



# Applications of generative AI and future organizational performance: The mediating role of explorative and exploitative innovation and the moderating role of ethical dilemmas and environmental dynamism

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## ABSTRACT

Generative Artificial Intelligence (GenAI) is one of the popular AI technologies which can produce multiple kinds of contents including music, text, image, as well as synthetic data. As GenAI technology can produce various forms of contents, organizations must face ethical dilemmas as to where this technology is likely to be used. Organizations do not want to compromise their ethical standards and compliance policies. Against this backdrop, the aim of this study is to examine if GenAI technology could improve the future performance of the organizations. This study deployed ethical dilemmas and environmental dynamism as two moderators acting on different linkages between adoption of GenAI and organizational future performance. With the help of literature review and theories, a theoretical model has been developed conceptually which was validated using PLS-SEM technique with the feedback of 326 responses from different types of organizations. **This study found that the adoption of GenAI could improve exploratory and exploitative innovation under the moderating effects of environmental dynamism and ethical dilemmas.** Moreover, it highlighted that **the application of GenAI could improve organizational performance.**

## 1. Introduction

Artificial intelligence has shown remarkable progress in recent years ((Mariani et al., 2023)Wang et al., 2020). GenAI can be seen as a remarkable adaptable subset of AI (Macdonald et al., 2023; Wank et al., 2021). In case of emerging concerns, GenAI can provide innovative solutions to complex scenarios. Previously, traditional problem-solving methods often relied on pre-defined algorithms and human intuition that were mostly directed toward traditional solutions (Gonzalez-Rodriguez and Hernandez-Carrion, 2018; Chaudhuri et al., 2022b; Wang et al., 2023). However, GenAI incorporates randomness and non-linearity which enables it to explore unconventional pathways. This process helps uncover innovative solutions that might have been overlooked by traditional approaches (Jiang et al., 2023; Yan et al., 2022). **The incorporation of GenAI has been found to be an important element of organizations' technological transformation efforts to achieve innovation and efficiency** (Mariani and Dwivedi, 2024). At its core, GenAI is

based on the fundamental concept of extracting patterns from data and using that acquired knowledge to create innovative content. This approach follows deep learning models that have demonstrated exceptional ability to generate very realistic results mostly from images and text (Agnese et al., 2020; Vartiainen and Tedre, 2023; Chaudhuri et al., 2022a; Mariani et al., 2023). GenAI's ability to generate new materials has given rise to a wide range of applications in many fields.

Previously, it was stated that GenAI has expanded across various domains (Chen et al., 2019; Deja and Siemiatkowski, 2013; Lewis et al., 2019). However, the effect of GenAI on firm performance remains unclear as mostly studies primarily concentrated on interest groups that incorporates digital information into both their direct and indirect business strategies (Kanbach et al., 2023; Korzynski et al., 2023; Peres et al., 2023). Also, as we delve into the realm of GenAI, two particular-dimensions come into focus—exploratory and exploitative innovation (Jansen et al., 2006; Limaj and Bernroider, 2019; Xie and Wang, 2021). These dimensions refer to exploration and incremental

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improvements within organizational framework. The effect of GenAI on exploitative and exploratory innovation has opened a myriad of possibilities that has reshaped several industries and to foster efficiency.

In the corporate sphere, GenAI enhances decision-making processes as it provides insights from vast datasets that can contribute to predictive analytics (Mariani et al., 2022; Mariani and Wirtz, 2023), and facilitates for informed and strategic choices (Peres et al., 2023). Furthermore, this technology plays a pivotal role in personalization, influences customer experiences as it can modify the products and services based on individual preferences (Long and Liu, 2021). Although, despite its transformative potential, two constructs, environmental dynamism, and ethical considerations underline the importance of responsible and transparent AI practices (Chaudhuri et al., 2022c). As organizations navigate this technological frontier, a thoughtful and ethical approach is essential to harness the full benefits of GenAI. This exploration into the applications of GenAI belong to a comprehensive framework for a deeper understanding of its impact on organizational performance (Olan et al., 2022; Vrontis et al., 2022a). Hence it requires more research attention to study the evolving dynamics of organizational success in the era of GenAI.

As GenAI is relatively a new field of study and there is a difference between adoption of general technology with GenAI, there are a few studies in this field (Cordasco et al., 2021; Vrontis et al., 2022b; Ford et al., 2023). Thus, studies are available which investigated how GenAI could impact the business strategies of an organization (Kanbach et al., 2023; Peres et al., 2023). Studies also have examined how GenAI could support in accurate decision-making process to facilitate flawless predictive analysis which could eventually lead to appropriate strategic choices (Peres et al., 2023). However, extant literature examining the explicit effects of environmental dynamism and ethical consideration towards the successful application of GenAI is scant. Accordingly, there is a research gap and a good opportunity for further research on the subject. Thus, there is a good opportunity to investigate the impacts of adopting GenAI for the organizations from ethical, environmental dynamism, innovation, as well as organizational future performance perspectives.

## 2. Research questions

The study addresses the following research questions (RQs).

**RQ1:** Are there any mediating effects of exploratory and exploitative innovation on the relationship between intention to adopt GenAI and organisation future performance?

**RQ2:** Whether there is any moderating role of environmental dynamism and ethical dilemmas for the intention to adopt GenAI and innovation?

The above RQs have been addressed by analysing the responses of 326 respondents that took part in a survey. A theoretical model has been developed which was tested by factor-based PLS-SEM technique. To effectively substantiate the empirical findings, the present study has integrated the concept of diffusion of innovation theory (DIT) (Rogers, 1995) and the resource-based view (RBV) (Barney, 1991) since neither of these two theories could explain independently how the adoption of GenAI could impact organizational performance by improving two contextual intermediate factors like exploratory and exploitative innovation abilities of the organizations under the moderating influence of environmental dynamism and ethical dilemmas. While in previous research the mediation mechanism of explorative and exploitative innovation shed light on the transformative potential of AI, it was mentioned by several scholars to recognize the moderating influences of micro and macro environmental constructs that can create an effect on the association between AI and firm performance (wael AL-khatib, 2023). Budhwar et al. (2023) stated that ethical dilemmas arise as organizations navigate the ethical implications of deploying GenAI in

decision-making processes. The inherent complexity of algorithms and the potential for biased outcomes necessitate a careful consideration of the ethical dimensions to make use of GenAI. Organizations that effectively address such ethical concerns are likely to experience a smoother integration of GenAI into their innovation processes (Segers, 2023). Hence, it also can strengthen the mediating influence of explorative and exploitative innovation on organizational performance (Garbuio and Lin, 2021).

Moreover, in few research, the moderating role of environmental dynamism introduced a layer of complexity to the relationship between AI and organizational performance (Dubey et al., 2020). Environmental dynamism reflects the pace and turbulence of the external business environment. In dynamic environments the adaptability facilitated by GenAI becomes paramount. Organizations which operate in such dynamic contexts are presented with both opportunities and challenges in order to leverage GenAI to enhance their performance. The ability of GenAI to process real-time data, identify trends, and adapt strategies accordingly positions organizations to thrive amidst uncertainty. However, the dynamic nature of the environment also demands a continuous evaluation and adjustment of AI applications to remain aligned with evolved external conditions.

The interplay between GenAI, explorative and exploitative innovation, and the moderating role of ethical dilemmas and environmental dynamism forms a complex association that shapes organizational performance. Successful integration of GenAI requires a holistic approach that can consider not only the technical capabilities of AI systems but also the ethical implications and the adaptability to dynamic external forces. Organizations that navigate these intricacies effectively are poised to unlock the full potential of GenAI and can propel their innovation efforts which can enhance the overall firm performance subsequently.

The reminder of the article is organized as follows. Next to introduction, section 2 presents the background studies and theories followed by development of hypotheses and research model in section 3. Thereafter, section 4 presents the research design followed by analysis of data and results in section 5. Subsequently, section 6 illustrates a discussion and findings followed by implications of this study in section 7. Finally, section 8 portrays the conclusion, limitations, and future scope of this study.

