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Artificial Intelligence in Business Intelligence: Harnessing or Unleashing Its Power?

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Abstract: This study deals with the most important advantages offered by artificial intelligence, and its features that qualify it to serve as a tool in the hands of decision makers. that enables it to influence business intelligence and the way it works .This paper offers an objective insight about the delay in unleashing artificial intelligence due to the important cons and risks that should not be neglected when using artificial intelligence in business intelligence , the study conclude that artificial intelligence and its techniques, particularly in the analysis of data and the ability to protect it, forecasting, improving decision-making, and increasing the efficiency of operational processes, however, since it has encountered numerous moral dilemmas pertaining to corporate transparency, trust and responsibility, data protection, and bias in service delivery—all of which have the potential to compromise business intelligence.

Keywords: artificial intelligence, Business intelligence, data protection, transparency

Jel Classification Codes: **:** C45, M21, O33

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1. INTRODUCTION

Artificial intelligence (AI) is the major technological revolution of the 21st century that humanity has access to (Marr, 2019), which unlocks the ability to make considerable operational changes in almost all contemporary organisational systems (Dhamija & Bag, 2020).. Things are further escalating when considering the growing set of economical as well as societal implications of A.I (Ramsden, 2020). The next wave of digital disruption is likely to be lead in A.I. and is expected to drive the stakeholders to embark on digital transformations more rapidly than ever before. For the development in various fields, artificial intelligence can act as a fundamental technology, with business intelligence emerging as an exception (Bughin & al, 2017). This is due to the convergence of the objectives of business intelligence with the capabilities and benefits of artificial intelligence, particularly in terms of data processing.Traditional business intelligence systems often struggle to cope with the volume, speed, and diversity of data generated in the digital environment. Companies can utilise artificial intelligence to refine their customer touchpoints, develop more intelligent products and services or improve and automate operational processes (Marr, 2019). Therefore, our study is based on the following question: Can the risks of artificial intelligence be tolerated in exchange for the benefits it offers to business intelligence?. Therefore, our study is based on the following question: **Can the risks of artificial intelligence be tolerated in exchange for the benefits it offers to business intelligence?**

Importance of the study:

This study is of paramount importance in business intelligence through the use of artificial intelligence (AI). It focuses on the advantages of AI in enhancing business

efficiency and decision-making, and identifies the key challenges that must be considered when using AI in business intelligence. The findings are expected to provide valuable insights for companies and investors regarding the importance of relying on AI within specific limits. Furthermore, the study aims to fill a gap in current knowledge by presenting a model that considers all the concerns associated with using AI and outlines the boundaries that business intelligence should adhere to when relying on AI.

Objectives of the Study:

- To pinpoint the key factors associated with enabling artificial intelligence to enhance business intelligence
- Determining the impact of artificial intelligence on data protection and improving the efficiency of business intelligence.
- To investigate how might ethical considerations and AI problems limit or threaten the efficiency of business intelligence
- To study the impact of artificial intelligence and its developments on the future of business intelligence

Literature Review

The advantages of artificial intelligence in data processing and decision making: AI offers numerous technologies that enhance efficiency and speed in data processing. Integrating AI technologies has enabled companies to analyze massive amounts of data, predict future trends, and automate routine tasks. This has led to more informed decision-making (.Abu Samara & Helmi Abu Taha, 2024). Predictive analytics, powered by AI, provides a robust framework for more accurately forecasting project outcomes. By analyzing historical data and real-time inputs, AI helps managers make highly efficient decisions and proactively adjust strategies (Kumar & Pal, 2023).

