Journal of Global Information Management
Volume 33 • Issue 1 • January-December 2025

Unlocking the Potential of Gen-AI in Business Context:

Prospects Through the Eyes of Academia and Industry Players

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ABSTRACT

This research explores the benefits and challenges associated with Gen-AI tools for business improvement from the perspective of business players and academicians. Data comprises of interviews with 7 academicians and 10 European industry players. Several benefits were recognized from the use of Gen-AI in business context, mainly resolution of complex situations and operational improvement of processes. At the optimization level, industry players perceived Gen-AI with more potential than academicians. Advantages of Gen-AI were identified as strongly aligned with data quality. Both academicians and industry players highlight difficulty of identification, collection, and update of relevant data, together with the needed parsimony in decision-making about Gen-AI-produced results. This study corroborates the current awareness of scarcity in trained people to explore the full potential of Gen-AI and highlights the resistance towards its adoption by top management, especially in SMEs, which due to their scale may lack structured data and act more risk averse.

KEYWORDS

Gen-AI, Technology, Data, Industry, Academia, Supply Chain, Improvement

INTRODUCTION

In today's digital era, business processes are evolving to meet the changing demands of modern consumers. Organizations are striving to adopt new tools to strengthen their processes and improve information speed and product flow. The idea of exploiting computer programs to boost efficiency and productivity of businesses is not new (Harmon & King, 1985), but with the rise of various

DOI: 10.4018/JGIM.375388

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technological solutions, businesses wish to unlock the potential of cutting-edge technologies to improve their decision-making processes, and even for partial automation of tasks (Enholm et al., 2022).

One such technology, widely discussed in recent years, is generative artificial intelligence (Gen-AI). Gen-AI pertains to unsupervised and/or semi-supervised machine learning algorithms (Altexsoft, 2022); these can be used for the creation of new content, such as coding, text, audio and voice, images, simulations, and video (McKinsey & Company, 2023). One well-known example of Gen-AI is chat generative pre-trained transformer (ChatGPT), released by OpenAI at the end of 2022. ChatGPT is a chatbot that can quickly respond to user requests (Marr, 2023).

Gen-AI can be applied to art creation, data augmentation enhancement in computer vision, synthetic data generation for training machine learning models (Shah, 2023). Additionally, it can be used for a vast number of other possibilities in business-related operations, such as strategic planning, decision-making, and goal formulation (Infosense AI, 2023). Hossain et al. (2021) pointed out that there is still a gap in understanding of both internal and external factors perceived by those in business regarding adoption of AI technologies. Additionally, there is a scarcity of empirical studies on Gen-AI technology in the context of business and supply chains (SCs), namely studies exploring the potential that Gen-AI holds for improving business practices, and the challenges of adopting this technology (Wamba et al., 2023). According to Mariani et al. (2023), current academic research focuses on Gen-AI implementation within a fairly narrow context; this means that a broad view of Gen-AI adoption in business and managerial contexts is lacking. The research presented in this article contributes to this burgeoning area of research by asking: What challenges limit the widespread use of Gen-AI in business, and how might this technology improve SC practices?

To answer these questions, the perspectives of industry players and academic researchers were collected and compared. This study aimed to contribute to both managerial and theoretical discussions by identifying current challenges in applying disruptive Gen-AI technologies to business—particularly in SC processes—and by offering insights into how Gen-AI's unique capabilities might support long-term SC goals. Contributions of this study are expected to serve both managerial and theoretical purposes by revealing current challenges of disruptive Gen-AI technological application to business and specifically SC processes, while providing food for thought on long-term SC goals that Gen-AI might improve with its intrinsic features. The study's findings emphasize challenges, in terms of robust data quality, potential human-technology conflict, and Gen-AI's decision-making features. At the same time, results demonstrated that there is an increase in recognizing Gen-AI's potential to enhance and optimize daily SC operations and facilitate business processes.

This article offers a review of current literature relevant to this study and provides a general overview of the research so far. Following this, the methodology used for collecting and analyzing the data is outlined. The penultimate section presents findings from the qualitative data, highlighting insights from both academics and industry professionals on the potential benefits and remaining challenges of implementing Gen-AI in business. The final section discusses these findings, summarizes the contributions of the study, and suggests avenues for future research, based on issues unresolved in the current study.