## 3. Background studies and theoretical background

### 3.1. Diffusion of innovation theory

Diffusion of Innovation Theory was initially proposed by Everett Rogers in 1962, which provides a comprehensive framework for considerate how new ideas, technologies, or innovations spread within a society or organization (Prasad Agrawal, 2023). The theory provides insights into the dynamics of technology adoption and its impact on innovation within the organizational context. GenAI, with its ability to autonomously produce new contents or solutions, possesses innovation attributes that influence its adoption. These attributes include the perceived advantages of GenAI in development of creativity, efficiency gains, and adaptive problem-solving (Hsu and Ching, 2023). Hence it is important to understand these attributes which are crucial for AI adoption.

Furthermore, the theory extends its applicability to the study's core analysis of explorative and exploitative innovation (Enkel et al., 2017). GenAI emerges as a catalyst for explorative innovation as it encourages experimentation and risk-taking that makes it forward to the discovery of new opportunities. Simultaneously, the technology contributes to exploitative innovation as it optimizes the existing processes. Also, it enhances the organizational efficiency with the theory's acknowledgment of incremental improvements.

In last few years, organizations that have embraced GenAI adoption have encountered challenges in the integration of exploratory and

exploitative approaches (wael AL-khatib, 2023). Because every technique has a unique function to impact the path of how innovation emerges. Exploratory innovation refers to the willingness to explore new and unexplored territory (O'Connor and DeMartino, 2006). It is the initial phase of the dissemination process. At this stage, organizations begin to explore the extensive realm of GenAI. This phase is driven by a curiosity in order to understand the potential applications, capabilities, and transformative possibilities. Early adopters often seen embodied a spirit of technological enthusiasm and exploration through incorporation of GenAI into their organizational domains (Cooper and Morris-Suzuki, 1998). In mostly cases, workshops, educational initiatives, and external influencers served as catalysts which foster a climate where knowledge about GenAI proliferates. Furthermore, it lays the groundwork for informed decision-making. Conversely, exploitative innovation also becomes prominent in the subsequent stages of diffusion (Enkel et al., 2017; wael AL-khatib, 2023; Zhang and Luo, 2020). As organizations move beyond the initial exploration, they confront the task for connecting the identified potentials of GenAI to tangible benefits. Basically, exploitative innovation involves refinement and optimization of the integration of GenAI into present organizational processes. It could be seen in previous literature that during the exploratory phase, decision-makers who have been persuaded by the potential advantages of GenAI later they face the challenge of alignment of this innovative technology with established workflows and structures. However, the relative advantage of GenAI is its compatibility with existing systems and to enhance efficiency and competitiveness for the decision-making stage. As organizations decide on specific use cases of applications for GenAI, this shift from exploration to exploitation that is marked by a strategic commitment of resources (mostly, strategic, financial, and human).

The enablers which create an influence on the diffusion of GenAI can be viewed through the lens of both exploratory and exploitative innovation (Dubey et al., 2020; Jansen et al., 2006; Xie and Wang, 2021). The relative advantage of GenAI in case of exploratory phase becomes apparent as organizations seek novel ways to gain a competitive edge. Also, compatibility with existing systems and workflows starts to explore further which ensures that the integration of GenAI does not disrupt established processes. Furthermore, the trialability of this innovative technology allows organizations to experiment with small-scale implementations. It helps to minimize the risks that is associated with large-scale adoption. However, observability of benefits is crucial in both phases. It has become a driving force for most of organizations who witnessed tangible outcomes and successes from early adopters that influence the broader acceptance of GenAI.

Concerning the role of AI towards innovation, it could be seen that environmental dynamism and ethical considerations persist throughout the entire diffusion process (Mariani et al., 2023; Prasad Agrawal, 2023; Xie and Wang, 2021). Data privacy concerns particularly throughout the implementation phase requires establishment of robust measures for the ethical supervision of sensitive information. It is because bias and fairness considerations necessitate continuous monitoring and refinement to ensure sustainable outcomes. Hence in this study, environmental dynamism and ethical dilemmas are examined as moderators in the relationship between the adoption of GenAI and both Exploitative and Exploratory innovation.

### 3.2. Resource-based view theory

Resource-based theory provides a valuable lens for understanding the dynamics of organizational strategy and competitive advantage (Nayak et al., 2023). Scholars often leverage this theoretical framework to explore an organization's unique resources and capabilities that shape its ability to gain and maintain a competitive edge in the marketplace (Saw et al., 2022). GenAI encompasses the ability to autonomously generate creative and valuable outcomes such as content, ideas, and solutions (Kanbach et al., 2023; Just, 2024; Singh et al., 2024). This

perspective suggests that firms with superior GenAI capabilities can gain a competitive edge by production of unique and innovative resources (Nayak et al., 2023; Srivastava et al., 2001). Moreover, the strategic management of GenAI resources involves integration, deployment, and protection. Mostly organizations could be seen to develop the necessary structures and processes towards effective utilization of GenAI in their operations and decision-making processes (Al-Surmi et al., 2022; Dogru et al., 2023). Moreover, previous literature led to construe that the success of an organization lies in ensuring better profitability. However, the framework of the RBV has brought about a paradigm shift in presenting how organizations can ensure success. The proponents of RBV suggest that organizational success consists of how an organization is being able to appropriately utilize its valuable, rare, inimitable, and non-substitutable (VRIN) resources to successfully outperform their competitors operating in a similar market.

In the context of B2B association, the resource-based theory highlighted the strategic deployment of GenAI which can lead to improved collaboration, efficiency, and innovation (Abrokwah-Larbi, 2023). Organizations that effectively integrated GenAI into their B2B processes are experienced in enhanced decision-making, streamlined operations, and increased competitiveness (Chen et al., 2022; Li et al., 2021). This view emphasized the strategic importance of AI competencies within an organization. The implementation of an AI-OP system requires not only the acquisition of AI but also the development of human capital and organizational capabilities (Nayak et al., 2023; O'Connor and DeMartino, 2006; Olan et al., 2022; Baabdullah, 2024).

In the context of technology adoption and implementation, this theory offers insights into how an organization's internal capabilities with its technological infrastructure influence its ability to effectively integrate and utilize new technologies (Ooi et al., 2023). For instance, the implementation of advanced Management Information systems requires organizations to harness their technological resources and develop the necessary expertise among employees to derive optimal value.

Organizations focusing on GenAI technologies prefer to seek to leverage these resources strategically to enhance organizational subsequent performance. For instance, the ability to generate innovative solutions through AI algorithms can be considered a valuable intangible resource. GenAI applications, by its nature, have the potential to foster explorative innovation as it enables organizations to uncover novel solutions, ideas, or processes. This aligns with the resource-based view's emphasis on unique resources that can provide a competitive advantage (Nayak et al., 2023; Srivastava et al., 2001). Organizations that effectively harness GenAI for explorative innovation can cultivate a distinctive competency that can help to achieve enhanced subsequent performance.

## 4. Development of hypotheses and research model

### 4.1. Adoption of GenAI and exploratory innovation

In the last few years, there has been a notable surge in organizations incorporated GenAI that has shown an impactful growth (Korzynski et al., 2023; wael AL-khatib, 2023). The widespread recognition of the transformative potential of GENAI has sparked considerable interest in leveraging its capabilities for development of exploratory innovation. Accordingly, organizations are compelled to cultivate harmonized resources essential to maximize the potential of their GENAI investments. Jansen et al. (2006) stated that execution of GenAI can act as a catalyst for exploratory innovation specially when integrated with collaborative platforms (Enkel et al., 2017; Zhang and Luo, 2020; Chatterjee et al., 2022). Furthermore, it also has the capability to streamline data-driven decision-making processes, provide real-time insights, and enhance the organization's responsiveness to dynamic market conditions (Wang et al., 2020; Long and Liu, 2021; Olan et al., 2022; Chatterjee et al., 2023; Prasad Agrawal, 2023). GenAI is capable of handling vast

datasets. It plays a pivotal role in supportive experts in both repetitive and creative tasks. GenAI emerged as a versatile tool that helps business firms in automation of routine processes for contributing to creative endeavours such as design, engineering, and information enhancement (Chen et al., 2019; Chaudhuri et al., 2022a; Jiang et al., 2023; Yan et al., 2022). Abrokwhah-Larbi (2023) stated that successful implementation of GenAI is contingent on the perceived attributes of an innovation and the contextual factors that influence its adoption. Hence this study proposed the following hypothesis.

