (Peng & Salter, 2021). This study aims to

explore the potential impact of average age and the percentage of females on WO–TI relationships in organizational settings.

#### *Average Age*

Teenagers may be more affected by ostracism due to the crucial role of peer acceptance in emotional regulation during adolescence (Guyer et al., 2014). While ostracism impacts everyone, adolescents and emerging adults may be more sensitive to it than older individuals (Pharo et al., 2011). Research suggests that adolescents experience more significant emotional effects from ostracism compared to adults (Sebastian et al., 2010). In our current study, we are exploring potential age-related differences in the impact of WO, considering factors such as inexperience and sensitivity to social dynamics among younger individuals.

#### *Female Percentage*

Ouyang et al. (2015) propose that women value mutual support and positive relationships. Social role theory suggests that gender differences in behavior stem from societal structures, leading to distinct psychological adaptations (Eagly, 1987; Eagly & Wood, 1999). Women are more susceptible to the challenges of WO (Bashir et al., 2024). Gender variations may influence how individuals perceive and cope with ostracism, potentially resulting in different reactions between men and women. The current study considers the female percentage as a moderator in exploring the relationship between WO and TI.

## **Methodology**

### *Literature Search*

To conduct a comprehensive literature review, the authors extensively searched two electronic databases, Scopus and Web of Science (WoS), specifically targeting publications up to the year 2023. The search focused on the abstracts, titles, and keywords of studies that exhibited a correlation between WO and TI. The search was conducted on January 2024, using a search string (see Table 1) on both databases, leading to the identification of 65 records from Scopus and 74 records from WoS.

### *Criteria of Inclusion and Exclusion*

Following this initial search, the authors implemented inclusion and exclusion criteria, with a particular emphasis on relevance to the meta-analysis. As the study was being conducted at the beginning of 2024, documents from the year 2024 were excluded, as it was deemed impractical to include all studies from that year. Consequently, the exclusion of 2024 led to 64 remaining documents from Scopus and 74 documents from WoS. Through additional refinement, restricting the search to publications in the English language, the count was further reduced to 61 from Scopus and 72 documents from WoS. Subsequently limiting the search to

**Table 1.** Database and Search String Used for Data Retrieval.

Database	Search String
Scopus and WoS	TITLE-ABS-KEY ( ( ostracism* OR “workplace ostracism” OR “workplace avoidance” OR “workplace boycott” OR “workplace exclusion” OR “workplace ex-communication” OR “workplace exile” OR “workplace expulsion” OR “workplace isolation” OR “workplace rejection” OR “workplace shunning” OR “social exclusion*” OR “organization* exclusion*” ) AND ( turnover OR “turnover intention*” OR “intention* to quit” OR “leave intention*” OR “intention* to leave” ) ) AND ( EXCLUDE ( PUBYEAR, 2024 ) ) AND ( LIMIT-TO ( LANGUAGE, “English” ) ) AND ( LIMIT-TO ( DOCTYPE, “ar” ) )

**Source:** Scopus ([www.scopus.com](http://www.scopus.com)) & Web of Science ([www.webofscience.com](http://www.webofscience.com)).

articles resulted in 56 from Scopus and 68 articles from WoS. After a meticulous screening process, only 32 studies met the predefined criteria and were included in the comprehensive review (see Figure 2).

### *Software Used for the Analysis*

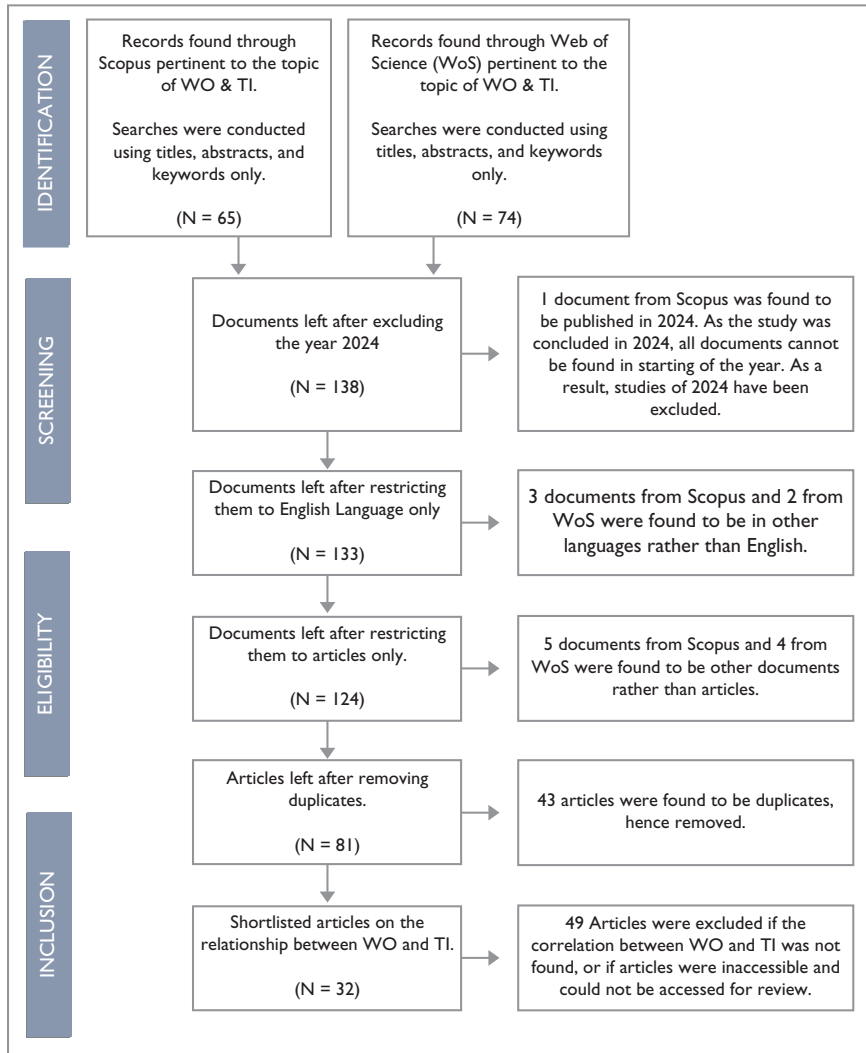
In this study, we used Meta-Essential software for the analysis. A Meta-Essential is a tool used for calculating the overall correlation or effect size across multiple studies on a particular topic. It involves combining and analyzing data from various studies to derive a more comprehensive and robust estimate of the relationship between variables.

### *Scale Level Differences in the Study*

In our study, we considered and handled differences in measurement scales used across studies. WO and TI are often assessed on various scales, introducing potential comparability challenges. Different studies may use Likert scales with different response options or categorical scales. Despite these variations, our meta-analysis addresses this issue using statistical methods like the Fisher’s  $Z$  transformation. This technique standardizes correlation coefficients measured on different scales, enabling us to combine and analyze them effectively. Recognizing and accommodating these scale differences is crucial for obtaining accurate insights from the collective research on WO and TI.

### *Transformation of the Variables (Fishers Z Transformation)*

The transformation applied in this study is Fisher’s  $Z$  transformation. This transformation involves converting correlation coefficients ( $r$ ) into a different scale by



**Figure 2.** Flow Chart of Retrieval and Selection of Articles.

taking the arctangent of the correlation coefficient. The mathematical formula for the Fisher’s Z transformation is  $Z = 0.5 * \ln((1 + r)/(1 - r))$ . This method stabilizes variance, normalizes the distribution of correlation coefficients, and is commonly used in meta-analytic studies, especially when dealing with correlation data. The purpose is to enhance the accuracy and appropriateness of statistical procedures in meta-analysis by creating a more suitable scale for aggregating correlation coefficients.

## *Coding of Studies*

After removing the excluded studies, the remaining studies were carefully examined and categorized. The information extracted included authors, the title of the study, publication year, country name, journal name, the sector where the survey was carried out, sample size denoted by “*N*,” the percentage of females denoted by “*F*%,” the average age of the participants, and the correlation coefficient denoted by “*r*” (refer to Table 2).

## *Data Assumptions and Decision Rule*

To make sure our meta-analysis is trustworthy and easy to understand, we have carefully adhered to well-established and standardized procedures. This helps to minimize any difficulties that might arise from tough decision-making situations. Our approach is strategic and focused on making the analysis strong and reliable, which in turn boosts the trustworthiness of our results. In this study, we have tackled concerns related to judgment by thoroughly addressing specific issues to ensure the quality of our research.

### *Missing Data*

To address missing data, the researchers made assumptions to estimate the participants' average age. They established upper and lower age limits using available information and used these limits to calculate the mean age. These assumptions helped fill data gaps and calculate the average age parameter.

### *Female Percentage*

In cases where studies did not directly mention the female percentage but provided the male percentage, we calculated the female percentage by subtracting the male percentage from 100% (i.e., the total percentage of male and female participants).

### *Correlation*

In some studies, WO was subdivided, and correlations were provided separately. In these cases, researchers calculated the average of these correlations and treated it as the overall correlation.

In cases where multiple studies were included in a single paper, researchers calculated the average of all correlation values within each study. This decision is based on the assumption that each study contributes unique insights into the relationship between variables, and averaging correlation values within each study helps in synthesizing the findings effectively.

### *Average Sample Size*

In instances where several studies were encompassed within a single paper, leading to varying sample sizes, we computed the arithmetic mean or average of all the reported sample sizes within each study.

**Table 2.** Descriptions of Included Studies for Meta-analysis.

Sl No.	Topic	Authors	Year	Country	Journal	Sector	N (F%)	Avg. Age	r
1	Workplace isolation: Salespeople and supervisors in USA	Mulki, J. P.; Jaramillo, F.	2011	USA	<i>International Journal of Human Resource Management</i>	Sales	344 (65.60%)	33.50	0.42
2	Feeling left out? The mediating role of perceived rejection on workgroup mistreatment and affective, behavioral, and organizational outcomes and the moderating role of organizational norms	Penhaligon, N. L.; Louis, W. R.; Restubog, S. L. D.	2013	Australia	<i>Journal of Applied Social Psychology</i>	Education	189 (56.08%)	22.00	0.63
3	The relationship of social exclusion at work with self-defeating behavior and turnover	Renn, R.; Allen, D.; Huning, T.	2013	USA	<i>Journal of Social Psychology</i>	Education	284 (30.00%)	30.00	0.15
4	Employee behavioral activation and behavioral inhibition systems, manager ratings of employee job performance, and employee withdrawal	Renn, R. W.; Steinbauer, R.; Fenner, G.	2014	USA	<i>Human Performance</i>	Education	246 (60.00%)	–	0.15
5	Invisible, therefore isolated: Comparative effects of team virtuality with task virtuality on workplace isolation and work outcomes	Orhan, M. A.; Rijsman, J. B.; Van Dijk, G. M.	2016	Netherlands	<i>Revista De Psicología Del Trabajo Y De Las Organizaciones</i>	Education	278	–	0.30
6	Unemployed and exhausted? Job-search fatigue and reemployment quality	Lim, V. K. G.; Chen, D.; Aw, S. S. Y.; Tan, M.	2016	Singapore	<i>Journal of Vocational Behavior</i>	Employment agency	89 (44.00%)	42.00	–0.20

(Table 2 continued)

(Table 2 continued)