AI boosting business intelligence

The application of artificial intelligence in business is a necessity and an opportunity for all organizations to gain a competitive advantage. Artificial intelligence can be used in various departments of the organization, and applied in various organizational processes. It can be used in marketing, customer relationship management, risk management (Buntak , Kovačić, & Mutavdžija, 2021). The use of artificial intelligence in business intelligence is critical to improving organizational performance. It enables the processing and management of vast amounts of information in innovative ways. Efficiently and quickly, and facilitates decision-making processes within organizations, by supporting processes with reliable information. However, several factors may prevent organizations from taking full advantage of these technologies (Al-Momani & Alqudah, 2025). In addition, the adoption of artificial intelligence has moved business intelligence from just traditional reports to adaptive platforms enhanced by artificial intelligence, which generate forward-looking insights and improve management options. The analysis confirmed that strong data ecosystems, good governance, and ethical safeguards are indispensable foundations for ensuring BI systems **(Shafa, 2025).**

AI and ethical considerations

Ethical considerations are of paramount importance in the use of artificial intelligence, particularly concerning algorithmic bias, transparency, and accountability. Addressing these

concerns requires the development of fair algorithms and transparent AI systems that prioritize equity and inclusivity (Kumar , Yanamala, & Suryadevara, 2023). This raises the question: on what basis can we say that technological applications should be developed, encouraged, avoided, or prohibited? Drawing on the concept of human flourishing allows for a consistent normative framework aligned with major ethical theories and can provide a framework for considering normative issues without assuming intrinsic ethical positions (Carsten Stahl, 2020**)**.

2. The concept of Artificial Intelligence

The issue of the meaning of artificial intelligence is debatable, however, a definition that is commonly accepted is "the intelligence of any machine that can perform tasks that normally require human intelligence (Minsky, 1961). " For instance, the artificial intelligence introduced by Russell and Norvig (Rusell & Norving, 1995) is a type of artificial intelligence that can act, reason, and think in a way similar to a human being (Gignac & Szodorai, 2024). This is only one of the many kinds of artificial intelligence we can imagine, and since it reflects a goal of artificial intelligence, it cannot be considered the definition of artificial intelligence. AI also differs greatly in breadth and granularity across definitions. Because artificial intelligence uses data processing, machine training methods, and algorithmic laws, rather than the same basic cognitive or emotional processes of human intelligence (Prasad , Senthil Kumar, ,Sharm, & AL, 2023), it can be described as having a structural position, not a psychological one. All of these techniques are together referred to as artificial intelligence.

. In comparison to a psychological classification, which is considered the most popular type of artificial intelligence, it involves the use of advanced algorithms to develop specialized systems that, when supplied with sufficient processing power, can engage in thought, understanding, analysis, and decision-making in difficult conditions (Taha, Saad, & al, 2024) The incorrect name for this type of artificial intelligence is computer science. It is the process of using artificial intelligence to develop the capacity for thinking processes that are equivalent to human beings, i.e. learning and decision-making (Joost N, Egbert, & al, 2002). artificial intelligence offers many advantages, including (Osipov & Ulimova,, 2017):

- Accuracy in task execution: Artificial intelligence minimizes the amount of mistakes that are made.
- Time-saving and easy to use : allows artificial intelligence applications. Such applications such as Siri personal assistant, a GPS app showing users the fastest route to their destination and other apps predicting user’s actions are life-simplifying.
- Artificial intelligence completes laborious, repetitive jobs. Extremely efficient : Dangerous activities, including life saving and fire fighting can be carried out by artificial intelligence.
- For the purpose to exploit the resources that humanity require, artificial intelligence might be employed to explore the depths of the earth and the oceans.

In addition, programming, self-writing, self-editing and other difficult tasks can be done using AI. Like cheap labour, robots will be capable of being reprogrammed by artificial intelligence to speed-up company operations leading to increased profits. Extend work days without fatigue or boredom (Bhbosale, Pujari, & Multani, 2020)