**H1.** The perceived quality of the GenAI adoption process significantly and positively influences the outcomes of exploratory innovation in organizational settings.

#### 4.2. Adoption of GenAI and exploitative innovation

Exploitative innovation refers to the refinement and enhancement of current products, processes, or services (Enkel et al., 2017). It further involves incremental improvements that optimize efficiency, reduction in costs, and enhancement in overall performance (Abrokwhah-Larbi, 2023; Chatterjee et al., 2021; Long and Liu, 2021; Demetris et al., 2022b). In the realm of AI, GenAI is considered as a catalyst for exploitative innovation as it drives organizations to extract maximum value from their AI investments. Also, GenAI could be seen to offers a solution to the challenges posed by the complexity and volume of innovation-related data.

Basically, GenAI is able to generate creative solutions autonomously that aligns with the principles of exploitative innovation (Chen et al., 2019; Demetris et al., 2022a; Peres et al., 2023). GenAI becomes an invaluable tool in the pursuit of exploitative innovation with its capacity to analyse historical data, identifying patterns, and proposing novel but incremental improvements. The strategy for adoption of GenAI in the pursuit of exploitative innovation involves a long-term approach which aims to establish a strategic relationship with the technology (Sheshadri, 2019; Galati et al., 2021; Ranjan et al., 2022). In order to enhance the firm performance, organizations seek to extract continuous value by delivering incremental improvements across various facets of their operations.

GenAI implementation process ensures that employees understand the technology, they should feel confident in using it, and they should recognize its relevance to their daily tasks. This, in turn, facilitates a smoother transition toward exploiting the full potential of GenAI for innovation. Xie and Wang (2021) mentioned that the implementation process can be perceived positively as it creates an environment conducive to experimentation, learning, and collaboration. By fostering an environment that promotes the exploration of innovative applications and the pushing of established process boundaries, this can significantly augment the overall acceptability of GenAI among business members. Therefore, the results of exploitative innovation are expected to be more advantageous when there is a positive opinion of the implementation process of GenAI. Hence, this study proposed the following hypothesis.

**H2.** The perceived quality of the GenAI adoption process significantly and positively influences the outcomes of exploitative innovation in organizational settings.

#### 4.3. Adoption of GenAI and subsequent organizational performance

The impact of GenAI on organizational performance has received significant attention in prior work. Olan et al. (2022) have highlighted the crucial significance of the interaction between GenAI and organizational performance. They argued that organizations utilize the combined power of GenAI technology and performance measurements to achieve transformative results. The junction of GenAI and subsequent organizational performance enhances understanding of various analytical mediation processes that correspond to the developed landscape of

digital competitiveness. (Lewis et al., 2019; Limaj and Bernroider, 2019; Xie and Wang, 2021; Zhang and Luo, 2020). GenAI encompasses intelligent systems founded on algorithms, natural language processing, machine learning methodologies, and human intelligence, which serves to augment human activities and decision-making processes (Lewis et al., 2019; Sheshadri, 2021; Vrontis et al., 2022b; Budhwar et al., 2023; Korzynski et al., 2023). Organizations who invest in GenAI-driven innovations found to be capable of storing, sharing, and generating new knowledge across diverse platforms.

The path to the realm of organizational performance, historical perspectives in performance management predominantly considered operational and financial dimensions that directly impact organizational competitiveness and strategies (Jansen et al., 2006; O'Connor and DeMartino, 2006; Olan et al., 2022; Ranjan et al., 2023; Nayak et al., 2023). The operational dimension emphasizes success factors encompassing cost management, process efficiency, and overall quality control, that contributes to sustained competitive advantages (Chen et al., 2022; Wang et al., 2020; Ranjan et al., 2021). Conversely, the financial dimension involves assessment of an organization's assets and liabilities, examination of revenue generation patterns reflected in financial statements (Srivastava et al., 2001). The infusion of technology, particularly GenAI, into organizational performance is pivotal for achieving strategic goals such as operational excellence, financial targets, and customer satisfaction (Mariani and Borghi, 2023). Noteworthy contributions by Long and Liu (2021) underscore the substantial impact of continuous organizational investments in GenAI and other information technologies to enhance business processes, equip employees with expertise, and to facilitates ongoing training. This, in turn, directly influences organizational performance. Scholars widely agree that organizational performance can thrive when organizations successfully align performance measurement with emerging technological strategies (Mikalef and Gupta, 2021). Hence, we propose the following hypothesis.

**H3.** The intention to adopt GenAI has a significant positive impact on the future performance of organizations.

#### 4.4. Mediating role of explorative and exploitative innovation

One should note here that the concept of exploitative innovation capability of an organization relates to the improvement and enlargement of its current organizational competencies, paradigms, and technologies. It possesses incremental characteristics and emphasizes about the needs of the existing customers leading to incremental product changes. However, explorative innovation is about long-term oriented ideas that involve using new technologies to create new products and services with new processes. GenAI, with its ability to generate novel ideas and solutions autonomously, offers organizations a pathway to optimize decision-making, streamline processes, and foster creativity (Garbuio and Lin, 2021; van Dun et al., 2023). Similar to the duality observed in organizational learning, innovation within organizations can be categorized into explorative and exploitative dimensions (Jansen et al., 2006; Xie and Wang, 2021). Both forms of innovation, whether incremental or radical, are indispensable for organizational success to formulate a balanced strategy that fosters continuous advancement and substantial improvements.

Exploratory innovation plays a crucial role in transformation of the creative capacity of AI into tangible strategies and outcomes (Enkel et al., 2017; O'Connor and DeMartino, 2006). Essentially, it serves as a platform that allows organizations to evaluate and implement ideas generated by artificial intelligence. Although, artificial intelligence has a unique capacity to develop new ideas and possibilities. Through generative approaches it can generate a number of concepts. Furthermore, these concepts are subsequently improved and tested via innovative experimentation. This intricate process helps businesses to adapt and grow in the face of competitiveness and uncertainty.

On the other side, exploitative innovation seeks to optimize and



enhance AI-provided solutions (Limaj and Bernroider, 2019; Zhang and Luo, 2020). This innovation readily incorporates new ideas into the firm's current structure. Mainly, it makes use of the organization's current knowledge to become efficient and enhance performance. Previously it could be seen that organizations have gained a significant competitive edge when they mixed exploitative innovation with GenAI. Furthermore, this empowerment helps various stakeholders to address complicated situations more skill-fully and effectively.

Hence, it is recommended that businesses should develop an atmosphere that encourages experimentation and creativity to stimulate exploratory innovation. This ensures the transformational potential of GenAI is incorporated into business processes.

Therefore, this study proposed.

**H4.** Exploratory innovation positively mediates the relationship between intention to adopt GenAI and organizational future performance.

**H5.** Exploitative innovation positively mediates the relationship between intention to adopt GenAI and organizational future performance.

#### 4.5. Moderating role of ethical dilemmas and environmental dynamism

Whenever a relationship between two constructs is not fixed, a third variable impacting this relationship may facilitate the relationship, or may retard the relationship, or even in some cases it can reverse the direction of the relationship. This third variable impacting on the concerned relationship between the two constructs is known as moderating variable. It has been observed that the ethical considerations have been central to discussions related to technological advancements (Ray, 2023; Zohny et al., 2023). Hence it can be said that the advent of AI introduces a new layer of complexity, where the autonomous nature of GenAI may pose challenges in ensuring responsible and ethical exploitation of innovations. Harmonization of the pursuit of efficiency and optimization through AI with ethical considerations becomes imperative to prevent unintended consequences. Similarly, the integration of GenAI has profound implications for exploratory innovation, where organizations venture into uncharted territories to generate novel ideas and strategies (Jansen et al., 2006; Xie and Wang, 2021). The ethical dimensions become even more pronounced in this context, as the unpredictability of GenAI can lead to unintended consequences or biases in the ideas generated (Dogru et al., 2023; Dwivedi et al., 2023). Organizations should grapple with the ethical considerations associated with using AI to refine and exploit existing knowledge. Scholars argued that direction to ethical complexities becomes a prerequisite for sustainable innovation.