Sl No.	Topic	Authors	Year	Country	Journal	Sector	N (F%)	Avg. Age	r
7	Workplace ostracism and its negative outcomes psychological capital as a moderator	Zheng, X. M.; Yang, J.; Ngo, H. Y.; Liu, X. Y.; Jiao, W. J.	2016	China	<i>Journal of Personnel Psychology</i>	Corporate	456 (47.30%)	33.00	0.34
8	Workplace ostracism seen through the lens of power	Fiset, J.; Hajji, R. A.; Vongas, J. G.	2017	USA	<i>Frontiers In Psychology</i>	Service sector	295 (40.85%)	33.61	0.33
9	Exploring the interpersonal determinants of job embeddedness and voluntary turnover: A conservation of resources perspective	Zhang, L.; Fan, C.; Deng, Y.; Lam, C. F.; Hu, E.; Wang, L.	2019	China	<i>Human Resource Management Journal</i>	Information technology	352 (29.00%)	29.00	0.13
10	Perceived career opportunities, commitment to the supervisor, social isolation: Their effects on nurses' well-being and turnover	Huyghebaert, T.; Gillet, N.; Audusseau, O.; Fouquereau, E.	2019	France	<i>Journal of Nursing Management</i>	Healthcare	244	28.20	0.25
11	The effect of ruminative thought style and workplace ostracism on turnover intention of hotel employees: The mediating effect of organizational identification	Turkoglu, N.; Dalgic, A.	2019	Switzerland	<i>Tourism And Management Studies</i>	International employment	631 (54.26 %)	40.00	0.33
12	The predictive effects of workplace ostracism on employee attitudes: A job embeddedness perspective	Lyu, Y.; Zhu, H.	2019	China	<i>Journal of Business Ethics</i>	Hospitality	266 (79.70%)	30.41	0.16
13	When does ostracism lead to turnover intention? The moderated mediation model of job stress and job autonomy	Vui-Yee, K.; Yen-Hwa, T.	2020	China	<i>IIMB Management Review</i>	Corporate	426 (57.30%)	28.00	0.39

14	Abusive supervision and newcomers' turnover intention: A perceived workplace ostracism perspective	Wang, Z. Y.; Du, J. H.; Yu, M. Y.; Meng, H.; Wu, J. H.	2021	China	<i>Journal of General Psychology</i>	Corporate	300 (54.30%)	23.59	0.48
15	Contrasting effects of "external" worker's proactive behavior on their turnover intention: A moderated mediation model	Kim, S.; Ishikawa, J.	2021	Korea	<i>Behavioral Sciences</i>	PCW	261	34.30	0.58
16	Linking workplace ostracism to turnover intention: A moderated mediation approach	Singh, L. B.; Srivastava, S.	2021	India	<i>Journal of Hospitality and Tourism Management</i>	Hospitality	350 (44.60%)	64.00	0.60
17	The consequences of incongruent abusive supervision: Anticipation of social exclusion, shame, and turnover intentions	Korman, B. A.; Tröster, C.; Giessner, S. R.	2021	USA	<i>Journal of Leadership and Organizational Studies</i>	Online labor marketplace	195 (40.00%)	34.70	0.08
18	The mediating role of psychological distress between ostracism, work engagement, and turnover intentions: An analysis in the Cypriot hospitality context	Anasori, E.; Bayighomog, S. W.; De Vita, G.; Altınay, L.	2021	Turkey	<i>International Journal of Hospitality Management</i>	Hospitality	321 (39.30%)	32.00	0.18
19	Workplace ostracism and counterproductive work behaviors: The chain mediating role of anger and turnover intention	Zhu, Y.; Zhang, D.	2021	China	<i>Frontiers In Psychology</i>	Corporate	426 (57.30%)	28.00	0.25
20	Abusive supervision climate and turnover intention: Is it my coworkers or my supervisor ostracizing me?	Özkan, A. H.	2022	Turkey	<i>Journal of Nursing Management</i>	Healthcare	209	-	0.15

(Table 2 continued)

(Table 2 continued)

Sl No.	Topic	Authors	Year	Country	Journal	Sector	N (F%)	Avg. Age	r
21	Consequences of abusive supervision on Indian service sector professionals: A PLS-SEM-based approach	Srivastava, S.; Pradhan, S.; Singh, L. B.; Madan, P.	2022	India	<i>International Journal of Conflict Management</i>	Service sector	575 (46.40%)	40.00	0.55
22	Examining the curvilinear relationship of job performance, supervisor ostracism, and turnover intentions	Liu, C.; Li, H.; Li, L.	2022	China	<i>Journal Of Vocational Behavior</i>	Aviation	449 (4.23%)	28.67	0.16
23	Relationship between workplace ostracism and turnover intention among nurses: The sequential mediating effects of emotional labor and nurse-patient relationship	Gou, L.; Ma, S.; Wang, G.; Wen, X.; Zhang, Y.	2022	China	<i>Psychology, Health and Medicine</i>	Healthcare	379 (99.00%)	30.00	0.10
24	An integrated model of the determinants and outcomes of workplace ostracism in the tourism industry	Soliman, M.; Elbaz, A. M.; Gulvady, S.; Shabana, M. M.; Maher, H.	2023	Egypt	<i>Tourism And Hospitality Research</i>	Tourism	591 (36.55%)	35.00	-0.01
25	A policy of potential problems: The buffering effects of the perceptions of pay secrecy and cynicism on workplace ostracism	Aplin-Houtz, M. J.; Sanders, M.; Lane, E. K.	2023	USA	<i>Employee Responsibilities and Rights Journal</i>	Online labor marketplace	372 (41.13%)	58.64	0.51
26	How maladjustment and workplace bullying affect newcomers' turnover intentions: Roles of cognitive diversity and perceived inclusive practices	Ma, Z.; Song, L. P.; Huang, J.	2023	China	<i>International Journal of Contemporary Hospitality Management</i>	Service sector	403 (39.50%)	28.50	0.36

27	Influence mechanism and impacting boundary of workplace isolation on the employee's negative behaviors	Yang, Y.-J.; Lu, L.	2023	China	Frontiers In Public Health	Corporate	300 (46.70%)	39.17	0.33
28	Seasonal employee leadership and turnover intention in the hospitality and tourism industry: Serial mediation model workplace ostracism and work alienation	Aktürk, C.; Yeşiltaş, M.	2023	Turkey	Canadian Journal of Administrative Sciences	Hospitality	450 (33.60%)	24.50	0.57
29	Talents under threat: The anticipation of being ostracized by non-talents drives talent turnover	Van Zelderen, A.; Dries, N.; Marescaux, E.	2023	Belgium	Group And Organization Management	Corporate	333 (54.67%)	38.04	0.12
30	The relationship between workplace ostracism and organizational dehumanization: The role of need to belong and its outcomes	Brisson, N.; Caesens, G.	2023	Belgium	Psychologica Belgica	Multi-sector (health and social care, retail and sales, engineering and manufacturing)	340 (52.85%)	40.09	0.37
31	When I see your pain: Effects of observing workplace ostracism on turnover intention and task performance	Wang, Y.; Lai, P.	2023	China	Journal of Managerial Psychology	Corporate	218 (48.50%)	31.09	0.23
32	Workplace ostracism and turnover intention: A moderated mediation model of job insecurity and coaching leadership	Zhang, R.; Niu, X.; Zhang, B.	2023	China	Canadian Journal of Administrative Sciences	Hospitality	214 (64.95%)	23.65	0.38

### *Quality Assessment*

To ensure the reliability of our meta-analysis, a meticulous quality assessment was conducted, employing well-established tools and methodologies. The researchers followed a systematic literature review (SLR) process thrice, and searches consistently identified 32 papers, ensuring the inclusion of relevant studies. In assessing the quality of the selected studies, particular attention was given to the correlation coefficient between WO and TI. Scopus and WoS stand as two globally renowned and competitive citation databases. Researchers from an increasingly diverse array of countries, regions, and knowledge domains are engaging with these databases (Zhu & Liu, 2020). Consequently, the chosen papers are of high quality, given their extraction from the two pertinent databases.

## **Results**

### *Descriptive Statistics/Description of Studies*

In Table 2, a comprehensive meta-analysis is presented, encompassing 32 experimental studies involving a total of 10,553 participants from 12 different countries. Notably, 12 studies were conducted in China, 6 in the United States of America, 3 in Turkey, and 2 each in India and Belgium. Additionally, countries such as Australia, the Netherlands, Singapore, France, Switzerland, Korea, and Egypt contributed one article each to the meta-analysis. The majority of the studies were carried out in China. The professional backgrounds of the respondents were diverse, encompassing various sectors such as corporate, hospitality, healthcare, service sector, education, and others. This diversity in the participant pool enhances the generalizability of the findings. The meta-analysis included studies conducted between 2011 and 2023, covering a period of 13 years. The number of participants in these studies varied, ranging from 89 to 631 people, with an average of 360 participants. The average age of the participants across these studies was found to be 31.60 years. The reported correlation coefficients or effect sizes in the studies had a range of  $-0.20$  to  $0.60$ , indicating diverse strengths and directions of the relationships under investigation.

### *Overall Effect Size of WO and TI*

The forest plot in Figure 3 visually summarizes the relationship between WO and TI across various studies. The plot reveals a positive and significant association, indicating that when employees experience exclusion or neglect at work, there is an increased likelihood of contemplating job departure. The overall impact size, denoted as " $r = 0.31$ " in Table 3, represents the strength and direction of this relationship. The positive sign signifies a consistent positive association across studies. Table 3 provides additional details, including the number of studies ( $k$ ), confidence interval (95% CI:  $0.23-0.38$ ), high heterogeneity ( $I^2 = 93.07\%$ ), and statistical significance ( $p < .001$ ), offering a comprehensive understanding of the robustness and consistency of the observed relationship in the meta-analysis.

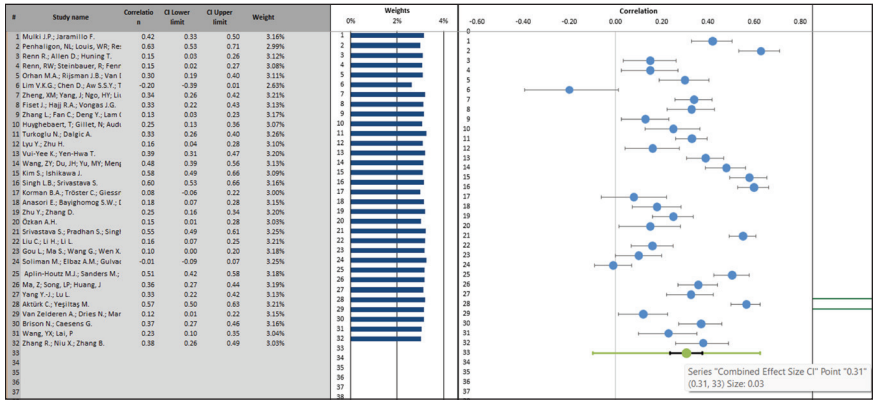


Figure 3. Forest Plot on WO and TI.