LITERATURE REVIEW

AI technologies offer advantages to businesses regarding cost reduction—although appealing, however, there are risks in using AI. These risks include the use of non-representative data, poor algorithm choice, and inaccurate interpretation of AI-generated content (Ashta & Herrmann, 2021). The major difference between AI and Generative AI is that Gen-AI systems are able to move beyond providing answers to user requests—AI can generate new content in those responses (Mannuru et al., 2023). As discussed by Banh and Strobel (2023), Gen-AI offers the deepest level of AI technologies to date; basic AI contains and applies its knowledge base, then comes machine learning, followed by deep learning. Finally, there is Gen-AI, a technology built on large language models and generative

adversarial networks. Okwu et al. (2022) expect AI-powered technologies to rise not only in the service sector, but also in production facilities, resulting in replacement and reshaping of traditional professional roles across multiple organizations. Eisfeldt et al. (2023) suggested that ChatGPT will continue to be beneficial for those organizations that adopt it for regular processes; they are more likely to outperform those organizations within the same industry that have low Gen-AI exposure.

Potential Contributions of Gen-AI to Business Practices

Academic research has addressed a variety of sectors that might benefit from Gen-AI application, such as education (Barros et al., 2023; Jauhiainen & Guerra, 2023), media (Kumar & Kapoor, 2023; Sandrini & Somogyi, 2023), the arts (Cetinic & She, 2022; Wang et al., 2023), the healthcare and beauty sectors (Lim et al., 2023; King, 2023), and tourism (Iskender, 2023). One of the main areas of focus is the use of Gen-AI applications in business. According to Lee et al. (2023), Gen-AI can improve customer contact, process optimization, production planning and scheduling, quality control, and inventory management. Additionally, Wamba et al. (2023) emphasized the importance of organizational learning processes for both top management and employees, to encourage and facilitate the early adoption of Gen-AI technologies.

Because Gen-AI features can automate processes (Agrawal et al., 2022), Gen-AI is predicted to take over some jobs usually performed by humans, such as copywriting, customer support and the creation of legal documents. This will facilitate the need for the creation of new jobs, such as specialists working as technological support for AI systems. According to Chui et al. (2023), Gen-AI will reshape traditional roles, and enhance performance in software development, marketing, sales, and direct customer operations. AI can assist decision-makers in short-term and dynamic operational decisions, such as scheduling decisions, and resource and material capacity planning, thereby increasing resource utilization (Alnsour et al., 2023). Regarding high customer interaction processes, AI allows the enhancement of customer engagement behavior (Gonzáles-Santiago et al., 2024), as well as improving user experience, for example, in terms of perceived enjoyment and intrinsic information quality for customers who interact with businesses through apps (Tseng et al., 2023).

Current Challenges of Gen-AI Application in Business Practices

Considering the rapid growth of Gen-AI and other technological advancements, Lannon et al. (2023) suggested that SMEs and family businesses need to implement a clear and robust policy for AI adoption, as well as training employees. Despite being a powerful research tool that can speed up the research process, use of ChatGPT risks potential plagiarism, inaccuracies, fraud, and copyright issues (Gordijn & Have, 2023). According to Shin et al. (2024a), information credibility on AI platforms is generally low; this results in users not fully trusting the technology. To address this, developers specializing in Gen-AI solutions could introduce features monitoring misinformation or disinformation on their platforms, thereby verifying the robustness and credibility of online information. Ethical considerations around the use of Gen-AI and ChatGPT need to be urgently addressed, given the increasing and pivotal presence of Gen-AI tools—not only in business, but in the everyday life of individuals (Afjal, 2023).