3. Business Intelligence : Theory and Practice

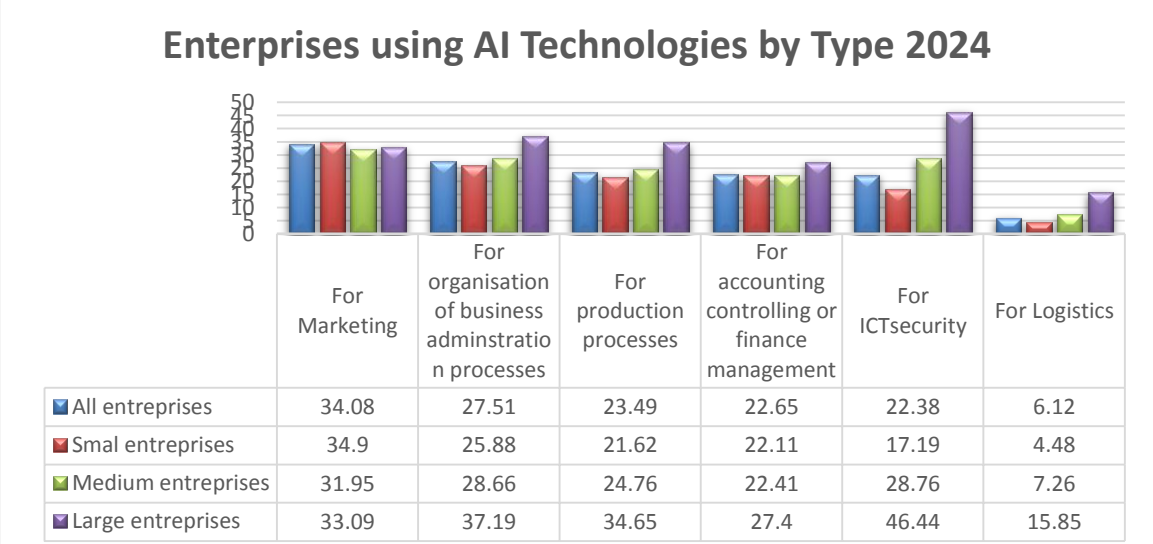
In 1958, Hans Peter Luhn coined the term "business intelligence" and also proposed a flexible, automated way of ascertaining information requirements and effectively sharing information within an organization. Hans thought of a solution to the problem of losing the primary advantage that comes with data storage; this was to use several different data warehouses that operated independently of each other. Also, using multiple data warehouses can increase the possibility of data loss which may result in executives having no clear key performance indicators (Heesen , 2016).Furthermore giving decision-makers useful information and knowledge from a variety of data sources , including bouth structured and unstructured is what is meant by Business intelligence (Sun, Zou, & Strang, 2015)."

The challenges faced by organizations in acquiring and managing large amounts of data has led to the formulation of business intelligence strategy as an innovative and efficient tool for gaining new values and maintaining sustainable competitive advantages (Grandhi & chugh, 2013). Elbashir, Collier, Davern (2008) argue that turning data into insightful know-how is the main aim or goal behind business intelligence tools (Arisa & Karlheinz, 2010).

4. Utilising artificial intelligence to support business intelligence

It is important to collect, store and analyze structured data for achieving business intelligence ; however, unstructured data poses a challenge. To leverage knowledge, business intelligence utilizes technologies like knowledge-based expert systems, neural networks, case-based reasoning and intelligent agents (Arisa & Karlheinz, 2010). These technologies help promote transfer and dissemination of knowledge by enhancing mutual understanding of fact based relationships. Effective artificial intelligence use frequently enhances decision making effectiveness and quality (Ransbotham, Candelon, & al, 2021)
The following figure shows the most prominent uses of artificial intelligence in the business field, according to activity and the type of the Enterprises, for the year 2024.

Fig .1.:Enterprises using AI by Type2024



	For Marketing	For organisation of business adminstration processes	For production processes	For accounting controlling or finance management	For ICTsecurity	For Logistics
All entreprises	34.08	27.51	23.49	22.65	22.38	6.12
Smal entreprises	34.9	25.88	21.62	22.11	17.19	4.48
Medium entreprises	31.95	28.66	24.76	22.41	28.76	7.26
Large entreprises	33.09	37.19	34.65	27.4	46.44	15.85

Source : https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/106920.pdf P 06, consulted 15/07/2025

Figure 01 illustrates the disparity in AI use across economic activity. In the industrial sector, for example, AI use is concentrated in marketing, with adoption approaching 33% across all business categories. Meanwhile, AI use in ICT security, particularly in the energy and water sector, particularly among large companies, accounts for 45% of AI use. In the logistics sector, AI use remains lower than in the manufacturing, energy, and even financial sectors, where it accounts for less than 15% of large companies.