Table 3. Meta-analysis of Workplace Ostracism and Turnover Intention.

	k	r	95% CI	I <sup>2</sup> (%)	Q
TI	32	0.31	0.23–0.38	93.07%	447.39 p < .001

**Heterogeneity and Moderator Analysis**

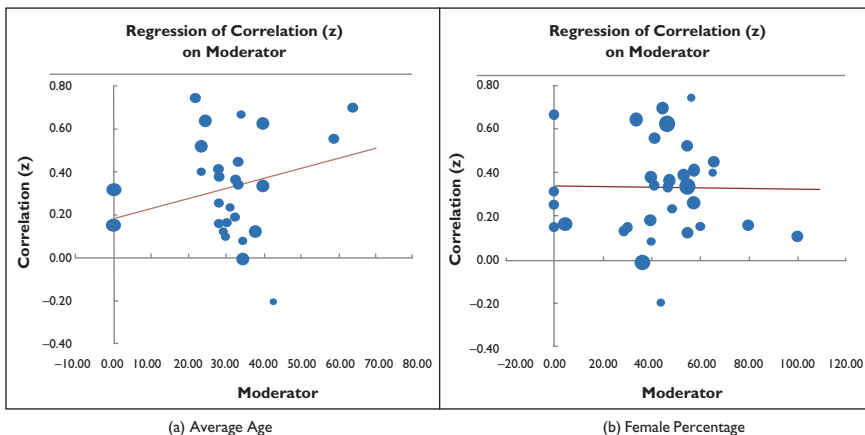
The *I*<sup>2</sup> statistic in Table 4 reveals substantial heterogeneity (*I*<sup>2</sup> = 93.07%) in the connection between WO and TI across the 32 studies. This suggests that there are likely factors influencing the relationship beyond what is accounted for by the overall effect size of 0.31. To explore potential moderators, a moderator analysis was undertaken on the 32 studies. Two variables were considered: participants' average age and the percentage of females. Notably, three studies were excluded from the average age analysis due to missing data on participants' average age. This process was repeated for the analysis of the percentage of females, excluding four studies due to missing data on the female percentage. The analytical approach involved using *Q*-range statistics and conducting subgroup analysis based on the sector of employees. These methods help in understanding if there are specific characteristics (such as age or gender distribution) that might explain the observed heterogeneity in the relationship between WO and TI across the studies.

**Participants' Average Age and Female Percentage as Moderators**

In Table 5, researchers looked at how the average age of participants and the percentage of women in the studies might explain this variability. Figure 4a shows a graph with the average age of participants on the horizontal axis and correlation values on the vertical axis. Figure 4b shows a similar graph but with the percentage of women on the horizontal axis. The results of the meta-regression analysis, represented by *R*<sup>2</sup> values, indicate that the average age of participants has a small impact (8.08%) on the relationship between WO and TI. In simpler terms, the age of the participants plays a minor role in how WO is connected to TI. On the other

**Table 4.** Heterogeneity Analysis.

$Q$	$I^2$ (%)	$T^2$ (Z)	$T$ (Z)
447.39	93.07%	0.04	0.20

**Figure 4.** Meta-regression Depicts the Role of Participants' (a) Average Age and (b) Female Percentage as Moderators in the Association Between WO and TI, Respectively.

**Note:** Blue circles show the studies, and the size of the studies depicts their contribution to the overall effect size. (For interpretation of the references to colour in this figure, please refer to the web version of the article.)

hand, the percentage of female participants did not have a significant impact on the relationship between WO and TI ( $R^2$  of 0.02%).

#### *Moderator (Subgroup) Analysis of Sector of Employees*

Since the moderator analysis did not have a substantial impact on the relationship between WO and TI, a subgroup analysis was conducted to investigate if there are variations in the effect of the intervention or exposure across different subgroups within the study population. The studies were categorized into five subgroups, denoted as follows: Group C for the corporate sector, E for the education sector, H for the healthcare sector, HI for the hospitality sector, and O for the other sectors (see Table 6). The ANOVA results (Table 7) in our subgroup analysis revealed no significant differences among subgroups. Variations between subgroups were not statistically meaningful, as indicated by non-significant  $p$  values for both the "Between" (0.561) and "Within" (0.125) components. This suggests that differences between and within subgroups were not significantly different from what would be expected due to random chance. The overall variability in effect sizes across all subgroups was also not significantly different from random chance ( $p = .178$ ). The pseudo  $R^2$  of 12.78% (Table 8) indicates that the moderator variables explain a moderate amount of variability in effect sizes. The high heterogeneity ( $I^2 = 93.07\%$ ) in our meta-analysis indicates the suitability of the random effects model over the fixed effects model. This model accounts for significant variability in effect sizes among studies, considering both within-study

**Table 5.** Explanation Provided by Moderators in Total Heterogeneity.

Moderators	Heterogeneity in Percentage ( $I^2$ )	Explained Variation ( $R^2$ ) (%)
Participant's average age	92.85	8.08
Female percentage	92.85	0.02

**Table 6.** Description of the Subgroups.

No. of Included Subjects	No. of Included Studies	No. of Subgroups (5)
10,553	32	C = Corporate E = Education H = Healthcare HI = Hospitality O = Others

**Table 7.** Results of the Subgroup Analysis (ANOVA).

Analysis of Variance	Sum of Square (Q)	df	p
Between/model	4.87	6	.561
Within/residual	33.23	25	.125
Total	38.10	31	.178

**Table 8.** Explained Variation.

Pseudo $R^2$	12.78%
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and between-study differences. In the context of WO and TI, the diverse effect sizes across studies suggest variations due to different samples and methods. The random effects model, by assuming a distribution of true effect sizes, provides a more realistic estimation, acknowledging inherent differences across studies compared to the fixed effects model, which assumes a single true effect size.

#### *Forest Plot for Subgroup Analysis of Sector of Employees*

Forest plot in Figure 5 visually summarizes a subgroup analysis, illustrating the variation in the WO and TI relationship across different employment sectors. Each study is represented by a bar, with the midpoint indicating the estimated effect size and the bar's length depicting the confidence interval. The overall effect size (0.28) is represented by a green dot, combining data from all studies, with its width indicating the confidence interval for the combined effect size.

## **Findings and Discussion**

The meta-analysis of 32 studies involving 10,553 participants demonstrates a significant positive correlation ( $r = 0.31$ ) between WO and TI. The obtained

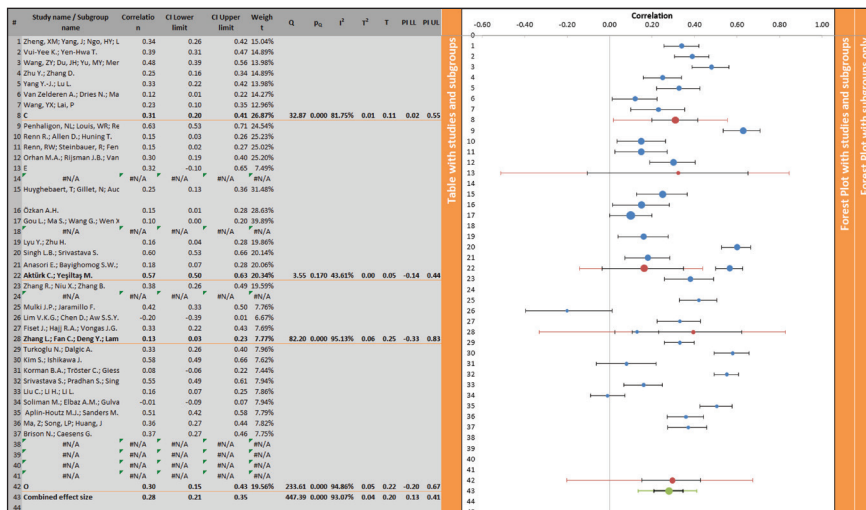


Figure 5. Forest Plot for Subgroup Analysis of Sector of Employees.

Note: Group C: Corporate sector, E: Education sector, H: Healthcare sector, HI: Hospitality sector, and O: Other sectors.

correlation of 0.31 falls within the range interpreted as a moderate effect according to Cohen’s benchmarks (Cohen, 1992). This highlights the increased likelihood of employees considering leaving their jobs when experiencing exclusion. The substantial heterogeneity ( $I^2 = 93.07%$ ) suggests factors beyond the overall effect size contribute to variability in the WO–TI relationship across studies. Moderators examined were participants’ average age (8.08% impact) and the percentage of females (0.02%, no significant influence). Subgroup analysis across corporate, education, healthcare, hospitality, and other sectors did not reveal significant differences, with a pseudo  $R^2$  of 12.78% indicating a moderate degree of explanation of variability by sector. These findings underscore the consistent impact of WO on TI across different employment sectors. Despite varying settings and methodologies, this relationship remains robust, suggesting that the impact of WO on TI is a widespread phenomenon. For managers, this underscores the imperative to address WO as a key factor influencing employees’ intentions to leave. These findings recommend targeted interventions such as promoting inclusivity, conducting awareness training, and fostering positive interpersonal relationships. Acknowledging the broad impact of WO, managers can tailor practices to cultivate healthier work environments, enhancing employee retention and well-being.

### Practical Implications

Our study has practical implications for managers and organizational leaders, highlighting the significance of addressing WO to reduce TI. Increased awareness of ostracizing behaviors can guide targeted interventions, including ostracism

prevention training integrated into employee development initiatives. Strengthening human resource practices can enhance employee self-concept and foster positive relationships, mitigating the negative impacts of ostracism. Organizations should consider various factors such as demographics, personality traits, and leadership styles when designing strategies to combat workplace exclusion. Our study provides a roadmap for future research, outlining keywords, content boundaries, and unexplored gaps in the literature, encouraging scholars to explore nuanced aspects of WO. Practical recommendations emphasize fostering inclusive cultures, with managers promoting positive interactions and leadership training addressing supervisor ostracism. Proactively addressing WO contributes to healthier work environments, reducing TI, and enhancing overall organizational well-being. In essence, our study advocates for proactive measures, urging organizations to implement targeted interventions and prioritize inclusive cultures to create supportive workplaces.

## Conclusion

In summary, our meta-analysis, based on 32 studies involving 10,553 participants from diverse sectors and locations, significantly advances our understanding of how WO relates to TI. The findings consistently reveal a noteworthy connection (correlation coefficient  $r = 0.31$ ) between WO and employees' intentions to leave their organizations. This underscores the pervasive and detrimental impact of ostracism across different work settings. While our study resolves inconsistencies in existing literature, we acknowledge limitations related to databases, timeframes, and language restrictions. Our practical recommendations for managers and stakeholders include fostering inclusive cultures, implementing prevention training, and strengthening interpersonal relationships to mitigate TI. Future research should explore additional dimensions of ostracism, diverse outcome variables, and factors influencing this relationship. Longitudinal designs and broader language inclusivity can further enrich the literature. Our study provides a foundation for ongoing exploration, emphasizing the need for targeted interventions to create healthier work environments and reduce the adverse effects of WO on employee turnover.

## Limitations and Future Directions

Our study on WO and TI has valuable insights but has limitations. We only utilized Scopus and WoS, potentially missing relevant literature from other databases like Google Scholar and ProQuest. Our study's timeframe is limited to papers up to 2023, excluding post-2023 contributions. To capture the latest developments, future research should extend the timeline. We focused on English-language publications, potentially excluding valuable content in other languages. Future studies should adopt a more inclusive approach. While we examined the connection between WO and TI, TI represented just one aspect of withdrawal behavior. Future research should explore additional dimensions like absenteeism, lateness, cyberloafing, and

so on, for a comprehensive understanding of how WO influences various aspects of employee disengagement. Further exploration of ostracism's associations with various outcomes can provide a holistic view of its consequences. Investigating mediation and moderation factors, such as organizational cultures, can offer nuanced insights. Many included studies were cross-sectional, limiting our ability to establish causation. Future research using longitudinal designs can unravel temporal aspects.

### Declaration of Conflicting Interests

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# Determinants of Private Infrastructure Investment in India: A Post-liberalization Analysis

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## Abstract

In spite of the initiatives by the Government of India for reviving private infrastructure investment, its growth is not up to the mark, especially after the COVID-19 pandemic. It is well known that the contribution of the private sector to infrastructure is inevitable to the overall growth of a country. An enquiry into its determining factors will help to explore the reasons behind the ebb and flow of private infrastructure investment in India and helps in finding solutions to revive it. This paper aims to identify the macroeconomic determining factors of private infrastructure investment in India after the liberalization period. ARDL-bound test results show that in the long run, there exists a positive long-run relationship between private infrastructure investment with gross domestic product (GDP), public infrastructure investment and domestic credit to the private sector, whereas in the short run, it was found that only the GDP and domestic credit to the private sector are statistically significant. Although there are many empirical studies that presented the contribution of macroeconomic factors to the growth of private investment in general, this study stands out as this is the first attempt to identify the determinants of private infrastructure investment.