Current AI systems are only as good as the data used for their training. This means that if data is discriminatory or biased, then so is the AI system being trained on that data (King, 2023). This, in turn, creates the possibility for misinformation throughout all processing, in any relevant algorithmic context—a major issue for sensitive industries such as healthcare (Shin et al., 2024b). Shin (2024) divided bias into two types, measurement and selection bias, meaning that to develop a robust AI platform, training data needs to be precisely filtered; it also needs to be representative, in order not to exacerbate and amplify misinformation. Overall, structured guidelines and strategies for the responsible and correct implementation of Gen-AI-powered solutions are lacking (Chan & Hu, 2023). As per Chen et al. (2023), crucial questions regarding dangers of Gen-AI include: the scope of ethical challenges surrounding data privacy, issues of social bias, and excessive computational energy

consumption. Ebert and Louridas (2023) claimed that software development is not the biggest issue; rather, it is identifying the right requirements and test cases. The best approach for algorithm design on AI platforms, therefore, is to consider them as "sociotechnical systems," in which both human and machine components are recognized as indispensable parts of the same system (Shin, 2023).

Current Gaps in the Literature

Wamba et al. (2024) conducted a study on performance driven by AI capabilities among companies based in the United States of America. Their study suggested that there needs to be more analysis done regarding the cultural aspects of AI capability, from the perspectives of businesses performing in different countries. According to Loureiro et al. (2024), companies need a greater awareness of consumer needs when integrating customer experience with AI tools. Future studies could focus on determining company strategies and goals and how these might utilize AI solutions. In their manifesto, Longo et al. (2024) asserted that explanations of AI and Gen-AI features need to be made available to a broad range of stakeholders, including companies and individuals. Having conducted a quantitative study on Gen-AI adoption drivers, Al-Khatib (2023) suggested, in order to gain a broader view on industry interest in AI solutions, that interviews with managers on Gen-AI adoption motivation were needed. Mariani and Dwivedi (2024) claimed that a more consistent and robust knowledge base on Gen-AI implementation benefits and challenges was needed—something future studies should address.

METHODOLOGY

Existing studies have demonstrated, when comparing two groups of stakeholders, that digitalization is effective in improving SC performance (Liu et al., 2022); in such cases, digital transformation showed a positive influence on overall service quality (Li et al., 2022). An example is provided by Tokkozhina et al. (2022), where qualitative data were collected from two groups of respondents; this study focused on data collection using semi-structured interviews (see Appendix). The study was conducted as a dialogue between researchers and participants, wherein the method of semi-structured interviewing meant that the findings were enriched by open-ended data—participants' personal beliefs, feelings and opinions (DeJonckheere & Vaughn, 2019).

To address the research questions posed by this study, the researchers made the decision to not limit potential academic respondents to any one specific geographical location or background, as there exists a similar scientific perspective on modern concepts among academics globally. It was important, however, to differentiate between potential respondents' professional backgrounds. To collect a more rounded sample, scholars with a background in management as well as in technology were recruited for the study.

The nature of business practices and degree of technological literacy varies greatly, depending on geographical location and cultural background, and there was a concern that the collected viewpoints might result in an inability to reach data saturation. To address this, it was decided that the sample for this study would be recruited from European countries, due to business practices being consistent across the European Union. Due to recent global shifts in the service industry (Legault et al., 2019), this study focused on production and manufacturing companies, in addition to service-oriented businesses, to investigate how Gen-AI was perceived by the business community.

Due to Gen-AI solutions in business being a relatively recent phenomenon, and following the example of Houde et al. (2020), demonstrative examples of the use of Gen-AI solutions in business practices were used. These examples were based on the literature pertaining to how Gen-AI can be implemented to contribute to a range of businesses—from upstream to downstream in a SC (Table 1).

Table 1. Examples of generative-artificial intelligence applications in the industry, as used to guide interviewees

Examples of generative AI applications in the industry	Source
Generation of an optimal warehouse layout	Lee et al. (2023)
Product development (e.g., product prototype development)	Chui et al. (2023)
Optimization of logistics decisions	Lee et al. (2023)
Generation of a layout for a physical space (e.g., retail store)	Karadag et al. (2023)
Online 24/7 customer support (e.g., via ChatGPT)	Kumar et al. (2023)
Creation of personalized content for customers	Kumar and Kapoor (2023)

Note. AI = artificial intelligence; ChatGPT = chat generative pre-trained transformer.

In the this study, participants were not asked to focus solely on the examples provided—the examples had only a guiding role in the participants' understanding of how Gen-AI might be applied in a business context.