The unpredictable nature of GenAI outputs can lead to unintended consequences which reinforce the need for ethical scrutiny. Previous literature on AI ethics highlights that ethical considerations become more intricate when dealing with novel, AI-generated ideas (Budhwar et al., 2023; Oniani et al., 2023; Zohny et al., 2023). Organizations which face heightened ethical dilemmas may exhibit reluctance in acceptance and implementation of innovative impressions generated by GenAI. Hence, the impact of GenAI on organizational future performance is contingent upon the organization's ability to navigate ethical dilemmas effectively. Previous studies suggest that ethical considerations are integral to the overall success of AI implementations. Zohny et al. (2023) stated that recent organizations increasingly recognized that ethical responsibility is intertwined with performance outcomes. Organizations who face pronounced ethical dilemmas can adopt cautious strategies, potentially limit the optimization of performance through GenAI to align with ethical standards.

On the other side, Environmental dynamism, characterized by the rate and unpredictability of change in the external environment, significantly influences how organizations harness GenAI for optimizing existing processes (Chen et al., 2021; Kemp, 2023). Previous research emphasized that environmental dynamism acts as a critical factor which shapes organizational responses to innovation (Chaudhuri et al., 2022a,

b; Cordasco et al., 2021). In highly dynamic environments, organizations who leverage the GenAI for exploitative innovation they could face challenges. The rapid pace of change makes it necessary to constant adjustments to current processes in order to address challenges for organizations to fully exploit the capabilities of GenAI for optimization (Korzynski et al., 2023; wael AL-khatib, 2023). Scholars argued that a dynamic environment requires organizations to be agile and adaptable so that it can influence the extent to which GenAI can be effectively utilized for refinement and optimization of existing knowledge (Gonzalez-Rodriguez and Hernandez-Carrion, 2018; Limaj and Bernroider, 2019; C. Wang et al., 2020).

The inherent unpredictability of GenAI outputs corresponds to the flexibility needed in dynamic contexts. Prior studies have demonstrated that businesses operating in dynamic environments are predisposed to exploring novel concepts and technologies as a means to sustain their competitive edge (Korzynski et al., 2023; Nayak et al., 2023; Prasad Agrawal, 2023). GenAI emerges as an indispensable tool in navigating ambiguity and probing unfamiliar territories within ever-changing situations. Moreover, in dynamic contexts, firms are more prone to leveraging GenAI for the generation and implementation of novel concepts, aligning with the imperative for continual adaptation and innovation in response to external changes.

Nayak et al. (2023) posits that the nexus between technical innovation and organizational efficiency hinges on the adaptability mandated by the external environment. This association between GenAI and organizational effectiveness gains prominence in highly dynamic environments. Organizations adjusting to shifts in conditions through the utilization of GenAI are more likely to achieve outstanding performance outcomes. Hence the study hypothesized.

**H6a.** The positive relationship between GenAI and exploitative innovation can be moderated by ethical dilemmas, such that the impact of GenAI on exploitative innovation will be contingent on the organization's ethical considerations and practices.

**H6b.** The positive relationship between GenAI and exploratory innovation can be moderated by ethical dilemmas, such that the influence of GenAI on exploratory innovation will be shaped by the organization's ethical stance and its ability to navigate and address ethical concerns associated with AI-generated ideas.

**H6c.** The overall impact of GenAI on organizational future performance can be moderated by ethical dilemmas, signify that the relationship between GenAI and organizational future performance will depend on the organization's ethical decision-making processes and its ability to align AI-driven advancements with ethical standards, thus it effects the net performance outcomes.

**H7a.** In highly dynamic environments, the positive relationship between GenAI and exploitative innovation can be weakened in such a way that the rapid pace of change in dynamic environments can hinder organizations' ability to fully exploit the capabilities of GenAI for refining and optimizing existing processes.

**H7b.** Environmental dynamism will positively moderate the relationship between GenAI and exploratory innovation. In dynamic environments, characterized by rapid changes, organizations are more likely to leverage GenAI to explore novel ideas and technologies, strengthen the positive impact on exploratory innovation.

**H7c.** The positive relationship between GenAI and organizational future performance can be enhanced in highly dynamic environments. The adaptability required to navigate dynamic conditions using GenAI aligns with superior organizational performance outcomes, indicates a positive moderation effect.

With the above discussion, a conceptual model has been developed and is provided in Fig. 1.

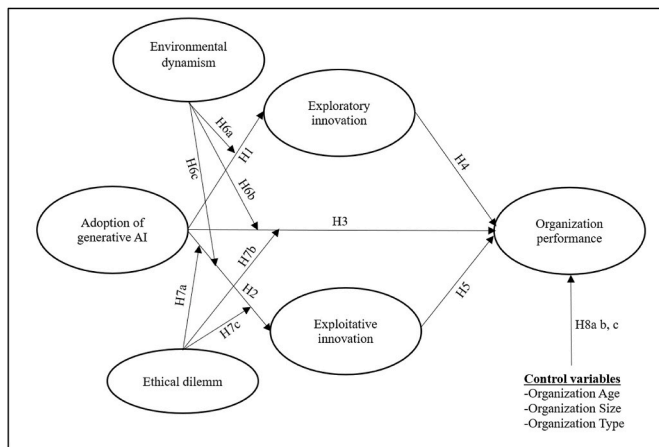


Fig. 1. Research conceptual model.

## 5. Research design

### 5.1. Data collection

In this research study, the target population comprised firms out of the Information Technology (IT) sector with a specific focus on those actively engaged in Research and Development (R&D). This selection was based on several key considerations: firstly, AI usage is notably high in IT firms (Wamba-Taguimdje et al., 2020); secondly, these industries are characterized by a significant emphasis on innovation development activities (Birkinshaw, 2020); and thirdly, the aim was to capture a diverse range of moderating variables related to ethical dilemmas and environmental dynamism. Firm data were obtained through the Prowess and India stat databases, both are comprehensive commercial databases that contain detailed listings of firms located in India. A total of 481 potential respondents were approached for participation in the study. Ultimately, 326 useable responses were received, resulted in a response rate of 67.7 percent. This response rate aligns with comparable studies that have utilized key informant methodology (Chen and Lin, 2021). The study employed a random sampling strategy in order to select the participants from all identified firms registered with the MCA or local government. The respondents were belonging to the positions such as IT Managers, Data Scientists, AI Specialists, and R&D Team Members. To ensure data integrity and minimize potential biases, employees engaged with AI implementation were surveyed separately from researchers, and both groups were kept unaware of each other's questionnaire content. Data collection was conducted in two waves to mitigate common method bias. During the initial phase, managers provided information on their firms' role in GenAI adoption, Exploitative and exploratory innovation, and general demographic details. One month later, the same respondents, along with decision scientists, were asked to provide information on future performance of organizations as a result of the intention to adopt GenAI, ethical dilemmas, and environmental dynamism. Both phases were organized through online questionnaire administration and respondents were assured full confidentiality to enhance the reliability of their responses. In the first phase, 356 respondents provided complete information, while in the second phase, 331 responses were received. After addressing missing and outlier responses, the final dataset consisted of 326 response which form the basis for the subsequent analyses and findings of this research study.

### 5.2. Measurement configuration

The survey instrument was precisely developed to ensure linguistic accuracy and cultural relevance. All questionnaire items were assessed using a five-point Likert scale which ranged from 'strongly disagree' to 'strongly agree'. Here, a 5-point Likert scale has been used because it is

simple to apply. Moreover, this scale helps the respondents to take a neutral stand by choosing 'neither disagree nor agree' option. The items were thoughtfully curated from established literature, and the complete set of questions is available in the Appendix.