## Keywords

Private infrastructure investment, GDP, public infrastructure investment, ARDL-bound test, domestic credit

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## Introduction

Private sector investment is very crucial as it fuels the economic growth of a country (Khan & Reinhart, 1990). It brings together the idle funds of private investors in the country and employs them for various productive purposes. In addition, management skills and technical expertise of the private sector can also enhance productivity and help the economy to revive from crisis. When it comes to the efficiency of investment, there are findings glorifying private investment over public investment. Frimpong and Marbuah (2010) established that economic growth led by private investment would be more efficient than public-led investment.

For sustainable growth in the economy, the presence of private investment must be ensured to complement public investment. Public investment, to a large extent, depends on the perspectives of the ruling government. Their ideologies will prioritize the areas and the volume of investment. As the economy grows, investment by the public sector cannot bear alone all the financial burden needed for developmental activities (Varshney, 2008). There comes the private investment, which pools together the investments of individuals and invests in productive purposes. Boosting private investment as an alternative source of financing is a vital step taken by many developed countries to solve the resource crunch. However, traces of this paradigm shift are visible in India only after 1991.

When it comes to the infrastructure sector, it was proven that both public and private infrastructure investments have a significant impact on the economic growth of India (Unnikrishnan & Kattookaran, 2020). Findings from the same study also elucidated that, compared with public investment, it is private investment which is capable of giving a better impetus to economic growth. The government has initiated many remedial measures for reviving private infrastructure investment in India. Among them, the steps taken by the RBI and the SEBI are really appreciable. Banks providing long-term infrastructure loans have been liberalized by the RBI. In addition, special-purpose vehicles for undertaking infrastructure projects are also encouraged by banks in the private sector. Infrastructure companies are provided with additional relaxations such as minimum subscription and price fixing by the SEBI. IDFC was formed to provide capital, advisory, and asset management services for the infrastructure sector of India. However, although there was an increase in private investment in Indian infrastructure after 1991, it was not up to the required level (Varshney, 2008). Mishra et al. (2013) opined that although the heavy financing needs of infrastructure investment can be met by larger outlays from the public sector, it has to be coupled with a more than proportional increase in private investment. However, from the recent statistics, the growth of private investment is showing greater volatility than public investment. Due to the lack of adequate research in this field, the exact reasons behind this phenomenon are still undiscovered.

Empirical studies present contradicting views regarding the impact of public investment over private investment (Shanmugam, 2017). Some argue that public investment will crowd-in private investment (Hailu & Debele, 2015; Molapo & Damane, 2015), while some other provides evidence for the crowd-out effect (Kaputo, 2011; Naa-Idar et al., 2012). In addition, several other variables can influence the

private infrastructure investment of a country. This study is an earnest attempt to identify the important factors that determine private infrastructure investment in post-liberalized India. An investigation of the various determinants will help in finding out the exact reason for the ebb and flow of private infrastructure investment in India. The study will contribute to the economy by identifying those factors that cause the rise or fall in the growth of private infrastructure investment in India. This will help the policymakers to know what exactly drives-in private investment and how to frame policies in accordance with them. Moreover, empirical studies on finding determinants of individual sectors of private investment are conducted very rarely.

## Review of Literature

### *Past Studies*

Government intervention and its impact on the economy were a matter of attention since the time of the famous economist Adam Smith. What he advocated was a free market mechanism with a limited role of the government in an economy. However, he was not against government intervention (Mueller, 2013). What he opposed was the wrong kind of intervention. The scenario in India before the New Economic Policy of 1991 can be compared to this “wrong kind of intervention” by the Indian government.

After independence, India concentrated on state-led and centrally planned economic growth (Joseph et al., 2018). As a result, several restrictions were imposed on the private sector, such as licensing of industrial activities, barricades to foreign trade, arduous regulatory system, and restrictions on banking credit allocation schemes. However, this public sector-led growth resulted in a heavy budget deficit and piling up of domestic borrowings. Domestic borrowings of the government grew from 4% to 9.28% between the period 1960 and 1986, and the private sector was holding a considerable proportion of it. A serious setback of the excessive borrowing was the narrowing down of investment opportunities for the private sector. As a result, public investment and private investment moved in opposite directions. It was later realized that restriction to the private sector would not benefit the economy. The narrowing down of economic growth and the rising investment gap in crucial areas of the country led to the need of the private sector as an alternative source of investment.

Empirical studies present the contribution of a number of macroeconomic factors to the private investment of a country. A majority of them come up with a conclusion that GDP is the most significant factor in determining the growth of private investment. According to Jalloh (2014), real GDP has a significant positive relationship with private investment in Sierra Leone, along with the availability of credit to the private sector and public sector investment. However, its relationship with interest rate, inflation, and political instability is negative. Similarly, Augustine (2014) estimated the determinants of private investment in Ghana and found that GDP, inflation, and exchange rate had a significant impact on private investment. Assa and Abdi (2012) also had a similar conclusion regarding the effect of GDP on private investment in Malawi. He found that in the long run, the

GDP growth rate and the real exchange rate had a strong impact on private investment. However, in the short run, public investment, real interest rate, and bank credit influence private investment.

Out of the important studies regarding private investment, Agu (2015) stood out because he did not consider GDP as a factor of private investment determinant. He concluded that the real interest rate and infrastructure facilities created a positive effect on the private investment growth in Nigeria. He also stated that a decrease in public expenditure, savings, and infrastructure facilities along with an increase in bank interest rates would slow down private investment.

While examining the past studies, it is noticed that public investment becomes the next important factor after GDP in determining private investment. The literature presented contradicting views regarding the impact of public investment on private investment. Adugna (2013) found that GDP, public investment, and external debt had a positive relationship with private investment in Ethiopia. This finding similar to that of Hailu and Debele (2015), that long-run private investment in Ethiopia was positively influenced by public investment, real GDP, and money supply of the economy, whereas negatively affected by the real exchange rate. Similarly, Molapo and Damane (2015) also found that in Lesotho, public investment has a significant role in crowding-in private investment, and price level had a negative impact on it. Blejer and Khan (1984), while identifying the determinants of private investment in developing countries, found that public investment in infrastructure had a crowd-in effect on private investment whereas public investment in non-infrastructure sectors crowd-out private investment.

While a majority of studies found a positive influence of public investment on private investment, in some studies, the crowd-out phenomenon worked. In Naa-Idar et al. (2012), the impact of public investment on private investment was negative. Among the factors that affected private investment, GDP growth, inflation rate, real effective exchange rate, and trade openness affected positively whereas external debt and public investment affected negatively. Similarly, Kaputo (2011) while estimating the determinants of private investment in Zambia established that there was a long-term relationship between GDP growth rates, credit distributed to the private sector, public investment, real exchange rate, inflation, real interest rate, and private investment. A significant finding from his study was that public investment creates a crowd-out relationship with private investment.

Studies also showed contradicting views regarding the impact of credit provided to the private sector. Some studies found the positive impact of credit in boosting private investment while some challenged its effectiveness. According to Majeed and Khan (2008), the volume of bank credit was one of the most important factors that contributed to private investment in Pakistan. Moreover, private sector output, past capital stock, and net capital inflow to the private sector also positively impacted private investment in the country. The role of credit given to the private sector was highlighted by Kaputo (2011). He adds that private firms, which play a major role in the private investment of a country, heavily depend on bank credit for their funding requirements, especially in developing countries. Variations in bank credit were significant determinants in the study of Blejer and Khan (1984). He adds that, whenever there is a decrease in the quantum of credit

provided to the private sector, private investment also shows a decrease in the real value. Erden and Holcombe (2005) also support the finding that bank credit is one of the crucial factors that influences private investment in an economy. Similarly, Fleta-Asín and Muñoz (2021) emphasized the support of multilateral development banks in boosting the participation of private investors in renewable energy public–private partnerships.

On the contrary, Ouattara (2004) found that the relationship of private investment with credit to the private sector and terms of trade was negative. The absence of expert personnel and an adequate institutional environment was pointed out as the reason for this. However, this was not a stand-alone finding. The negative impact of credit on the private investment growth rate was also an important finding of Mbaye (2014). A positive relationship was found between real GDP growth rate, real exchange rate, broad money, domestic savings, and debt service with domestic private investment in Kenya. However, the relationship of private sector credit with private investment and public debt was negative.

In the Indian context, identifying the determinants of private investment in India was attempted by many scholars. Chhibber and Kalloor (2017) found public sector capital stock, exchange rate, availability of credit, and public investment as determining factors of overall private investment in India. The study also provided evidence for crowd-in relationship between public and private investment in India. Crowd-in effect in India was the major finding in the study of Bhanumurthy et al., (2015). However, there was a negative effect of interest rates. In Ang (2009), private investment was explained as a function of GDP, public investment, credit programs, cost of capital, and liquidity requirements. Mallick (2002) also established that public investment positively contributed to private investment in India. In contrast, Murthy and Soumya (2011) established that in the short run, public investment in sectors except agriculture crowds out private investment. Mitra (2006) believed that public investment crowds out private investment in the short run. However, he also adds, in the medium and long run, crowd-in relationship is observed. Similarly, a mixture of the crowd-in and crowd-out relationship was found by Bahal et al. (2015). They found evidence of a crowd-out relationship between public and private investment until 1980. However, later it was found that policy reforms during the early 1980s were attributed to the change in relationship between the public and private investment and crowd-in effect. Apart from the economic factors, psychological factors also influenced the decision of private investors (Amine et al., 2023). Financial literacy played a crucial role as literate people can better evaluate investment options (Ammer & Aldhyani, 2022).

While critically analyzing the literature, although several studies were conducted to investigate the determinants of private investment in general, a study is carried out for the first time to investigate the determinants of the private sector in the infrastructure sector. Focusing on the sector-wise determinants will make the study stand out from others as the determinants of private investment will differ according to the sector concerned. This study will be a remarkable contribution to the existing literature as it will motivate researchers to conduct more studies in other sectors too.

## Theoretical Framework

### Investment Theories

Investment theory believes that investment is regarded as an adjustment to capital stocks. Out of many investment theories, important three among them are discussed here.

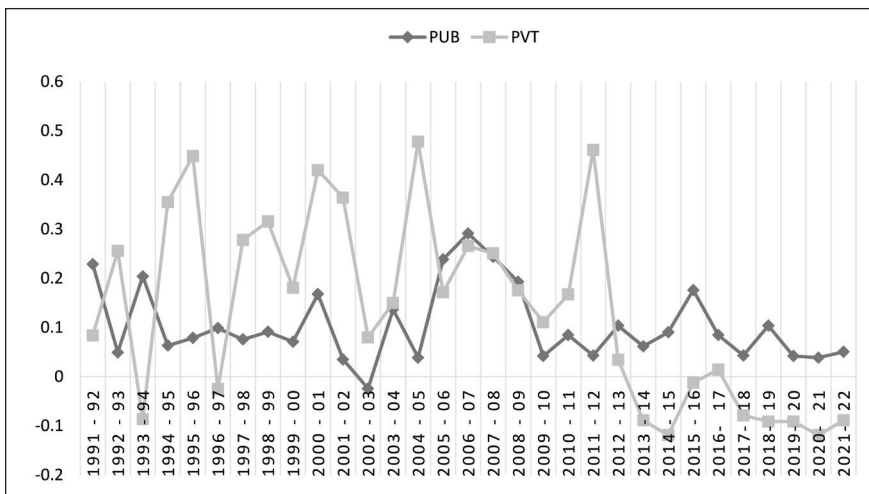
*The accelerator theory of investment.* This theory states that in order to achieve a certain output, a specific amount of capital stock is necessary. In case any mismatch occurs between the desired capital stock and actual capital stock, it will be automatically resolved within a single time frame.