Artificial Intelligence can be used by organisations from the compliance perspective to run various simulations that require analysis of large volume of data to uncover future trends as well as stakeholder needs through regulatory environment. Artificial intelligence also supports risk analysis and simulations. Possible steps of lowering the risks. The use of artificial intelligence capabilities in an organization depends on technical proficiency and technological developments. Its primary objective is initiating a digital transformation in its business with the aim of changing the business model from the traditional way to a virtual one (Buntak, Kovačić, & Mutavdžija, 2021).Here are some examples where artificial intelligence enhances business intelligence :

4.1. Flexibility

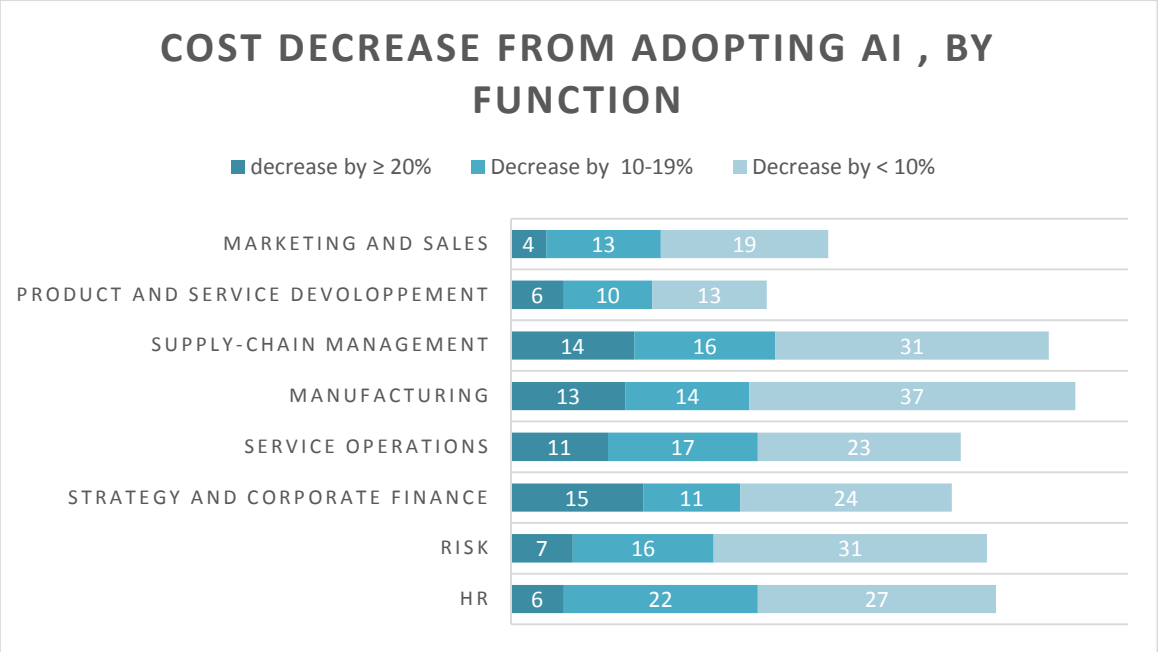
To facilitate fast prototyping, system modifications, testing prototype systems with real world data, and even, possibly system integration, any AI based model building tool must be flexible. This means that the issue is not a problem for traditional systems' tools such as Artificial Intelligence (AI) but it can still be programmed in any language or developed using a traditional approach (Kunz,, Kehler, & William, 1984). It enables the use of analytics and democratizes data. In terms of processing power in computing there has been improvement in such areas as analysis of information, learning and computation among others. When artificial intelligence is well implemented into an organization, it can provide necessary information at right time and place with less effort through some creative ways. This will mean that businesses have to adopt technologies like Business Agility System which allows artificial intelligence to change how Business Intelligence works on (Zohuri & Moghaddam, 2020).