This study was conducted under the scope of a long-term scholarly project—one focused on disruptive technological solutions applications to business and other socially important fields. The general scope of interview topics went through the relevant Institutional Review Board's approval process. Potential interviewees were selected based on authors' networks; each interviewee, on a voluntarily basis, was able to suggest other respondents that could be contacted for data collection. Interviewees were contacted through e-mail or LinkedIn messages. Data collection took place from September to December 2023.

All participants were assured regarding confidentiality of responses and it was clarified that no "right" or "wrong" answers were expected. Interviews were conducted through online calls with individual participants and were recorded for transcription purposes, upon the agreement of each participant. Interviews lasted approximately 15 minutes on average; each interview recording was transcribed verbatim following the call. Direct quotations of participants were corrected grammatically, without altering meaning. Data collection was finalized upon reaching saturation of responses (Fusch & Ness, 2015). The data were analyzed using a thematic content analysis (Braun & Clarke, 2006), utilizing MAXQDA Analytics Pro 2022 software. Tables 2 and 3 describe the samples of both academics and industry players, respectively.

Table 2. Sample of academic representatives interviewed

Interviewee	Country	Academic background
Academician 1 (A_1)	Norway	Management/Technology
Academician 2 (A_2)	United Kingdom	Management
Academician 3 (A_3)	Portugal	Technology
Academician 4 (A_4)	Finland	Management
Academician 5 (A_5)	Australia	Technology
Academician 6 (A_6)	United States of America	Technology
Academician 7 (A_7)	Italy	Technology

Table 3. Sample of business representatives interviewed

Interviewee	Country	Type of business	Scope of business
Industry player 1 (IP_1)	France	Service	Food delivery platform
Industry player 2 (IP_2)	Germany	Service	Custom products branding
Industry player 3 (IP_3)	Switzerland	Service	Software solutions
Industry player 4 (IP_4)	Norway	Production	Aquaculture
Industry player 5 (IP_5)	Norway	Service/production	Aquaculture/software solutions development
Industry player 6 (IP_6)	Norway	Production	Aquaculture
Industry player 7 (IP_7)	United Kingdom	Service	Software solutions
Industry player 8 (IP_8)	Portugal	Service	Consulting
Industry player 9 (IP_9)	Italy	Production	Household appliances
Industry player 10 (IP_10)	Italy	Service	Fashion goods wholesaler

FINDINGS

On the Adoption Level of Gen-AI in Business

Participants were initially asked about their views regarding current adoption of AI technologies in the context of business and SCs. IP_1 shared: "It is only the beginning of the rise of AI technologies—in the coming years, probably, we will have a deeper knowledge about it and how it will contribute to the industry." Overall, both groups of participants agreed on the infancy stage of AI technologies and that AI is not yet ubiquitous among industry players. As a service-providing business representative, IP_2 posited that: "We [industry players] are still at a very early stage of AI adoption—every day there is more and more, and I think we are not yet where we are supposed to be." This expressed the attitudes of other industry players toward AI's potential—that it has not fully revealed itself. The academic, A_1, further supported this: "This is an evolving field and talking about it is like shooting at a moving target." These statements demonstrated that both groups understood that adoption of AI technology is incomplete, and that its limitations result from this technology's undiscovered potential.

Current Data-Driven Challenges of Gen-AI in a Business Context

When asked about how participants viewed AI technologies, IP_3 viewed AI very positively: "For me, AI right now is a massive productive answer for users—not that it is going to replace us, but it will help us to be faster in working with things." IP_3 gave an example of the most well-known Gen-AI example today: "If you think about ChatGPT, think about it as Google on steroids." A_2 perceived AI from a more critical side:

In my opinion, AI is a new twist of analytics, which is dependent on two things:

(1) ability of people to write the algorithms, which are self-learning using the data; and
(2) the ability of people to provide learning data sets for those algorithms.

The first point mentioned by A_2 highlighted the importance of skilled and experienced specialists to both build and support robust Gen-AI platforms, which, due to the AI's relevant newcomer status, might still be scarce. A_3, a colleague from the scientific community with a technological background, noted that:

The next challenge will be to find human resources capable to build AI algorithms and prepare data for them. Most algorithms are already developed, and you only need to apply them, but

you need to know what type of data you need to feed the algorithm, so it can be difficult to find experienced human resources to deal with the implementation.