*The internal funds theory of investment.* This theory suggests that required capital stock is determined by the profit level. Thus, investment is positively correlated with expected profits.

*The neo-classical theory of investment.* This theory states that a decrease in the rental price of capital will lead to a hike in the investment rate.

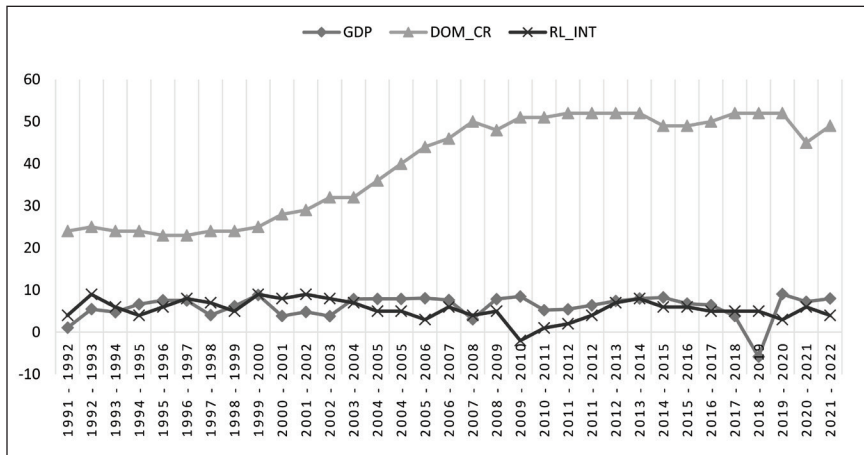
Figures 1 and 2 show the trend analysis of the macroeconomic variables used in the study. This is followed by the theoretical explanation of the relationship between individual dependent variables with private investment.

*Gross domestic product.* GDP growth rate is one of the crucial factors that influences private investment in an economy. When the GDP of a country rises, economic activities will increase, and as an outcome, opportunities for private investment will also increase. The relationship between economic growth and investment can be also referred to as bidirectional, that is, when investment increases, aggregate



**Figure 1.** Trend Analysis of Private and Public Infrastructure Investment in India.

**Source:** National Account Statistics published by the Ministry of Statistics and Program Implementation.



**Figure 2.** Trend Analysis of GDP, Domestic Credit to the Private Sector and Real Interest Rate in India.

**Source:** World Development Indicators published by World Bank and Handbook of Statistics by RBI.

demand increases and there will be a rise in economic growth. When an economy grows, there will be more disposable income in the hands of the private sector and it will lead to further investment. There are hardly any studies that criticize the role of GDP in the contribution of investment growth.

*Public infrastructure investment.* The next important variable that comes after GDP in influencing private investment is public investment. Findings on the impact of public investment on private investment can be bifurcated into two: supporting crowd-in effect and supporting crowd-out effect. When public sector capital provides input to various industries, it leads to a high return on capital to the private sector, and the possibilities of further investment will increase. In this way, the crowd-in effect operates in an economy by increasing private investment in accordance with the increase in public investment. On the other hand, when an economy operates under near capacity, borrowings by the public sector for investing will lead to budget deficits. This will eventually result in higher interest rates and decrease private investment. Moreover, sharing the same resources for financing also makes public and private investment move in opposite directions and thus crowd-out happens.

*Domestic credit to the private sector.* It refers to the monetary assistance provided to the private sector by entities such as monetary authorities, banks, money lenders, insurance corporations, pension funds, and foreign exchange companies. They are provided through loans, purchases of non-equity securities, trade credits, and other accounts receivable that establish a claim for repayment. Credit by financial institutions and finance from the capital market are the two important sources of capital formation. In many studies conducted, especially in developing countries, credit available to the private sector is found as the most influencing factors that stimulate

private investment. This is because the capital markets of developing countries are not fully developed, and corporate investment heavily depends on the credit provided by financial institutions for making investment. When the quantum of government holdings in the banks increases, banks are forced to cut down the credit provided to the private sector. Banks follow this strategy to maintain a balanced portfolio and enhanced safety during stressful times. However, in many instances, the role of credit to the private sector turned out to have a negative impact. This happens when there is an absence of expert personnel and an adequate institutional environment. In addition, the credit given to the private sector may be used for activities other than investment.

**Real interest rate.** It is the lending interest rate measured by the GDP deflator and is adjusted for inflation. According to Keynesian and Neoclassical theories, real interest rates have a negative relationship with private investment. This is because at a higher rate of interest, the cost of borrowing increases, and private capital will need a higher rate of return to make the investment profitable. Pradhan and Hiremath (2020) found that although higher interest rates may impede future economic growth, these can also discourage capital flight from a country. This will eventually lead to a decrease in private investment in an economy. In addition, in economies where the interest rate is low or negative and self-finance is given the primacy, deposits will decrease. However, financial liberalization theories popularized by McKinnon and Shaw in 1973 challenged this concept by arguing that real interest rates seldom showed a net positive impact on private investment. This is because when the interest rate increases, savings will increase, thereby increasing the volume of domestic credit provided by financial institutions to the sector. This will eventually lead to an increase in private sector investments. Hence, it will depend on the nature of the economy whether the interest rate will be significant in influencing private investment or not.

## Methodology

The data required for the present study were obtained from secondary sources, namely, National Account Statistics published by Central Statistical Organization under the Ministry of Statistics and Program Implementation, Handbook of Statistics by RBI, and Database of World Bank. The data mining method for the variables public infrastructure investment and private infrastructure investment was inspired by a series of studies done by Murthy and Soumya (2006). Gross capital formation in industry groups 4, 5, and 7, namely, electricity, gas, water supply; construction; and transport, storage and communication was termed as infrastructure investment. Yearly data on public and private infrastructure investment at constant prices were collected from 1990–1991 to 2021–2022 (updated to the latest issue available at the time of data analysis; National Accounts Statistics, 2023). In order to derive private investment, public investment is subtracted from aggregate investment. Data covering various base years were converted into single series (with the base year 2011–2012) using the splicing technique.

Other variables, namely, GDP (in real terms), domestic credit to the private sector as a percentage of GDP, and real interest rates (which is adjusted for inflation using the GDP deflator), were collected from the World Development Indicators published by the World Bank. All variables were measured in growth rates except domestic credit to the private sector and real interest rate (which was already available in percentages). As only year-wise data were available, it was converted to quarterly data for increasing the number of observations for analysis. The linear method was used for the conversion. Data analysis was done in the EViews software.

In order to best capture a clear picture of private infrastructure investment in India, the scope of the time period of the study has been shifted to the post-liberalization period in India, that is, after 1991. This is because only after that period a notable progress is visible in the growth rate of private infrastructure investment in India.

### *Empirical Model*

In this framework, private infrastructure investment can be described as a function of GDP, public infrastructure investment, domestic credit to the private sector, and real interest rate. Thus

$$PVT = f(GDP, PUB, DOM\_CR, RL\_INT, \epsilon)$$

### *Econometric Model*

$$PVT = \alpha + \beta_1 PVT_{t-1} + \beta_2 PVT_{t-2} + \beta_3 GDP_{t-1} + \beta_4 GDP_{t-2} + \beta_5 PUB_{t-1} + \beta_6 PUB_{t-2} + \beta_7 DOM\_CR_{t-1} + \beta_8 DOM\_CR_{t-2} + \beta_9 RL\_INT_{t-1} + \beta_{10} RL\_INT_{t-2} + \epsilon$$

where *PVT* represents private infrastructure investment, *GDP* represents the gross domestic product, *PUB* represents public infrastructure investment, *DOM\_CR* represents domestic credit provided to private sector, *RL\_INT* represents the real interest rate, and  $\epsilon$  represents the error term.

The augmented Dickey–Fuller (ADF) test was used to check the stationarity of the time-series data, and the Akaike information criterion (AIC) was used in determining optimal lag length for the model (Jacob et al., 2022). Later, the ARDL-bound test developed by Pesaran et al. (2001) was applied for estimating the short-run and long-run determinants of private infrastructure investment in post-liberalized India. ARDL is one of the most sought-after tools used in the analysis of finding determinants in recent studies, especially for private investment (Awad et al., 2021; Ayeni, 2020). In order to ensure that the model is free from the problem of autocorrelation and heteroscedasticity, Harvey's heteroscedasticity test and Breusch–Godfrey LM test are used for conducting residual diagnostics. The Ramsey test and CUSUM test were used to check the stability of the model.

Although there are contradictions in the relationship between variables in past studies, the positive relationship of private investment with GDP was never questioned. However, it was interesting to find out the characteristics of the relationship between public infrastructure investment and private infrastructure investment, that is, whether crowd-in or crowd-out existed in the sector. Although there are exceptions, in most cases, the relationship of private investment with domestic credit to the private sector was positive, and the relationship with real interest rate was negative. Based on literature reviews, the following four hypotheses can be formed.

- $H_1$ : Gross domestic product has a positive impact on private infrastructure investment in India in the long run and short run.
- $H_2$ : Public infrastructure investment has a negative impact in the short run and a positive impact in the long run on private infrastructure investment in India.
- $H_3$ : Domestic credit has a positive impact on private infrastructure investment in India in the long run and short run.
- $H_4$ : Real interest rate has a negative impact on private infrastructure investment in India in the long run and short run.

## Result and Discussion

### *Descriptive Statistics of the Variables*

Descriptive properties of the variables 1991–1992 to 2021–2022 are presented in Table 1. While observing the deviation in the minimum and maximum values of all variables, domestic credit to the private sector shows the highest deviation. The values of skewness depict that private infrastructure investment, GDP, domestic credit to the private sector, and real interest rate are negatively skewed and have long left tails. From the value of kurtosis, it can be concluded that GDP, public infrastructure investment, and real interest rate are heavily-tailed distribution and others are light-tailed distribution.

**Table 1.** Descriptive Statistics for the Determinants of Private Infrastructure Investment in India.

	PVT	GDP	PUB	DOM_CR	RL_INT
Mean	0.118435	6.411566	0.062603	37.75446	5.496676
Median	0.113316	6.674597	0.044626	38.12989	5.568352
Maximum	0.438293	8.845756	0.307848	52.38571	9.191247
Minimum	-0.194230	1.056831	-0.076303	22.51077	-1.983859
Std. dev.	0.129731	1.565261	0.083002	11.78968	2.301739
Skewness	-0.012841	-0.764382	0.964846	-0.042534	-0.829158
Kurtosis	2.903082	3.110696	3.487376	1.250827	3.722402

## Unit Root Test

The ADF test is used to conduct unit root analysis of time-series data. Here, modified Akaike is used as an automatic selection criterion for identifying the lag length of the ADF test. Table 2 shows the ADF test results of the five variables under study. While real interest rates became stationary at the level, other variables show the presence of unit root at their levels. After the first differencing, variables became stationary. So real interest rate integrated at  $I(0)$  and all the other variables integrated in the same order, that is,  $I(1)$ . If the order of integration of the variables is not uniform, the ARDL test developed by Pesaran et al. (2001) can be used (Augustine, 2014).

## Optimal Lag Length Criteria

For analyzing the results of the ARDL model, the selection of optimal lag length is necessary. The time-series analysis is sensitive to the lag length of the model. Out of the several model selection criteria for estimating the lag length, Cherkassky and Ma (2003) suggest AIC as the best. This is because it yields superior predictive performance in model selection compared to others. Figure 3 represents AIC values of the top 20 models. Among these, the model showing the lowest AIC is selected as the optimum lag length of the model. The model with the smallest AIC value of  $-3.6262$  is ARDL (2, 4, 0, 0, 0). So, this lag length can be considered as the optimum lag length for the model.