The construct GenAI was measured through 5 scale items derived from (Davis, 1989). The scale items in the survey were centred around the adoption of GenAI. These items included statements such as the belief that integrating GenAI tools would enhance the efficiency of accomplishing intricate tasks, express ease in instructing GenAI for specific tasks, acknowledgment of the facilitation of organizational responsibilities through GenAI and receive proficiency in using GenAI would be a straightforward and manageable pursuit. The reliability (Cronbach alpha) of this GenAI scale was 0.85.

To measure OP, the study employed the following set of five scale items which have drawn from the work of (Dubey et al., 2020). The items on the scale revolved around key aspects such as the organization's revenue growth, market share expansion, commendable return on investment, successful development and introduction of new products or services, and satisfactory return on capital employed over the past three years. The reliability of this OP scale, as indicated by the Cronbach alpha value, was 0.86.

Derived from Huang et al. (2014), the study has incorporated 5 questions to assess EXPLORINN. The survey items were centred around various aspects of exploration aspects, such as the willingness to accept demands beyond existing products and services, development of new products and services, common experimentation with innovative offerings in the local market, successful introduction of entirely novel products and services to the market, and the frequent practice of seizing opportunities in untapped markets. The reliability of this EXPLORINN scale, as indicated by the Cronbach alpha value, was 0.85.

The study employed four scale items to assess EXPLOITINN (Jansen et al., 2009). The scale items were associated with various aspects of exploitation innovation, such as a) ongoing enhancement of current organizational practices, b) the systematic implementation of customized improvements to enhance competitiveness, c) the proactive pursuit of strategies promoting economies of scale, and d) persistent endeavours to expand services for existing clientele. 0.86 was the value of Cronbach's alpha for the EXPLOITINN scale.

Four items comprised the scale utilized in the study to evaluate ETHDIL. Based on prior investigations carried out by Verma and Garg (2023) the scale items were developed. The following items were associated with individual inclinations: a) the propensity to favor unauthorized software or technology versions; b) the propensity to utilize hardware and software resources of the organization for personal gain; c) the likelihood of sharing resources of the organization with external entities; and d) the propensity to utilize unencrypted VPN (Virtual Private Network) services offered within the organization. ETHDIL obtained a Cronbach alpha coefficient of 0.86.

A collection of four scale items derived from the Jansen et al. (2009) for the evaluation of ENVDYN. These products were meticulously crafted to encompass a wide range of environmental change-related topics. The items comprising the scale were determined by a) the regular and swift fluctuations in the quantities of products and services and b) the lack of significant changes in market conditions over the previous year. ENVDYN exhibited a Cronbach alpha coefficient of 0.86.

## 6. Analysis of data and results

### 6.1. Descriptive analysis

As depicted in Table 1, the average scores across all factors suggest that managers hold positive views regarding the Intention to adopt of GenAI and future performance of organizations as a result of the intention to adopt GenAI. To assess the formulated hypotheses, this study employed the partial least squares structural equation modelling (PLS-SEM) (Hair et al., 2011). Basically, PLS-SEM approach fits suitable

**Table 1**  
Descriptive statistics.

Variables	ENVDDYN	ETHDIL	OP	GenAI	EXPLOITINN	EXPLORINN	OrgType	OrgAge
ENVDDYN								
ETHDIL	−0.210**							
OP	−0.680**	0.175**						
GenAI	−0.174**	0.062	0.369**					
EXPLOITINN	−0.248**	0.558**	0.342**	0.511**				
EXPLORINN	−0.442**	0.298**	0.632**	0.323**	0.410**			
Org. Type	−0.030	0.156**	0.051	−0.001	0.108	0.024		
Org. Age	−0.115*	−0.033	0.072	−0.075	0.013	0.123*	−0.325**	
Org. Size	0.044	0.022	−0.036	0.008	0.003	0.014	0.398**	−0.158**

Significance of Correlations: (\* $p < 0.050$ ), (\*\* $p < 0.010$ ) (Authors' calculation).

particularly in dealing with complex relationships structures among latent variables. Also, PLS-SEM offers superior predictive capabilities compared to covariance-based approaches (Hair et al., 2019). Its utility extends to analyse the multi-order cause-and-effect models, minimizes the variance among considered variables, reduces the parameter estimate bias, and facilitates mediation-moderation analysis (Hair Jr et al., 2014; Sarstedt et al., 2020).

Smart PLS software (Ringle et al., 2023) was employed for this study. Furthermore, the robustness of predicted relationships was scrutinized through bootstrapped results with 5000 samples (Hair et al., 2017). The survey questionnaire data was carefully coded, and outliers were removed from the dataset. In the beginning, descriptive statistics such as mean scores and inferential statistics were used to understand the nature of the dataset. Here, non-response bias test has been conducted by performing independent *t*-test and chi square test considering the responses of first and last 100 respondents following the recommendation of Armstrong and Overton (1977). It has been observed that there is no marked difference of results in these two cases confirming that the non-response bias could not distort the results.

## 6.2. Common method bias (CMB) and scale validity

Since the results of the present study depend on the survey data, chance of existence of common method bias cannot be overruled. As an ad hoc measure, initially, through pretest and pilot test, the recitals of the questions to be put to the useable respondents were made simpler. Also, the respondents were assured that their anonymity and confidentiality will be strictly preserved so that they could be able to respond in an unbiased manner. Also, to check the severity of the common method bias, Harman's single factor test (SFT) has been conducted and it has been observed that the first factor emerged as 21.23% of the variance. This is lower than the recommended highest value of 50% (Podsakoff et al., 2003). However, since the Harman's SFT has been criticized as not a robust test for common method bias (Ketokivi and Schroeder, 2004), marker correlation ratio test has been conducted (Lindell and Whitney, 2001). This test also highlighted that chance of having CMB is bleak. Hence, both these tests did not display any threat to distort the data in this study. Also, to address the CMB issue, a random variable was incorporated into the PLS-SEM model (Kock et al., 2021). The aforementioned predictor variables—Organizational Future Performance (OP), Exploratory Innovation (EXPLORINN), Exploitative Innovation (EXPLOITINN), Ethical dilemmas (ETHDIL), and Environmental Dynamism—have directly connected to this variable. The absence of collinearity in this process was confirmed by the collinearity statistics (VIF). All VIF values (GenAI = 1.28, OP = 1.63, EXPLORIN = 1.35, ENVDDYN = 1.48) were below the recommended threshold of 3.3.

The results presented in Table 2 indicate robust reliability and validity for all the constructs. Cronbach's alpha, composite reliability, and factor loadings for all constructs were more than the recommended threshold 0.70 (Hair Jr et al., 2014). This affirmed the reliability of the model. Additionally, Average Variance Extracted (AVE) scores are also more than the minimum threshold of 0.50 (Hair et al., 2017). Hence it

**Table 2**  
Scale validity.

Variables	Cronbach's alpha	CR	AVE	VIF
ENVDDYN	0.85	0.86	0.64	1.48
ETHDIL	0.79	0.80	0.62	1.17
EXPLOITINN	0.83	0.86	0.67	1.41
EXPLORINN	0.86	0.86	0.64	1.35
GenAI	0.90	0.90	0.73	1.28
OP	0.85	0.86	0.64	1.63

confirmed the convergent validity of constructs (Hair et al., 2011). Table 3 further demonstrates that all the HTMT values are less than 0.85 confirming discriminant validity of the constructs.

## 6.3. Causality test

Causality is considered as an important issue which is needed to be addressed before hypotheses testing. Following the suggestions provided by Kock (2015), NLBCDR (Non-linear bivariate causality direction ratio) of all the linkages was computed. It appears that NLBCDR for each linkage is as follows. [GenAI  $\rightarrow$  EXPLORINN (1.002); GenAI  $\rightarrow$  EXPLOITINN (1.004); GenAI  $\rightarrow$  OP (1.001); EXPLORINN  $\rightarrow$  OP (1.005); EXPLOITINN  $\rightarrow$  OP (1.000)]. All these NLBCDR values are greater than the recommended lowest value of 0.7 (Wamba et al., 2020). This result provides strong evidence that the support in respect of the revised hypothesized direction concerning causality is very weak. Hence, causality is not a major issue in this study.