This opinion was supported by the scientific view and managerial background of A_4—that the human element of Gen-AI technologies is irreplaceable:

AI will allow the generation and creation of even more data and will use algorithms to sort it or shape it. But does it provide us with any information? Or is there still a human element that needs to be involved to make sense of this data and turn it into information?

Both opinions amplified the point mentioned by A_2 and suggested an important discussion regarding a key challenge associated with the Gen-AI application to the business context—the scarcity of high-quality data "feeding" Gen-AI, and improvements in this area over time.

Most participants across both groups mentioned that relevant data is not easy to find, and moreover that it needs to be collected in large volumes to create value for technologies like Gen-AI. In a very fragmented industry with a few giant players, such as fish farming, businesspeople shared their current level of data collection. IP_4 said:

I think it is still at a quite early stage, but we are already talking about it. We collect data and we start sharing more data with other SC players to get a better understanding of the path that we need to follow. If we get more data, we will have more visibility on potential risks of the industry.

IP_5, from the same industry, clarified this:

The industry needs help to understand what kind of data to collect. Of course, a lot of parameters have to be monitored, but what exactly is the data that will be needed to fulfill the needs of SC players? That is something that the industry still needs to understand, because if you collect everything without any evaluation of which part of this data can be used, then it will only translate into extra costs.

This revealed the insecurity of business players regarding the potential usability of data currently being collected—would the data add value to train Gen-AI algorithms, or only affect operational costs? From the scientific perspective of Gen-AI usage in business contexts, A_3 noted:

Some businesses do not have many policies in having well-treated and well-stored data, and that can be the biggest challenge. Since Gen-AI is built on data, if we do not have lots of good quality data, it will be complicated for the implementation part, e.g. for traditional small businesses, which are used to doing everything manually, data will be a huge obstacle.

Even in a scenario with good data availability, there exists another potential constraint that businesses might face—using outdated data, or the same data repeatedly, will not allow Gen-AI to learn more. IP_3 said:

From the challenge perspective, the first thing that comes to my mind is that Gen-AI will leverage datasets that exist in other places, meaning that they will be built on the basis of previous examples that might not match your current examples of what you are trying to do.

This was also supported from a scientific perspective, according to A_5:

Companies would have to put in all of their own SC problems and how they have resolved them in the past and train the model based on this data. Like this, the model gets very good at producing quick responses of what your best practice was in the past, but if you try to get a competitive advantage or do something different—you cannot be training only on the past and extrapolate that into future.

Dealing with big data might not be easy, as per the scientific view of A_6:

Businesses have been using data much longer than businesses have been using AI. I think that the amount of data coming in now is so immense that AI technologies are the only way that businesses will be able to get any kind of insights in analytics for the decision-making process.

It was interesting to see how some business players were not waiting for the "perfect" environment for AI technology, because those perfect conditions might never come. Aligned with this idea, IP_6 said:

When people try to focus on creating that ideal solution, nothing happens. So, if my solution becomes 70% correct, that 70% is better than someone trying forever to get 100% correct, which will never happen. To get that we have to get going and get something done rather than sitting around and waiting for something. Everyone thinks about AI technologies and data like something that has to be accurate, but if you have to pull your engineering teams into working in uncertainty, then it becomes a completely different game. We need to get going because we will never get the data we need.

It is crucial to understand that challenges at the initial stages of introducing new technological solutions should not prevent the industry from evolving—in fact, it is the opposite. To progress and refine the use of technologies such as Gen-AI, organizations must actively participate in its adoption. Currently, industry is investing in the progress and improvement of Gen-AI as a solution. According to A_5:

The industry has outpaced the research on AI technologies when compared to academia. If you look at previous technologies, academia has almost always played a key role in technological research, but the fundamental research on AI was made by the industry. There are several reasons for that: commercial attractiveness of AI-based solutions—an increase in revenue and reduced costs, and another reason is, of course, the high cost of research in the AI field.

In the next section, potential improvements and the reasons behind the "commercial attractiveness" of Gen-AI are addressed.