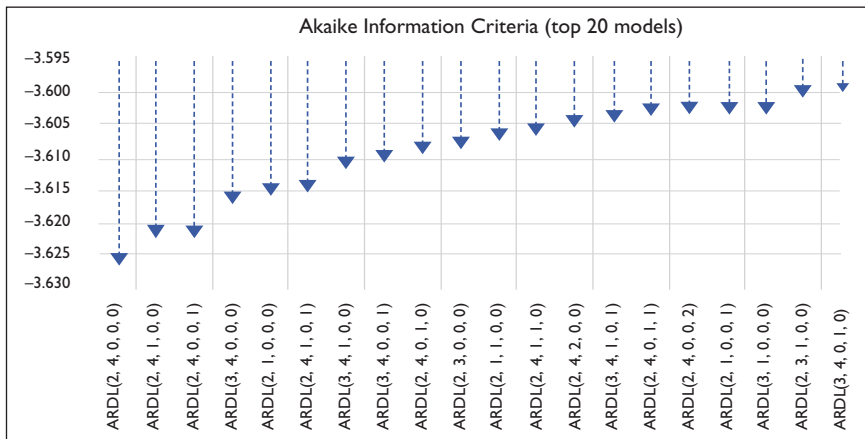
## ARDL Short-run Coefficients

Table 3 shows the short-run coefficients of the ARDL model run between private infrastructure investment and its various determinants in India. While studying the relationship between the variables in the short run, it was found that the probability values of short-run coefficients of two macroeconomic variables, that is, GDP (lagged values) and domestic credit to the private sector, are statistically significant at 10% and 5%, respectively. The relationship with GDP was in accordance with prior expectations, that is, there is a positive impact of GDP on private infrastructure investment in the short run. This finding also supports the findings of many studies, such as Jalloh (2014), Augustine (2014), and as literature seldom contradicts with the impact of GDP over investment.

The relationship between private infrastructure investment and domestic credit provided to the private sector was also as per expectation—a positive relationship. This supports the findings of Majeed and Khan (2008), Kaputo (2011), and Blejer and Khan (1984). This is because whenever there is a decrease in the quantum of credit provided to the private sector, private investment also shows a decrease in the real value. However, when it comes to public infrastructure investment and real interest rate, the probability value shows that there is no significant relationship with private infrastructure investment because the analysis is carried out in the short run only.

**Table 2.** ADF Test Results for the Determinants of Private Infrastructure Investment in India.

Variable	Level						First Differencing						Result
	None		Intercept		Trend and Intercept		None		Intercept		Trend and Intercept		
	t-stat	P Value	t-stat	P Value	t-stat	P Value	t-stat	P Value	t-stat	P Value	t-stat	P Value	
PVT	-1.6031	0.1023	-2.4709	0.1256	-3.0593	0.1219	-4.8263	0.0000	-4.8058	0.0001	-4.7827	0.0009	I(1)
PUB	-0.6010	0.4545	-1.4647	0.5474	-1.9740	0.6080	-3.3112	0.0011	-4.5180	0.0003	-4.5515	0.0020	I(1)
GDP	-0.1778	0.7357	-3.1775	0.0243	-2.9257	0.1589	-4.6530	0.0000	-4.6221	0.0002	-4.6092	0.0017	I(1)
DOM_CR	-1.0451	0.2653	-1.7110	0.4226	-2.7505	0.2191	-3.3688	0.0009	-3.3573	0.0148	-3.3367	0.0261	I(1)
RL_INT	-3.7869	0.0012	-4.0082	0.0009	-4.9992	0.0003	-5.2469	0.0000	-5.1982	0.0000	-5.1492	0.0000	I(0)



**Figure 3.** Optimal Lag Selection for the Determinants of Private Infrastructure Investment in India.

**Table 3.** ARDL Short-run Cointegrating Parameters of the Model for the Determinants of Private Infrastructure Investment in India.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PVT (-1)	1.511686	0.068328	22.12407	0.0000**
PVT (-2)	-0.723249	0.066979	-10.79821	0.0000**
GDP	-0.013426	0.009796	-1.370639	0.1738
GDP (-1)	0.028459	0.018185	1.564975	0.1209
GDP (-2)	-0.012639	0.019111	-0.661345	0.5100
GDP (-3)	-0.012412	0.018022	-0.688693	0.4927
GDP (-4)	0.018122	0.009526	1.902429	0.0602*
PUB	0.078935	0.047927	1.646992	0.1029
DOM_CR	0.001073	0.000442	2.428757	0.0171**
RL_INT	0.000139	0.001980	0.070400	0.9440
C	0.009308	0.030966	0.300608	0.7644
R-squared	0.925015	Mean-dependent var.		0.122390
Adjusted R-squared	0.917038	S.D.-dependent var.		0.130443
S.E. of regression	0.037572	Akaike info criterion		-3.626270
Sum squared resid.	0.132694	Schwarz criterion		-3.348236
Log likelihood	201.3792	Hannan-Quinn criterion		-3.513605
F-statistic	115.9579	Durbin-Watson stat		2.245613
Prob(F-statistic)	0.000000			

**Note:** \*Significant at 10%; \*\*significant at 5%.

### ARDL-bound Test for Cointegration

After estimating the short-run coefficients under the ARDL method, the long-run relationships among the variables are checked using the bound test. The result of the bound test is given in Table 4.

Here, the value of *F* statistic is 7.37, which is above the *I*(0) and *I*(1) bound levels at all significant levels. This shows that there is a long-run relationship between

private infrastructure investments and GDP, public infrastructure investment, domestic credit to the private sector, and real interest rates in the given model.

### ARDL Long-run Coefficients

Table 5 shows the long-run coefficients of the ARDL model run between private infrastructure investment and its various determinants in India.  $C$  is the coefficient of speed of adjustment in the long-run ARDL model. Here the error correction value of the model is  $-0.6138$  and statistically significant at a 5% level of significance. This means that the system automatically corrects the temporary disequilibrium in order to attain a long-term relationship between private infrastructure and its various determinants. A sign of the coefficient and the probability value shows the relationship between dependent and independent variables. From the results, it is revealed that in the long run, private infrastructure investment in post-liberalized India is positively associated with GDP, public infrastructure investment, and domestic credit to the private sector. This shows that an increase in the growth rate of these variables will have a significant positive impact on the growth of private infrastructure investment in India. However, in the long run, the real interest rate does not have a significant relationship with private infrastructure investment.

In this study, GDP has a strong positive influence on private infrastructure investment both in the short run and the long run. The findings are similar to the study of Ang (2009) that explained private investment as a function of GDP. In addition, Adugna (2013), Hailu and Debele (2015), Molapo and Damane (2015) showed similar findings on the impact of GDP on private investment.

As already mentioned, the influence of public investment in the growth of private investment can be bifurcated into crowd-in effect and crowd-out effect. There is evidence of public investment crowding-in private investment due to the complementary effect and sometimes crowding-out private investment due to the substitution effect. The result of the present study shows that there is a crowd-in relationship between public infrastructure investment and private infrastructure investment in the long run. In other words, public infrastructure investment has a complementary effect on the long-term growth of private infrastructure in India. Although public infrastructure

**Table 4.** Bound Test Results for the Determinants of Private Infrastructure Investment in India.

Test Statistic	Value	K
F-statistic	7.379637	4
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37
Null hypothesis: No long-run relationships exist.		

**Table 5.** ARDL Long-run Cointegrating Parameters of the Model for the Determinants of Private Infrastructure Investment in India.

Variable	Cointegrating Form			
	Coefficient	Std. Error	t-Statistic	Prob.
PVT (-1)	-0.211563	0.032258	-6.558433	0.0000
GDP (-1)	0.008104	0.003666	2.210758	0.0295
PUB	0.078935	0.047927	1.966992	0.0929
DOM_CR	0.001073	0.000442	2.428757	0.0171
RL_INT	0.000139	0.001980	0.070400	0.9440
D (PVT (-1))	0.723249	0.066979	10.79821	0.0000
D (GDP)	-0.013426	0.009796	-1.370639	0.1738
D (GDP (-1))	0.006929	0.011243	0.616253	0.5392
D (GDP (-2))	-0.005710	0.011175	-0.511011	0.6105
D (GDP (-3))	-0.018122	0.009526	-1.902429	0.0602
C	-0.613822	0.962374	-5.284743	0.0062**

$$\text{Cointeq} = \text{PVT} - (0.0383*\text{GDP} + 0.3731*\text{PUB} + 0.0051*\text{DOM\_CR} + 0.0007*\text{RL\_INT} - 0.571846)$$

Variable	Long-run Coefficient			
	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.038305	0.017148	2.233851	0.0279**
PUB	0.373104	0.224133	1.994652	0.0913*
DOM_CR	0.005071	0.001957	2.591282	0.0111**
RL_INT	0.000659	0.009367	0.070335	0.9441
C	-0.571846	0.086793	-1.588583	0.2203

**Note:** \*Significant at 10%; \*\*significant at 5%.

investment has no impact on private infrastructure investment in the short run, it has a strong impact in the long run. This happens because public investment increases the marginal productivity of private investment in the long run, and it improves economic growth. This will eventually pave the way for more investment by the private sector. Chhibber and Kalloor (2017) also provided evidence for a crowd-in relationship between public and private investment in India. Similar was the finding in the study conducted in India by Bhanumurthy et al. (2015) showing that public investment in infrastructure crowds-in private investment of that particular sector. Mallick (2002) also established that public investment positively influenced private investment in India.

Domestic credit to the private sector is showing a strong positive relationship with the private infrastructure investment in India both in the long run and the short run. It is obvious that, for the growth of an economy, infrastructure investment is a must. So, credit given by financial institutions to the private sector in the form of loans and other advances, especially to corporates who are indulged in investing activities, will increase the investment of the private sector in infrastructure. Low credit to the private sector is a major factor that has hindered private sector investment (Ayeni, 2020). Financial crunch is an important reason for the lack of private participation in

investment activities. Financial assistance powered by such institutions will act as a strong pillar to support private investors to invest more and more in the infrastructure sector. The findings of the study are also supported by the studies of Majeed and Khan (2008), Kaputo (2011), Erden and Holcombe (2005), etc.

However, the real interest rate showed a negative and insignificant relationship with private infrastructure investment in India both in the long run and the short run. A significant relationship of credit provided to the private sector and an insignificant relationship with real interest rate with private investment would surprise us. However, this contradicting phenomenon was the core theme of Lugo (2008). The findings of that study showed that there was no evidence found for real interest rate acting as a transition variable for private investment, whereas credit availability does. Ayeni (2020) also found that a real interest rate does not have an impact on private investment in Gambia, a less developed country. Awad et al. (2021) also agree with the finding. Chhibber and Kalloor (2017) in the Indian context also proved that real interest rate did not have a significant impact in determining private investment in the country.

### *Residual Diagnostics*

To ensure the goodness of fit, it is important to check whether the model suffers from the problem of serial correlation and heteroscedasticity, which are the common problems of time series data analysis. Harvey's heteroscedasticity test and the Breusch–Godfrey LM test are used for conducting residual diagnostics. Table 6 presents the result of Harvey's heteroscedasticity test of the model. Heteroscedasticity occurs when the error term changes with time and is not equally distributed among the range of variables. If the probability value lies above 0.05, the series of data is said to be homoscedastic. As the value is 0.2681, it can be concluded that the model is free from the problem of heteroscedasticity.