4.2. Increase performance

Many CEOs revealed that their AI applicability assists them in formulating or revising their strategic presumptions and reforming their performance evaluation techniques. Often, their KPI stops being the same ones due to this. As their survey shows, 64% of companies that rely considerably or partly on AI for their offerings and procedures change their KPIs after buying it, as they understand that it allows for the easily accurate evaluation of performance (Ransbotham, Candelon, & al, 2021).

The two following figures illustrate the importance of using artificial intelligence to improve performance, whether through improving revenues or reducing costs.

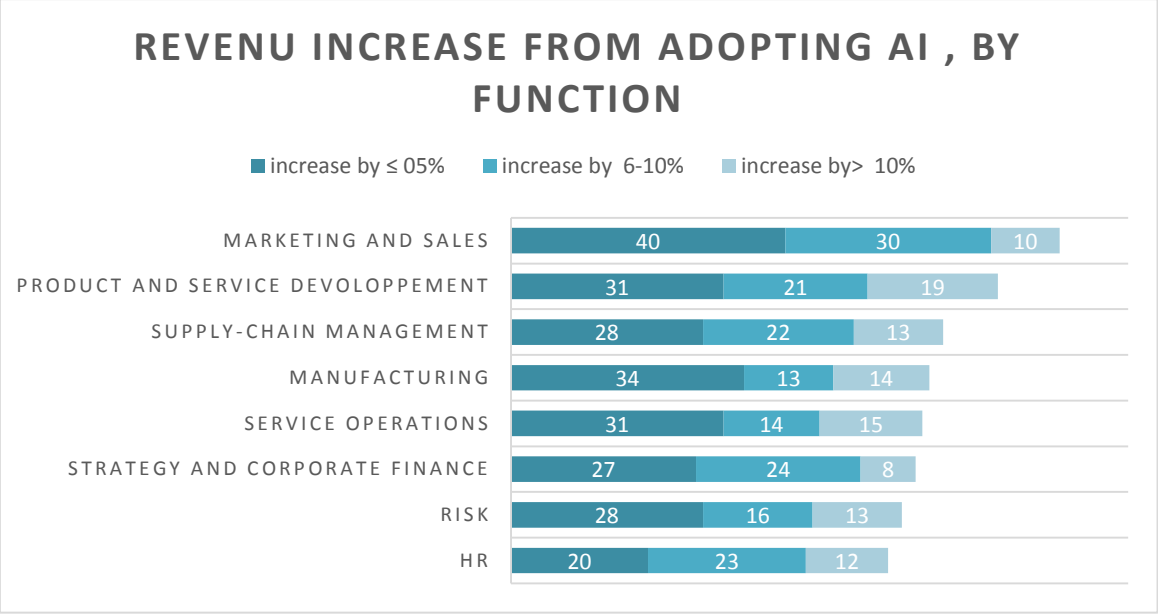
Fig.2.: Cost Decrease From adopting AI



Source: https://www.mckinsey.com/featured-insights/artificial-intelligence/global-ai-survey-ai-proves-its-worth-but-few-scale-impact, consulted 10/07/2025

Figure 02 indicates a decrease in costs for companies and sectors that have adopted artificial intelligence in their business, especially manufacturing jobs, supply chains and human resources. The report predicts that costs will decrease as a result of relying on artificial intelligence to 10% in these sectors and can reach 20%, but at rates ranging from 015 to 15% of companies in various sectors that have adopted artificial intelligence in their business. The report also indicates that costs may decrease by 10 to 19% for 10 to 22% of companies that rely on artificial intelligence in their business, especially service and human resources jobs

Fig.3.:Revenu Increase From Adopting AI



Source: https://www.mckinsey.com/featured-insights/artificial-intelligence/global-ai-survey-ai-proves-its-worth-but-few-scale-impact, consulted 10/07/2025

Figure 03 indicates an increase in revenues for companies and sectors that have adopted artificial intelligence in their business, on top of which are production functions, service development, sales and marketing. The report predicts an increase in revenue as a result of relying on artificial intelligence 10% For 19% of companies, it can reach at least 5% to 20% and in some cases 40% of companies that have adopted artificial intelligence in their business. The report also indicates the possibility of increasing revenues by 6-10% for companies that rely on artificial intelligence in their business, on top of which are sales functions, service development and supply chains.