Optimization of Operations and Decision-Making Processes Through Gen-AI

Generally, there were two significant improvements that both industry players and academics believed Gen-AI would contribute. These were the optimization of business processes and the facilitation of better, and more accurate, decision-making. According to IP_3: "There are a lot of potential improvements that Gen-AI can bring, such as reduction in downtime, optimization of both human and capital resources, optimization of the flows and the overall customer satisfaction improvement as a result of that." These improvements could be seen as the result of the implementation of data-driven technologies in general. IP_7 said: "Data-driven technologies like Gen-AI are trying to create interoperable data platforms to make SCs become more resilient and efficient—this is the main goal today in the industry." There are still a lot of improvements that Gen-AI needs to aim for, according to A_1: "Gen-AI can contribute by preparing data for optimization problem solvers, but currently I cannot see that Gen-AI can solve an optimization problem in an efficient way like common optimization algorithms can."

From the interview data, not only did it seem that businesses expect Gen-AI to improve optimization, but they anticipated improvements in decision-making processes. According to IP_8:

As far as improvements are concerned, I believe that increased optimization, efficiency and automation will be important for improving any business in the near future. Eventually, it will also help to identify the risks associated with decision-making processes more clearly and in real time.

Businesses need to understand, however, that AI-based technology has potential disadvantages regarding decision-making, according to A_6:

One of the biggest challenges that businesses could possibly face with Gen-AI is that it will never say 'I don't know the answer.' It will always give you something—this is called a generalization problem of AI. Since it gives you something and you are not equipped to understand the impact of that answer, you might just believe that since the machine gives you this answer, then it is probably what you should be doing. So, businesses need to understand that AI is a decision support system, not a decision-making system.

Feasibility and Implementation Challenges of Gen-AI in the Business World

Based on the interview protocol examples, all participants concluded that, currently, the application of Gen-AI was more feasible when integrated downstream in the SC, such as regarding

client interaction with Gen-AI-powered customer support services, or the generation of media content for customers. Here, however, potential ethical issues arise—how aware do customers need to be of interacting with Gen-AI powered content? According to A_2, businesses are pursuing their own goals without seeing a need in customer's opinion:

> *I think businesses see Gen-AI to cut costs, improve efficiency, potentially get more gains and reduce risks, but 'humans' are there just to bring money. And if businesses can take more money from customers, and at the same time reduce their costs using AI technologies or any other tool, they will always do it, and they will never ask consumers if they are ready or not for the technology unless it is forbidden by law of course.*
>
> *IP_3 saw no potential ethical conflict, as customers are already part of the digital world: There is no ethical component in integrating customers into the digital world, because they are already integrated. I think ethics in AI, specifically for SCs, would be important in the upstream—you need to make sure that employees (e.g., in manufacturing) have the right conditions to work; when you add AI, it might not care about ethics. If you are increasing production, but you are focused on the machinery—you need to think about downtime, maintenance, etc. But if you think about the human element in the value chain, then you need to consider working conditions for employees and a human element.*

A_7 suggested that future research be focused on training Gen-AI specifically for customer needs, if it is to be used in the downstream SC: "Social component is still a relevant issue—companies need to understand the needs and backgrounds of the customer … there needs to be a standard of how Gen-AI is deployed once the customer 'enters the game.'"

A_6 supported this view from a scientific perspective, highlighting the importance of considering the social component—not only in the downstream SC, but also in the upstream:

> *If we are looking at the "hard" aspect of the upstream SC operation: location identification, procurement optimization—AI is the tool to bring on efficiency, but there is also a "soft" aspect that needs to be considered, a humanistic one—for example, how similar operations will differ based on the culture of employees and the way they are used to doing things.*

A difficulty detected regarding upstream-located businesses implementing Gen-AI was managerial resistance. As mentioned by IP_8, an experienced business player: "There are still many companies with revenue of millions of euros a year that do not even have a simple website due to the refusal to adopt new technologies." This is more evident in traditional and family-owned businesses, according to IP_9, who added that the biggest challenge in the adoption of new technologies is the "clash of generations," in which the older generation is more focused on costs and attractive prices for customers, but the "new generation is more open for the technology and less focused on price/cost issues."