Table 7 presents the results of the Breusch–Godfrey serial correlation LM test, which is used for identifying the presence of autocorrelation. The probability value should be greater than 0.05, and here it is 0.2152. Thus, there is no evidence of autocorrelation.

**Table 6.** Heteroskedasticity Test for the Determinants of Private Infrastructure Investment in India.

F-statistic	1.253623	Prob. F (10,94)	0.2681
Obs*R-squared	12.35546	Prob. Chi-square (10)	0.2620

**Table 7.** Serial Correlation Test for the Determinants of Private Infrastructure Investment in India.

F-statistic	1.561981	Prob. F (2, 92)	0.2152
Obs*R-squared	3.448300	Prob. Chi-square (2)	0.1783

### Stability Diagnostics

Like residual diagnostics, stability diagnostics is equally important for checking the adequacy of the model. The Ramsey test and CUSUM test are used here to check the stability of the model.

Table 8 presents the result of the RESET test, that is, the regression specification error test (Ramsey, 1969) for the model. This test helps to check whether the model is well specified and not omitted significant variables. For the model to be adequate, the probability value should be greater than the 5% significant level. Here, the value is 0.8959, which is satisfactory.

The CUSUM test or cumulative sum control chart is used for checking the stability of the parameters in the model by using the cumulative sum of the recursive residuals. If the blue line falls between the red lines, it is assumed that there are stable parameters. In Figure 4, the CUSUM line lies between the 5% significance level and the model is adequate.

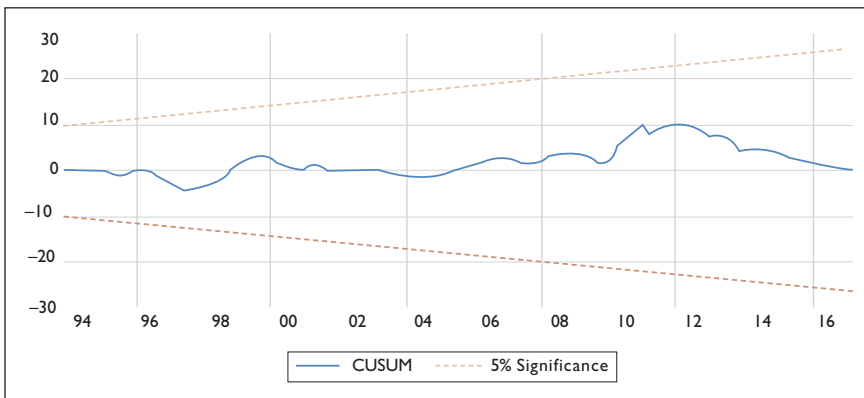
On the basis of the hypothesis formed and the results of the analysis, the conclusion of the study is summarized in Table 9.

**Table 8.** Ramsey RESET Test for the Determinants of Private Infrastructure Investment in India.

	Value	df	Probability
t-statistic	0.131210	93	0.8959
F-statistic	0.017216	(1, 93)	0.8959

F-test summary	Sum of Sq.	df	Mean Squares
Test SSR	2.46E-05	1	2.46E-05
Restricted SSR	0.132694	94	0.001412
Unrestricted SSR	0.132669	93	0.001427



**Figure 4.** CUSUM Test for Determinants of Private Infrastructure Investment in India.

**Table 9.** Relationship Between Macroeconomic Variables and Private Infrastructure Investment in India.

Dependent Variable	Independent Variable	Relationship
<i>PVT</i>	<i>GDP</i>	Significant and positive in the long run and the short run
	<i>PUB</i>	Insignificant in the short run and significant and positive in the long run
	<i>DOM_CR</i>	Significant and positive in the long run and the short run
	<i>RL_INT</i>	Insignificant in the long run and the short run

## Conclusion and Policy Implications

Based on the results discussed above, it was evident that there exists a long-term relationship between GDP, public infrastructure investment, and domestic credit to the private sector with private infrastructure investment. In the majority of past studies which estimated the determinants of private investment, GDP was a macroeconomic variable which created a positive impact on private investment. It has also received some empirical support that an increase in public investment in infrastructure in the long run will result in attracting more private investment to the sector. Credit given to the private sector by banks created a positive impact on private infrastructure investment in India.

It has been proved that institutional and economic environments have a strong positive impact on the growth of private participation in a country (Fleta-Asín & Muñoz, 2021). India is a developing country where a deficiency of financial resources is an important hurdle to pass. Investment from the private sector is needed to complement public investment in order to solve the resource crunch faced by the country. Private investment, in every sector, except the sectors where the security of the nation matters, must be welcomed. Infrastructure investment is also one of such sectors where a major resource crunch is facing and needs more growth. In order to increase private infrastructure investment in India, the role played by GDP, public infrastructure investment, and domestic credit to the private sector are very important.

It is clear that the impact of the COVID-19 pandemic has changed each and every sector of the economy, and the infrastructure sector is not an exception. According to the World Bank (2020), the global economy shrank tremendously. As private investment is of ultimate importance to the economic growth of the whole world, there is an urgent need to revert the decreasing trend in private infrastructure investment due to COVID-19. As governments around the world restricted movement and business activity in an attempt to slow the spread of the coronavirus, private participation in infrastructure should be welcomed and the government should make adequate steps to provide the much-needed support to private investment.

## Limitations and Future Areas of the Study

Capital formation in industry groups of only hard infrastructure was considered as infrastructure investment. Investment in other sectors of infrastructure (importantly, soft infrastructure) such as health care, education, and housing do not come under the purview of the study due to the unavailability of data. Moreover, the capital formation of subsectors under each industry group cannot be alienated due to insufficiency of information.

The current study is focused only on private infrastructure investment. Future studies could look into the macroeconomic determinants of public infrastructure investment in India. Researchers can also extend the model by analyzing the determinants of private investment in various subsectors of infrastructure. The identification of the determining factors of private investment in other sectors of the economy can also be studied.

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# Green Finance Initiatives to Improve Green Banking Practices in India

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## Abstract

Green finance is an innovative financial system. It is an umbrella term comprising green agriculture, green marketing, green building, green banking, green energy, and environmental friendly projects. It is an important sector of green finance. Global warming and climate change are the biggest problems throughout the world, which start to take their toll. To overcome these problems, to verify the existing business models and to learn clean development mechanisms through adopting clean development mechanism (CDM) projects, new financing models are essential. Green finance helps to protect common and green-ecological factors which intend to save and look after natural resources. Nature's resources are saved and produced through green banking practices. Green banking practices refer to environmentally sustainable banking practices, which reduce the environmental impact of financial institutions while promoting environmentally friendly activities. This article's goal is to examine green banking practices. The function and contribution of banks to environmental sustainability are also covered in this study. In the manuscript an effort has been geared up to study the objectives of the green finance related to green banking practices in our country, to analyze the green financial products and to get know the upcoming opportunity of green finance with regard to regulatory and policy frameworks for green banking. This article only focused on secondary data and focused on present and future renewable energy capacity used for this manuscript and explores ways to strengthen these frameworks to promote the growth of the green economy.

## Keywords

Eco-friendly, green finance, green banking, green entrepreneur, green gross domestic product (GDP)

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## **Green Banking Practices: Introduction**

Banking practices refer to the various methods and processes that banks use to manage their daily operations and provide services to their customers. These practices are shaped by a range of factors, including regulations, market conditions, technological advancements, and customer needs. Green banking refers to the practice of incorporating environmental and sustainability considerations into the operations, products, and services of a bank. This can include implementing green practices such as reducing energy consumption, promoting renewable energy, and reducing paper usage. Green banking is becoming increasingly popular among banks due to several benefits, including improving the bank's environmental performance. Green banking is a proactive method of reducing one's carbon footprint and protecting the natural environment. The primary advantage of using a "green banking" strategy is that it helps to preserve the natural world. Customers may complete their numerous financial activities using electronic methods such as automated teller machines, mobile banking, internet banking, and so on under green banking, which prioritizes the elimination of paperwork to the greatest extent possible. The use of electronic transactions not only contributes to the goal of preserving the environment but also makes business more convenient for both clients and financial institutions. If there is less paperwork, there will be less need to chop down trees (Lalon, 2015). Banks should adopt environmental criteria of lending in order to enhance the quality of their assets and facilitate the implementation of environmentally friendly business practices (Meena, 2013). The environmental performance of the bank's customers is also significantly impacted by this action of the bank, which has a very substantial impact. This is a brand-new concept that has just been introduced in Sri Lanka. Green banking may be a deserving subject to investigate in order to enhance the quality of services offered by the banking industry in Sri Lanka throughout the course of the longer term.

## **Statement of the Problem**

The traditional banking sector has a significant impact on the environment and sustainability due to its heavy reliance on paper-based transactions, energy-intensive operations, and financing of unsustainable projects (Lalon, 2015). As a result, there is a growing concern among stakeholders about the negative environmental and social impacts of the banking industry, and the need for banks to adopt more sustainable practices. Green banking is a concept that aims to promote sustainability in the banking sector by encouraging financial institutions to adopt environmentally friendly practices in their operations and investments. However, despite the growing importance of green banking, there are several challenges that need to be addressed.

## Review of Literature

Green Banking definition “Green bank is reminiscent of a common bank which regards all the common and ecological aspect with intend to guard the surroundings and preserve natural resources,” by Indian Banks Association. Indian green banking; it means traditional banking sectors which can help a lot in attaining various sustainable development goals. Green banking covers all the social, environmental, and ecological factors, green banking works in two categories, first one is internal activities such as, to create awareness for the general people the second one involves external activities covering business people, stakeholders (clients subsidiaries), and general public.

RBI and India’s government should implement rules and financial support. The banking industry survived conversely relative to the global warming level (2012). Central banks should screen guide banks if they were performing green banking or not. So banks had to take part and donate to green banking operations in those days’ extremely domestic and international banking challenges. It was said that for stable development banking and the financial sector were important according to India’s banks. It was an essential of the hour to consider the continuous development of the country (Sudhalakshmi & Chinnadorai, 2014). India had excellent prospects to build a green framework required for funding by mastering the hurdles and developing consciousness in the mid of the concerted people (Goel, 2016). The main prominence was on Micro, Small & Medium Enterprises (MSME), because of their excellent position in our economy and in bright and huge potential for combining funds for strengthening the going green pathway (Sharma & Lodhi, 2015). Green banking could be a direction to decrease tainting, rescue the environment, and help supportable economic development. So for livable banking services, India’s banks must support green banking (2016). This study focuses on improving operations and technology and protecting the environment. Through the digitization of the banking process, green banking gives many benefits to the common people also (Dayananda, 2020). The Covid-19 outbreak has additional improvements in attention to green finance for the green economy for creating healthy living circumstances. The author put a causal relationship between green finance and the green economy in the relationship through changes in lifestyle in society. This study indicates the role and contributions of banks towards the welfare of the society in terms of carbon-free world, by reducing carbon emissions to become a greener world (Mir & Bhat, 2022). It is the best way of profitable and conservation progress for adopting sustainable development goals new technological business model practices is reduced carbon-footprint (Bhatnagar et al., 2022). Green finances are of green securities, green investments, climate finance, carbon finance, green insurance, and green credit (Akomea-Frimpong et al., 2022).

## Research Methodology

This paper is constructed on secondary data which are available in various sources web/portals and published information by NABARD, SIDBI, STATA, YES bank, and Exim Bank. These banks followed various green activities. UNICC, World Bank, Ministry of New and Renewable Energy (MNRE), Budget: pollution control in focus, environment ministry, economic survey, climate change, renewable energy industry in India, other banks websites, journals, magazines and media reports, etc., available secondary data were extensively used for the study. This secondary data is to find various aspects in this manuscript's past, present, and future schedule. In this manuscript, an effort has been made to study the objectives of the green finance related to green banking practices to analyze the green financial products and to get to know the future opportunities of green finance. In this research paper, the researcher has framed two models green banking initiatives in India and green banking ratings in India.