## 6.4. Computation of path coefficients ( $\beta$ ) (PLS-SEM)

The results of the partial least squares structural equation modelling (PLS-SEM) analysis, detailed in Table 4, provide insights into the relationships postulated in the hypotheses. The result of the moderating effect of ENVDDYN on the link between GenAI and EXPLOITINN reveals a non-significant effect ( $\beta = 0.002$ ,  $p = 0.103$ ). Hence it suggested that in highly dynamic environments, GenAI may not significantly influence exploitative innovation. In contrast, environmental dynamism positively moderates the relationship between GenAI and EXPLORINN ( $\beta = 0.162$ ,  $p = 0.000$ ).

This indicates that in dynamic environments, organizations leverage GenAI to foster novel ideas and technologies. Furthermore, the positive moderation effect of environmental dynamism on the relationship between GenAI and OP is significant ( $\beta = 0.130$ ,  $p = 0.001$ ). It emphasizes that the adaptability facilitated by GenAI is particularly advantageous in dynamic conditions and enhance future performance of organizations as a result of the intention to adopt GenAI. The moderating role of ethical dilemmas (ETHDIL) in the relationship between GenAI and exploitative innovation reveals a significant negative impact ( $\beta = -0.101$ ,  $p = 0.021$ ). It indicates that high ethical dilemmas may weaken the positive association between GenAI and exploitative innovation. Conversely, ethical dilemmas not found to moderate the relationship between GenAI

**Table 3**  
Discriminant validity (HTMT) – Matrix.

Variables	ENVDYN	ETHDIL	EXPLOITINN	EXPLORINN	GenAI	OP	ENVDYN × GenAI
ENVDYN							
ETHDIL	0.231						
EXPLOITINN	0.257	0.497					
EXPLORINN	0.413	0.262	0.358				
GenAI	0.185	0.079	0.451	0.300			
OP	0.707	0.165	0.296	0.574	0.334		
ENVDYN x GenAI	0.205	0.082	0.105	0.284	0.112	0.303	
ETHDIL x GenAI	0.087	0.088	0.168	0.133	0.055	0.118	0.189

**Table 4**  
PLS-SEM assessment.

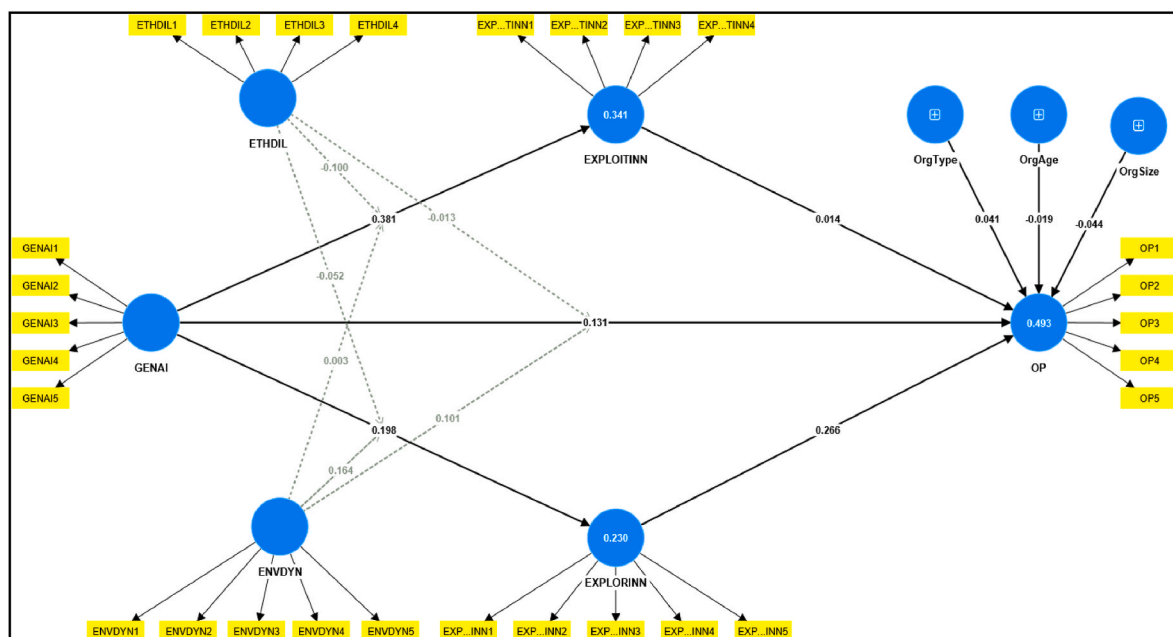
Paths	$\beta$	
Org. Age → OP	−0.019	
Org. Size → OP	−0.044	
Org. Type → OP	0.042	
GenAI → OP	0.130**	
GenAI → EXPLORINN	0.198***	
GenAI → EXPLOITINN	0.382***	
EXPLORINN → OP	0.267***	
EXPLOITINN → OP	0.015	
ENVDYN × GenAI → EXPLOITINN	0.002	
ENVDYN × GenAI → EXPLORINN	0.162**	
ENVDYN × GenAI → OP	0.10*	
ETHDIL × GenAI → EXPLOITINN	−0.101*	
ETHDIL × GenAI → EXPLORINN	−0.052	
ETHDIL × GenAI → OP	−0.012	
Variables	R-square	R-square adjusted
EXPLOITINN	0.341	0.331
EXPLORINN	0.230	0.218
OP	0.493	0.476
Model fit		
SRMR	0.059	
NFI	0.759	
Chi-square	1370	

and exploratory innovation (See Fig. 2). Also, the moderation effect of ethical dilemmas on the relationship with GenAI and OP was not significant. These findings suggest that while ethical considerations may hinder the influence of GenAI on exploitative innovation, they do not significantly impact its effect on exploratory innovation and organizational future performance.

## 7. Discussion on findings

The objective of this study was to analyse the intricate relationships between intention to adopt GenAI and their collective impact on innovation outcomes and future organizational future performance. This study conducted a comparative analysis of two mediating associations that could contribute to innovation and organizational future performance (OP). The study utilizes data collected from selected organizations to examine the nomological relationships. As information technology (IT) organizations with a focus on research and development (R&D) increasingly adopt GenAI technologies, there is a need to comprehend how these capabilities impact innovation for automation and to gain a competitive advantage, ultimately can enhance the organizational future performance. The paper extends beyond the technical aspects of AI by incorporating the Diffusion of Innovation and Resource-Based View theories to conceptualize GenAI adoption.

The argument is that organizations foster GenAI adoption experience organizational performance improvements through both explorative and exploitative innovativeness (Mikalef and Gupta, 2021; Nayak et al., 2023; Wamba-Taguimdje et al., 2020). The research investigates five hypotheses to assess the influence of intention to adoption of GenAI on



**Fig. 2.** PLS-SEM model.



innovation and its subsequent impact on a firm's future performance. Additionally, two hypotheses are evaluated to understand the moderating effects of ethical dilemmas and environmental dynamism. The results reveal a consistent pathway in the common associations, enhancing the interpretability of relationships. Robust associations highlight accurate interpretations of the relationships among GenAI, explorative innovativeness (EXPLORINN), and organizational future performance (OP), with Table 4 providing substantial support for the majority of these associations. Consequently, the presence of GenAI and explorative innovativeness in an organizational structure can foster innovation and competitiveness. Using a sample of 326 responses from IT managers, the study explores the hypothesized relationships through a Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The findings underscore the significance of GenAI in core business operations, countering previous studies that may have over-inflated expectations regarding its transformative potential (Kanbach et al., 2023; Korzynski et al., 2023; wael AL-khatib, 2023). While prior research has emphasized the potential value of GenAI, it often lacks a theoretical lens explaining how organizations should be configured to leverage these technologies for organizational goals (Wamba et al., 2023; Mondal et al., 2023). Moreover, existing academic literature predominantly focuses on the technical aspects of GenAI, neglecting the moderating influence of ethical and environmental perspectives and their alignment with business objectives (Dogru et al., 2023; Hsu and Ching, 2023). This gap has prompted commentaries and research studies emphasizing the importance of understanding the ethical and environmental aspects that organizations should cultivate to effectively deploy GenAI technologies in support of their business operations.