IP_10 shed light on the challenges of integrating AI technology into family-owned businesses: "We are a third-generation family-owned business and it is really hard to convince people that we need these types of technologies because they [technologies] can be helpful to our business and not become an obstacle." IP_10 explained that one way to deal with the situation would be to "'reskill' our people and show them that by using novel technology, we can reach new results for our business." In academia, the resistance to new technology is not unusual. A_4 said:

> *I am not saying that managers are dinosaurs, but to some degree they are reluctant to embrace new ideas, new technologies, etc. So, the fundamental issue here is that we need trust, information sharing, and collaboration to really make relationships and technology adoption work.*

Even when seeking to embrace new technology, businesses need to stay aligned with their principles, as expressed by A_2:

> *We should not forget the ethical aspect—business ethics in particular. Even if we are AI positivists, we usually perceive that everyone will be using AI technologies in an ethical way, but this will not be the case in many options. Like this, "unethical" business players might want to use Gen-AI to support, for example, the counterfeit.*

IP_7 believed there is a need for professionals who can support this technological transition, especially inside smaller businesses:

> *New landscape is being shaped—so far it is mostly big players entering, but what about others? For SMEs, this new landscape will raise the need in new value-adding services because nobody knows how to ensure compliance, data privacy, cybersecurity, and other issues.*

Another potential ethical issue detected was the threat of Gen-AI replacing humans. According to IP_8, this poses a threat to society: "One of the concerns is the possibility of a massive replacement of jobs, which would cause a large number of unemployed people who would have difficulty finding work in the short to medium term." IP_1 pointed out industries that might be in danger of being replaced by Gen-AI: "One issue that I see with Gen-AI is the potential of it to replace a lot of human jobs, for instance in the marketing sector and in the art world." It was interesting to see how a service-provider that works tightly with artists and designers saw Gen-AI usage as accelerating the upstream processes: "In any digital business, at some point, Gen-AI will substitute some suppliers," said IP_ 2.

DISCUSSION AND CONCLUSIONS

At this stage of the technological rise of Gen-AI solutions there remain a considerable number of challenges for businesses. First, and of greatest concern, is the availability of sufficient, high-quality data for sourcing and training Gen-AI technology. According to Nakajima and Nakatani (2021), central issues need to be considered for training data construction. These are: original raw data preparation, training data requirements-driven formulation, and bias within data distribution. According to the findings of this study, however, the real issue today in industry is not the preparation of said data, but the absence of it. As reported by study participants, high-quality and structured data can mostly be found in big enterprises, whereas most SMEs might still be using traditional and non-digitalized data storage. Additionally, data collection should not be limited to historical data, but there should be a continuous feed of updated data to allow for a full evolution and exploration of AI and its benefits. Nonetheless, with data originally being collected at different sources and from different points in the SC, data integration is both challenging and costly. Moreover, data integrity needs to be assured, to avoid "data poisoning" from entities that may have malicious intent (Whang et al., 2023). In the long term, SC stakeholders need to aim for a global digital information interchange, highlighted with automation properties such as facilitating decision-making processes. More education is required for those in business to be able to deal with the adoption of technologies new to their operations.

Gen-AI is a way to deal with the volatility, uncertainty, complexity and ambiguity currently experienced by businesses world-wide; Gen-AI allows companies the ability to process more data than ever before. Data collection and processing will never be perfect, as business contexts are variable and vulnerable, and the future is not a continuation of the past—nonetheless, ignoring AI's potential would be to miss the opportunity to gain, and even at some point in time to sustain, competitive advantage. Businesses need to manage information systems carefully, with a clear understanding of the value collected data can bring—and the properties of the technology used to process that data.

Together with the challenge of data quality and availability, another potential challenge was revealed in this study: the lack of specialized and skilled personnel to support this technological transition. According to Dwivedi et al. (2021), there exists today too many nonspecialists providing unprofessional services. The technical training of personnel to properly work with Gen-AI and explore its potential is fundamental for businesses to be able to explore the full range of AI's benefits.

Improved decision-making processes, together with the optimization of SC practices, are major improvements businesses expect from Gen-AI. Academic researchers who took part in the study, however, warned the industry about the sensitivity of Gen-AI powered decision-making. They argued that Gen-AI poses threats, if the human dimension of dealing with it is not prepared to critically analyze the outputs of AI. Humans, they argued, should make the final decisions with data—AI should not replace complex human decision-making. Academics may be more sensitive to this issue, due to their

knowledge of the technical aspects of Gen-AI, while industry players may be more focused on overall practical gains. Ooi et al. (2023) raised the need for future research to explore the real ability of Gen-AI technologies to effect improved decision-making processes for business managers. This current study highlights the need to raise awareness of the technological capabilities of Gen-AI in the business world, especially regarding the ways Gen-AI can be used to support decision-making. If misused, Gen-AI may generate responses to requests based on available data, and not on more relevant or more recent data.