4.3. Increasing Efficiency throughout the Supply Chain Activities

Consistently fulfilling product delivery dates. A company can overcome this challenge by acquiring the assistance of artificial intelligence. There are many ways businesses can benefit from the solutions offered by it, such as the forecasting the cost of materials and transportation and the speed of which things will flow through the supply chain. With this knowledge, a professional will be able to pick the best course of action to complete their given task (Bharadiya, Thomas, & Ahmed, 2023).

4.4. Data protection

The ability to quickly process large amounts of data. Another advantage is that artificial intelligence algorithms can process a large amount of data in real time. This is how this technology can provide data protection, since the application of more data will make it harder to analyze and track this set of information efficiently. The design of artificial intelligence is to find out errors and strange behavior that can indicate security violations. Moreover, it can warn the organization about possible violations (Ali Mughal, 2018).

Altogether, above-mentioned are some of the benefits of integrating artificial intelligence on cloud security but the key one is the adaptation in threat detection. This is because the intelligence system is more adaptable as it discovers from data as compared to rule-based intelligent systems. Integrating predictive analytics, as well as automating regular threat reaction, not only aid in recognizing potential dangers, but it also improves organizations' capacity to predict possible results, decrease their effects, as well as enhancing efficiency. (Mallikarjunaradhya, Shastri Pothukuchi,, & Vasuda Kota, 2023).

4.5. Risk Management

Artificial intelligence contributes to risk management through (Naim, 2022):

- Data Processing: Work with the raw Big Data: Comes with the capability to use vast unstructured data. It can also process structured data.
- Improvise productivity: Exploit the advantages of high productivity: Finish automated daily guidance and support for risk management actions to save costs.
- Real-time forecasting: Keep a lookout for potential threats, provide more time to act or prevent itself from risks in real-time. Slows down or intervenes quickly in sensitive situations too.
- Business Decisions: The application is extremely practical in decision-making in business as, by providing warnings and predicting risks, it can manage future conditions effectively.

5. Artificial intelligence as a double-edged sword

According to the research of Jasmin Bharadiya, business intelligence has a pronounced effect on information quality, which is a crucial factor in a competitive industry and is the secret of a company's survival. Instead, she believes that big data, business intelligence, and artificial intelligence (AI) are effective in assisting business decisions and symbolize a company's leap and ability to thrive, provided that they be released under professional guidance and direction. Since it found a way to clarify information in numerous areas of vital importance, including customer service, promotion, education, pricing, security, and operation, artificial intelligence has more or less altered the way corporations operate (Bharadiya J. P., 2023).

Nowadays, in view of the new dangers and threats posed by artificial intelligence, as well as the continuing growth of this technology, businesses operating in practically all sectors must be able to blend artificial intelligence and all the agile development techniques they have come up with in order to respond to existing and new digital competitors that will appear in the digital marketplace (Baquero, Burkhardt, & al, 2020).

However, introducing AI to the world of business has some drawbacks as well. AI systems can be a powerful tool in the fight against cyberattacks, but at the same time they could be another target for hackers as well, thus exposing new additional security vulnerabilities for individuals and companies alike (Calderon, 2019). And here, as in many new technologies, users are often dismissing the security risks involved in using the new technology. A concept is no good until you test it properly (Dhamija & Bag, 2020). And AI is not without its issues which come along with its application, despite its benefits. Those are as follows;

5.1. Accountability

Transparency and accountability in AI judgements are two sides of the same coin. It might be impossible for people, particularly with more sophisticated AI, to understand the basis on which decisions are made. When decisions are high stakes and directly affect people's lives, such as credit scores or court decisions, this lack of transparency undermines accountability. It is important that not only are AI systems transparent, but that mechanisms are in place to hold users and developers to account for the decisions (Patel, 2024).

5.2. Transparency

Transparency is crucial for stakeholders to verify that the system reflects design principles by disclosing information, about it. In the field of AI business transparency has always been considered essential in software engineering. For instance it involves using metrics to identify individuals. Public trust in intelligence systems heavily relies on transparency regarding the purpose and utilization of data collected from users (Li, Qi, & al, 2022).