## 8. Implications of the study

### 8.1. Theoretical contributions

This research significantly contributes to organizational future performance through the utilization of GenAI, manifest in three primary ways. Firstly, we introduced a theoretical framework for the adoption of GenAI, leading to innovation in two distinct categories. Recognizing the need to explore specific innovations associated with emerging technologies, we employed the Diffusion of Innovation Theory and Resource-Based Theory (RBT) to identify relevant innovations in the organizational context of GenAI (Prasad Agrawal, 2023; Srivastava et al., 2001). This comprehensive approach involved a strategic literature review, categorizing insights based on themes from the Diffusion of Innovation Theory and RBT. A subsequent evaluation by an expert group, comprising practitioners and academics, ensured the inclusion of crucial aspects. This collaborative effort resulted in the identification of two main innovation categories: exploratory and exploitative innovation. Secondly, building upon the established theoretical framework, our study establishes an empirical association applicable for analysing the firm future performance through the adoption of GenAI. We contend that the GenAI adoption construct is distinct from other AI adoption constructs, and as such, we go beyond focusing solely on the aggregate component of innovation (Enkel et al., 2017; Jansen et al., 2006; Limaj and Bernroider, 2019; wael AL-khatib, 2023). Instead, we incorporate a dual dimension informed by existing research on GenAI and its technological utilization in organizations. These addresses recent calls in the Information Systems community to define and conceptualize organizational future performance leveraging GenAI for business objectives (Chen and Lin, 2021; Wamba-Taguimdje et al., 2020). Thirdly, we elucidate the moderating impact of ethical dilemmas and environmental dynamism on key innovation indicators and organizational performance (See Figs. 3–5). By empirically assessing how these variables influence the association between GenAI and organizational future performance, we contribute to the understanding of AI adoption in organizational settings. The results indicate that emphasis on environmental and ethical concerns have the potential to improve the firm future

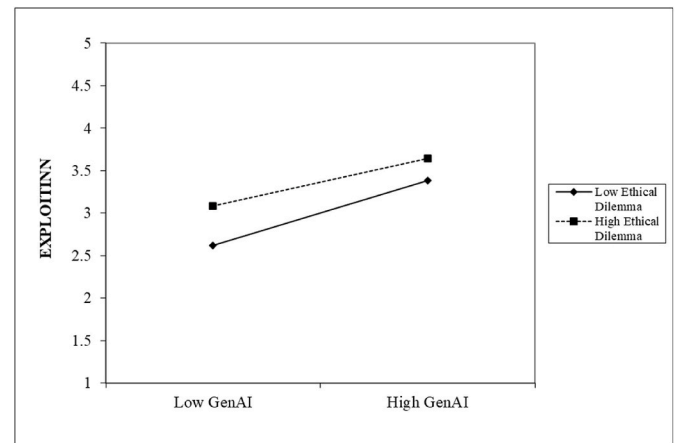


Fig. 3. The moderating effect of ethical dilemmas on GenAI and exploitative innovation.

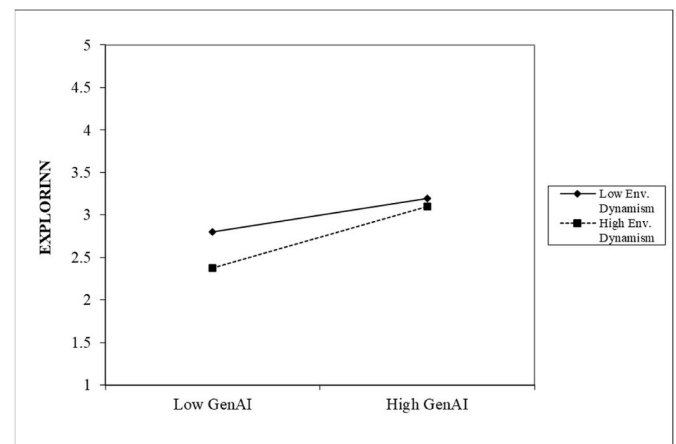


Fig. 4. The moderating effect of environmental dynamism on GenAI and exploratory innovation.

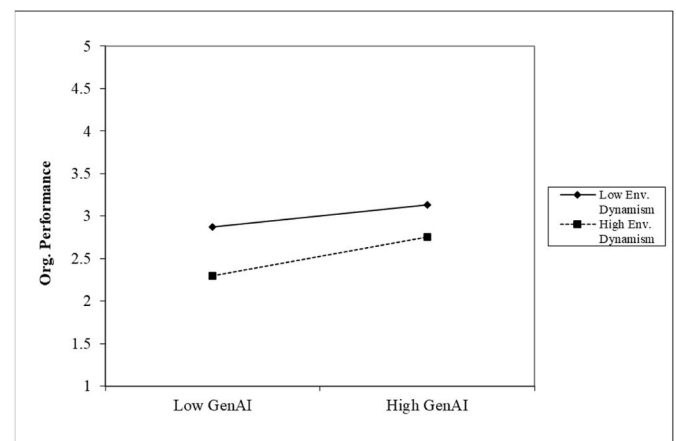


Fig. 5. The moderating effect of environmental dynamism on GenAI and Org. Performance.

performance and innovation.

As per the results, ENVSDYN has no effect on the association between GenAI and EXPLOITINN. It stated that firms can still use the features of GenAI to make small improvements even when their surroundings change. Chen et al. (2021) stated that companies prefer to use GenAI to

explore new ideas and technologies in settings that are always changing. In 2009, Jansen et al. pointed out that environmental dynamics (ENV-DYN) had a good impact on the link between AI and group success. This backs up the idea that companies need flexible skills to take advantage of new ideas (Chen et al., 2021; Dubey et al., 2020; Jansen et al., 2006). Findings from this study add to the growing body of proof that the way things work in a company can affect how well GenAI works and how innovative people are. It is discovered that the moral problem has a big effect on the connection between GenAI and unethical innovation. The opposite relationship means that companies that have to deal with moral issues might have trouble using creative AI to make their processes better.

The ethical problem also doesn't change the link between creative AI and research invention. This means that businesses have more freedom to use creative AI for testing reasons. The study's results are in line with other research that has already been done on the effects of using AI. The Diffusion of Innovation Theory (Cordasco et al., 2021; Prasad Agrawal, 2023) fits with the connections that have been seen between all of the drivers. Zohny et al. (2023) stated that the effectiveness of GenAI relies on how the world has changed. The study's results add to what is known about organizational ambidexterity (Chen and Lin, 2021; Fosso Wamba et al., 2023; Jansen et al., 2006) by giving it factual support. The idea of innovation is supported by the fact that environmental change makes the connection between GenAI and both experimental innovation and corporate success would become stronger. It means that companies that use GenAI carefully in changing settings can look for new opportunities at the same time (Abrokwah-Larbi, 2023; Fosso Wamba et al., 2023).

## 8.2. Implications to practice

This study offers precise and measured guidance to the leaders and managers of organizations that they should evaluate whether their organizations have the appropriate and suitable infrastructure to adopt GenAI before they invest in it. They are also needed to assess if the employees of the organizations have adequate skills and experience for properly using this technology, and whether the concerned organizations are financially healthy to venture for adopting such modern technologies. Moreover, the findings of the study offer organizations several practical implications. Firstly, organizations should recognize the varying degrees of influence that GenAI exerts in dynamic environments (Dogru et al., 2023; Mondal et al., 2023). This strategic use positions organizations at the forefront of technological exploration and the generation of innovative concepts. Conversely, ethical considerations arise as a pivotal determinant that impacts the efficacy of GenAI (Segers, 2023; Verma and Garg, 2023). Organizations confronted with ethical quandaries may encounter constraints when attempting to utilize GenAI to enhance preexisting processes. Therefore, establishment of robust ethical frameworks and guidelines is imperative to ensure responsible and effective AI adoption. Moreover, the study underscores the need for organizations to navigate ethical concerns with a nuanced approach, recognized that the impact of GenAI on exploratory innovation and overall future organizational performance is less constrained by ethical considerations.