## Research Objectives

In this manuscript, an effort has been made to study the objectives of the green finance related to green banking practices:

- To study the concept of green banking
- To analyze the green banking practices
- To analyze the green financial products

In this research paper, the researcher has framed two models green banking initiatives in India and on green banking ratings in India.

## Green Financial Services and Products in India

Despite the fact that the majority of people do not consider the banking industry to be a polluting one, the size of current banking operations has significantly increased the carbon footprint of banks as a result of their extensive use of energy, excessive use of paper, lack of green buildings, and other factors. As a result, banks implement technology, procedures, and goods that significantly reduce their carbon footprint (Satheesh Kumar, 2017). There are several ways to do this, such as using online banking instead of branch banking, paying bills electronically instead of by mail, creating debit card pins at ATMs instead of via mail, etc. In addition to giving clients possibilities, green banking helps address a number of environmental issues, such as global warming, deforestation, poor air quality, and biodiversity loss (Lalon, 2015).

Green remit cards are prepaid cards issued by banks in India to facilitate environmentally friendly transactions. These cards were introduced by the RBI in

2013, as part of its efforts to promote a “greener” economy. The main purpose of the green remit cards is to encourage people to use electronic modes of payment instead of cash, which can be harmful to the environment due to the large amounts of paper used in printing currency. By promoting the use of prepaid cards, the RBI hopes to reduce the usage of cash and thereby reduce the environmental impact. Green remit cards can be used to make various types of transactions, such as remittances, money transfers, and bill payments (Meena, 2013). These cards are usually available at no cost or at a nominal fee and can be reloaded with funds as and when required. Overall, green remit cards are an innovative way of promoting sustainable development and reducing the carbon footprint associated with traditional cash-based transactions.

- “Green channel counters” typically refer to designated counters at airports or other border entry points that are meant for expedited processing of travelers who meet certain criteria. The purpose of the green channel is to enable quick processing for low-risk travelers who are not carrying any dutiable or restricted items. In many countries, the green channel counters are typically reserved for passengers who are carrying only cabin baggage, have nothing to declare to customs authorities, and are not in need of any additional checks by immigration or security officials. In some cases, certain categories of travelers such as frequent flyers, senior citizens, or those with special needs may also be eligible to use the green channel. The use of green channel counters can help to speed up the processing time for eligible passengers, reduce queues at immigration and customs checkpoints, and improve the overall passenger experience. However, it is important for travelers to carefully review the eligibility criteria for the green channel and ensure that they comply with all the relevant requirements before using the expedited processing lane.
- Green PINs are a type of PIN (Personal Identification Number) used in banking to activate or generate a new debit or credit card PIN. Green PINs are typically generated through a self-service process at the bank’s ATM or mobile app, where the customer can select a new PIN and then confirm it. The term “Green” in green PINs refers to the environmentally friendly aspect of the process, as it eliminates the need for a physical PIN mailer or printed receipt. Green PINs are considered a more secure way of generating a new PIN as the PIN is selected by the customer, and it is not sent through mail or email, which reduces the risk of interception by fraudsters. Additionally, it allows for a faster and more convenient PIN generation process, as the customer can complete the process at their own convenience. It is worth noting that green PINs are specific to each bank and may have different requirements or procedures. Therefore, customers should check with their respective banks for specific details on how to generate or activate their green PIN.
- Green bond issuance refers to the process of issuing bonds with proceeds designated for environmentally friendly or sustainable projects. These

bonds are typically issued by governments, corporations, or other organizations that want to finance plans that contain a positive effect on the surroundings. The starting point for green bonds is typically exercised to support projects such as renewable energy development, energy efficiency improvements, sustainable water management, and other projects that have a positive environmental impact (Raj & Rajan, 2017). By issuing green bonds, organizations can attract investors who are interested in supporting environmentally responsible projects while also generating funding for these initiatives. Green bonds have become increasingly popular in recent years as concerns about climate change and environmental sustainability have grown. The total value of green bond issuance has increased dramatically, from just \$3 billion in 2012 to over \$270 billion in 2020, according to the climate bonds initiative. One of the specific features of green bonds is the use of proceeds. To ensure that the funds are being used for their intended purpose, green bonds are typically certified by independent organizations that verify the environmental impact of the projects being funded. This certification of process helps to build investor confidence in the green bond market and ensures that the funds are being used to promote sustainability. Overall, green bond issuance provides a way for organizations to fund environmentally responsible projects while also attracting investors who are interested in supporting sustainable initiatives.

- **Green mortgages:** This facility assists the individual client who is ready to acquire new energy-efficient houses to receive a green loan with a lesser interest rate than the bazaar rate. The market rate is the standard rate. They are also able to make investments in appliances that are more energy efficient thanks to this resource.
- **Green home loans:** The equity of a lesser rate in home loans, also known as second mortgages, may assist in stimulating families to install domestic renewable energy (power or thermal) technology. These loans can also be referred to as green home equity loans.
- **Loans for environmentally friendly commercial construction:** protecting the environment is whole responsibility of all persons, together with businesses. Eye-catching financing plans and arrangement options begin to become available for green business development, which is distinguished from conventional architecture in terms of its poorer energy consumption, fewer ravage production, and lower pollution levels.
- **Green car loans:** With an interest rate that is minimum in comparison with the market average, many green car loans encourage consumers to buy vehicles that have a high level of fuel economy.
- **Green cards:** Debit and credit cards that are related to environmental activities are part of a large family of environmentally friendly goods. The owners of these green credit cards, which are provided by major credit card issuers, are eligible to have contributions made to nonprofit organizations equivalent to about one-half of 1% of any buying, balance transmit, or money proceed that is done using their cards.

- Financing green projects: Now, some of financial institutions are prepared to take on extensive sustainable energy projects. In order to do this, they will need to establish service divisions in order to provide assistance to businesses that are developing extensive sustainable energy systems.
- Green securities: A number of different approaches to ecological securitization start to develop in recent years. Some examples of these approaches include the woods bond, the securitization of eco point programmed, and green collateralized mortgage obligations.
- Environmentally responsible private equity and venture capital we may see that a significant amount of attention is devoted to environmental concerns throughout the processes of raising money via the capital market.
- The Green Index: Several financial institutions have recently devised an index that varies according to the possibilities and problems that the environment may face in the future.

## Present Status of Green Finance in India

- In order to operate renewable energy resources, environment sustainability has improved the scope for investment in green projects. This has been a key issue on a worldwide level. So many financial agencies look forward to these green projects and are ready to support them. From these financial institutions and banks, the investors will get the benefits.
- In 2007, the Prime Minister of India constituted a council on climate change and reconstructed it in the year 2014 for version and also improvement of environmental change.
- It hurls various programs such as National Action Plan on Climate Change (NAPCC), Jawaharlal Nehru National Solar Mission (JNNSM), National Water Mission (NWM), National Mission for Climate Change (NMCC), and National Clean Energy Fund (NCEF). Further programs are of auto fuel vision and policy 2025, expert groups on low carbon strategies, etc. In the year 2015, the green climate fund set up under the framework of the United Nations Framework Convention on Climate Change (UNFCCC) has accepted NABARD as the National Implementing Entity (NIE) to finance clean energy projects in our country.

The scope of green financial products has been increased by government strategies and creativities. They are as follows:

- India would have generated 10 percentage of its energy from renewable energy resources within 2015 and 15 percentage within 2020 of our country's connected energy production volume of 2,55,012.79 which was suggested by India's NAPCC. Renewable energy had a share of 12.42% or 31.692.14 MW which showed that there was a vast range of investment of amount in that section.

- The Ministry of New and Renewable Energy studied its target for a power limit of 1,75,000 MW infinitesimal hydro. The changed plans appeal for huge funding. As the allowed funds would not be enough, MNRE had called on the common and private division fiscal organizations such as power finance corporation, rural electrification corporation, and Indian Renewable Energy Development Agency.
- The use of renewable energy resources in Indian railways has been also planned. It comprises the help of compressed natural gas in functioning, the location of hydro reprocessing plants, and the utilization of solar power to enhance trains, stations, buildings, and platforms. To reduce the noise level of trains, the government has a proposal to modify the design of trains.
- Further techniques on the part of the government include its policies for making solar armed forces, given that undertaking funds to determine solar power production plans and creation of a solar park tallying of 20,000 MW within five years.

#### Future schedule of green finance in India

- It is essential to develop India's green economy to a total amount of \$80 billion until 2024, growing more than threefold to \$250 billion during 2023–30, according to the economic survey 2019.
- The funding estimates that have been completed at existing prices arrive at a moment when our country has become one of the two mending creators internationally with determined capability development plans. India has a connected resumption power capacity of 80 GW and is consecutively the world's leading resumption power programmer by tactics to reach 175 GW by 2023 and 500 GW by 2030, as a component of its climate commitment.

The Government of India has allocated a total of 175 GW toward renewable energy capacity which includes four different sources among them solar power is targeted at the highest of 100 GW and small hydropower is targeted at the least of 5 GW. This Table 1 shows GW Renewable Energy Capacity by 2022 in India.

- India sets a goal of attaining 40% of its full amount of electricity production from nonfossil energy sources by 2030, as confirmed in its envisioned Nationally Determined Contributions (NDC) declaration in the Paris

**Table 1.** GW Renewable Energy Capacity by 2022 in India.

No of Items	Items	175 GW
1	Comprising from solar power	100 GW
2	Wind power	60 GW
3	Bio-energy	10 GW
4	Small hydropower	5 GW

**Source:** unfccc.int

Agreement. Within the year 2027, 57% of the entire power capacity will be from renewable sources which is a plan by central electricity authority projects. For as within 2027, our nation target to get a renewable power connected supremacy of 275 GW, in addition to 72 GW of hydro-energy, 15 GW of nuclear energy, and almost 100 GW of solar energy.

- RBI gives a report on constructing the green bond market funding amounting to as much as 6% of its gross domestic product (GDP). Many organizations have valued the whole financing needs for our country ranging from \$44 billion to 170 billion per year until 2030 to have net zero emissions by 2070.
- The government decides to spend 11 lakh crore till 2030 for every year. The industry exports believe that India will work actively to increase its contribution to green finance even though India faces many natural calamities.

## Conclusion

Banks may enhance their environmental performance, contribute to the mitigation of climate change, and attract clients who are environmentally sensitive if they implement “green banking” methods. The purpose of this study is to evaluate the performance of nationalized banks by assessing the degree of green practices through consumer awareness and perceptions of green banking. It has been discovered that banks do in fact apply the green idea; however, the majority of consumers merely know about it and do not follow it when it comes to implementation. Many people are under the notion that environmentally responsible banking helps them save money. But, it would be wonderful if people understood that the real cost is to their lives rather than their lifestyles, and banks should encourage customers to have this realization. Not just the banking industry but also the general population as a whole has to realize how severe the problem is and step up to the challenge at the appropriate moment.

Therefore, the Reserve Bank of India and our government should accept green banking business forms, green banking policy, and proper eco-friendly exercise programs to adopt the green entrepreneur for future improvement on green finance growth in India. Green banking policy, awareness to existing business people, new business organizations, and general people, and proper eco-friendly exercise programmers have to be adopted by green entrepreneurs for future improvement on green finance growth in India.

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- All photographs and scanned images should have a resolution of minimum 300 dpi and 1500 pixels, and their format should be TIFF or JPEG. Due permissions should be taken for copyright-protected photographs/images.

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- Please ensure that all references mentioned in the reference list are cited in the text and vice versa.

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