Participants in the study saw Gen-AI's role in business as being related to the downstream SC—for example, regarding relationships with customers and using Gen-AI-powered tools such as ChatGPT. However, Gen-AI was seen as lacking a "human touch" regarding communication. Grewal et al. (2021) highlighted the need to balance AI and human input regarding communication in business-to-customer relationships; Du et al. (2021) further explained that social norms play a key role in AI–human interaction. In this study, it was found that emphasis needs to be placed not so much on the balance between AI-human communication, but on developing Gen-AI to recognize various dimensions of the human factor.

Based on empirical findings, Mahmud et al. (2023) concluded that decisions by top management to adopt AI technology might be confronted with a lack of enthusiasm from employees. In the current study it was found that resistance might come from the owners of the business themselves, due to a lack of understanding of the potential benefits that Gen-AI could bring to their business. Additionally, and aligned with Mahmud et al. (2023), the current study revealed that the introduction of AI in industry might encounter resistance from older employees—because of their customer focus, they may tend to have a more external approach to business, which may lead them to perceive the impact of AI as less important. Additionally, their need to interact with technology could create extra challenges. Again, this highlights how new the Gen-AI phenomenon is in the business world, and points to a lack of awareness regarding the potential that AI holds to improve current processes.

The relevant literature highlights the importance of responsible and ethical AI application, suggesting that both private and public stakeholders could share more information with end-users to ensure safe AI application design (Akter et al., 2021). However, an interesting finding of the current study detected concerns from industry players regarding ethics from a different angle—one whereby the transition to Gen-AI may cause human job losses. Kim (2023) suggested that humans should see Gen-AI not as a threat, but rather as a help in terms of workload, highlighting that with the introduction of such technological tools, people also need to work continuously on improving relevant skills.

In the context of general AI technologies, Huang et al. (2019) called for a shift in which predominately "thinking" jobs become more "feeling" and people-oriented; for employees to feel conscious about their jobs. In the light of the current study, it is suggested that Gen-AI be seen as a tool to serve the needs of people and businesses, and not as a replacement for humans. As was seen from the results of the study, most businesses still need the "personal touch" in their business relationships, something not possible with Gen-AI. The future needs to be built on the idea of using technologies to serve the needs of humans, not vice versa.

The contributions of this study are twofold. First, it offers ideas for managers to consider concerning the potential challenges of Gen-AI application to their business processes, offering an opportunity to evaluate the future improvements this technology may bring long-term—specifically in the context of information and data management. The importance of robust and high-quality data was highlighted throughout the study's findings, something that allows managers to prepare in advance for any future implementation of Gen-AI into their day-to-day operations. Second, this study contributes to current literature and academic research on Gen-AI in a business context, a nascent and rising path for academic research.

Among the limitations of this study is the nature of qualitative research itself, as in this case the findings are limited to the number of the participants and their views, both objective and subjective. For future research, more empirical data are needed to generalize the findings and develop more

structural outcomes. This study offers a broad view of new Gen-AI technology and its potential in the context of the business world, albeit along with its challenges.

COMPETING INTERESTS

The authors would thank the participants of this study for their availability and willingness to contribute to this research. Additionally, the authors thank the reviewers for enriching this study with their generative feedback.

FUNDING

This work is supported by the Blockchain project. PT (PRR–RE-C05-i01.02: AGENDAS/ ALIANÇAS VERDES PARA A INOVAÇÃO EMPRESARIAL).

PROCESS DATES

Received: February 27, 2024, Revision: November 10, 2024, Accepted: November 10, 2024

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APPENDIX

Interview Guide Topics

- Current level of AI technologies use in businesses
- Benefits associated with Gen-AI technology in the business context
- Remaining challenges associated with Gen-AI technology in the business context
- Ethical considerations associated with Gen-AI technology in the business context