Earlier studies have indicated that incorporation of artificial intelligence and innovative capabilities is a beneficial strategy for enhanced organizational performance (Chen and Lin, 2021; Wamba-Taguimdje et al., 2020). Nevertheless, ethical considerations and the dynamic nature of the environment can impact internal organizational innovation capabilities (Chen et al., 2021; Jansen et al., 2009; Verma and Garg, 2023; Zohny et al., 2023). It is crucial to refine and train these internal capabilities to enhance absorptive capacity for effective utilization of knowledge from AI for improved performance. The firm's ability to innovate significantly relies on its internal capacity to exploit new knowledge and capabilities. This research contributes to the understanding of GenAI adoption in the IT sector as it establishes a connection between GenAI and organizational future performance. The study

demonstrates that while GenAI adoption positively influences exploratory and exploitative innovation of AI technologies, the exploitative aspect does not always translate into organizational performance improvements. The findings also highlight practical implications for stakeholders in IT organizations. Organizations should adopt an organization-wide readiness perspective when implementing GenAI applications. This presents a challenge for few managers who need to communicate that GenAI requires holistic support from the entire organization for development and value. Although, this approach encourages the use of GenAI to enhance business sector performance over the long term as it identifies the opportunities for knowledge and innovation.

GenAI should be used carefully by organizations that work in settings that change quickly to spark new ideas and technical research. Firms can stay flexible, quick to respond, and on the cutting edge of technological advances by understanding how GenAI can help with experimental innovation. Complete obedience to ethical standards and guidelines is necessary for the successful integration of artificial intelligence (Oniani et al., 2023; Segers, 2023). This means that the ethical parameters for innovations and ideas produced by AI need to be made clear. Ethics should be carefully thought out and included in the process of creating, using, and making decisions about artificial intelligence. To make sure that GenAI projects follow ethical standards, organizations should put openness, fairness, and responsibility at the top of their lists. This is the best way to deal with the problems that come up when there are ethical dilemmas.

The findings of this research study have immense effect on how organizations plan their activities. Businesses can achieve excellence if they create an outlook that fully supports GenAI as a way to increase innovation and flexibility. To do this, everyone in the business needs to learn more about AI. Organizations further need to consider GenAI as a way to become smarter and more flexible. This can help them to handle risks in constantly changing market conditions.

Because of this, firms need to put talent development programs at the top of their list of priorities. Since GenAI and organizational innovation are strongly linked, firm can use GenAI for both explorative and exploitative innovation. It is important to provide employees more new possibilities in AI. The resources who work for a firm should have the skills they need to adapt well to changes in technology. It is suggested that systems be set up to consistently watch and respond to the changing behaviours of AI technologies. Firms should believe that GenAI projects are still relevant and useful. Hence regularly we should update the firms' operations with the organization's current goals. It is important for businesses to be able to change their AI plans when new tools and methods come out that help them reach their growth goals. In the active field of creative artificial intelligence, being able to adapt is becoming an important skill for staying ahead of the competition.

## 9. Conclusion, limitations, and future scope

Organizations have become more aware of how important creative AI is as they improve their technology. Also, creative AI becomes more popular as business operations get more complicated. This study looks into the link between creative AI and better business results. Recently, companies have realized how valuable their data really is and have started using new ideas and innovations to get the most out of it. Two main things are pushing the development of GenAI forward: first, the combination of new knowledge and skills; and second, the automation of processes that make it easier to look into new ideas. In addition, a substantial disruption has transpired within the domain of innovation services as a result of the intense focus on optimizing the utilization of the enormous volumes of data held by organizations. The research findings indicate that GenAI effectively promotes both exploratory and exploitative innovation in dynamic settings. It thus contributes to the adaptability of the organization. Moreover, ethical considerations were of the utmost importance. The research emphasized the necessity of

implementing strong frameworks in order to effectively address obstacles and guarantee the responsible implementation of AI.

This study has some limitations as it exclusively relies on the perspectives shared by managers and does not encompass other potential expressions of GenAI within organizations. Although this study has adjusted measures for control variables, it did not conduct a specific analysis for different industries. Future research could benefit from a more intricate exploration of GenAI adoption by considering different contexts, industry specifics, and a broader array of associated terms. The study results rely primarily on analysis of responses of the respondents based out of India. This invites external validity issues. It is suggested that future researchers should collect data from the respondents spread across the geographies. In that case, the findings so arrived at could have possessed results with more generalizability. The present study did not analyse a rival model or an alternative model. It could have provided a scope to compare the proposed theoretical model with the rival model for ascertaining if the proposed theoretical model is superior in quality compared to the rival model. This is a limitation of this study. Future research should address it.

Appendix

Appendix: Summary of questionnaire.

Questions (Statements)	Source(s)
<i>Generative AI adoption</i>	Author(s)
Generative AI adoption in my role would lead to a substantial improvement in organizational productivity. The utilization of generative AI tools would enable me to accomplish complex tasks more efficiently. I would find it easy to instruct generative AI to perform specific tasks. Generative AI would make it easier for me to perform my organizational responsibilities. Becoming proficient at using generative AI would be a straightforward and manageable endeavour.	<a href="#">Davis (1989)</a>
<b>Organizational Future Performance</b> To what extent our organisation will achieve with respect to major competitors: Our organization will experience significant growth in revenue in the upcoming future. Our organization will achieve notable growth in market share in the upcoming future. The return on investment for our organization will be commendable in the upcoming future. Our organization will successfully develop and introduced new products or services The return on capital employed by our organization will be satisfactory in the upcoming future	<a href="#">Dubey et al. (2020)</a> <sup>1</sup>
<b>Exploratory Innovation</b> Our organization accepts demands that go beyond existing products and services. We pioneer the development of new products and services. Experimentation with novel products and services is common in our local market. We successfully bring to market products and services entirely novel to our organization. Seizing new opportunities in untapped markets is a frequent practice.	<a href="#">Huang et al. (2014)</a> <sup>2</sup>
<b>Exploitative Innovation</b> Our organization consistently refines the provision of existing products and services. Our organization regularly introduces enhancements to existing products and services specifically for our local market. Our organization actively pursues strategies to increase economies of scale in existing market Our organization continuously strives to expand services for existing clients.	<a href="#">Jansen et al. (2009)</a>
<b>Ethical dilemmas</b> I am likely to prefer using unauthorized versions of software or technology. I am inclined to use organizational hardware and software resources for personal needs. I am likely to share organizational resources with entities outside the organization. I am likely to take undue advantage of unencrypted VPN services available within the organization	<a href="#">Verma and Garg (2023)</a>
<b>Environmental Dynamism</b> The local market experiences intense and frequent environmental changes. Our clients regularly express demands for new products and services The local market undergoes continuous and dynamic changes. In the past year, there has been a lack of significant changes in market conditions. The volumes of products and services to be delivered in our market change swiftly and frequently.	<a href="#">Jansen, Vera &amp; Crossan, 2009</a>

<sup>1</sup> Dubey, R., Gunasekaran, A., Childe, S. J., Bryde, D. J., Giannakis, M., Foropon, C., ... & Hazen, B. T. (2020). Big data analytics and artificial intelligence pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organizations. *International journal of production economics*, 226, 107599.

<sup>2</sup> Huang, S., Ding, D., & Chen, Z. (2014). Entrepreneurial leadership and performance in C hinese new ventures: a moderated mediation model of exploratory innovation, exploitative innovation and environmental dynamism. *Creativity and Innovation Management*, 23(4), 453–471.

10. Conflict of interest or acknowledgments

None.

11. Applications of generative AI and future organizational performance

The mediating role of explorative and exploitative innovation and the moderating role of ethical dilemmas and environmental dynamism.

CRedit authorship contribution statement

**Kuldeep Singh:** Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sheshadri Chatterjee:** Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Marcello Mariani:** Writing – review & editing.

Data availability

The data that has been used is confidential.

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