Organizations are now prioritizing fairness, accountability and transparency to address biases in intelligence systems that may be perpetuated and amplified by data trained models leading to unfair outcomes. These efforts aim to mitigate the impacts of biases on data

analysis, customer interactions and the promotion of transparent business practices, within organizations (Bharadiya J. P., 2023).

5.3. Privacy

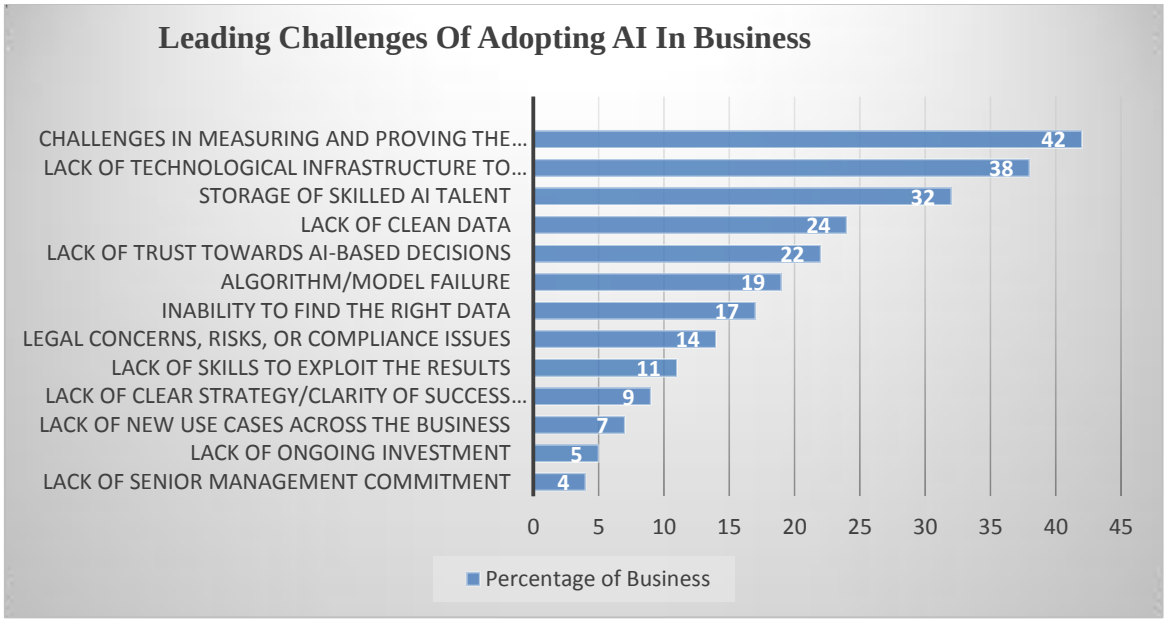
One of the issues to consider when integrating artificial intelligence systems is the protection of privacy. Safeguarding an individuals information is an imperative; however it's crucial to differentiate between personal data privacy and public or political privacy (Kazim & Koshiyama, 2021). Personal information requires a level of confidentiality, than information. Individuals should always be mindful of how their data's utilized and safeguarded. The primary concerns regarding data privacy and security are closely linked to intelligence and other data technologies as hackers and scammers increasingly target the ever expanding repositories of data (Zhe Jin, Artificial Intelligence and Consumer Privacy, 2018).

5.4. Bias

Though AI systems are renowned for their high efficiency and objectivity in decision-making, they have frequently demonstrated biassed and incorrect choices. Examples of these include speech recognition systems that suppress female or deep bass voices, diagnostic systems that discriminate against Black people, and algorithms that decrease... Resumes for women (Whittake, Alper, & al, 2019): For instance, there is a strong racial correlation across neighbourhoods in American cities, and this correlation has been used to decline services like bank loans or instant purchase delivery (Ntoutsi, Fafalios, & al, 2020).

In addition to all the previous challenges, the use of AI may face some challenges, often related to the difficulty of investing in artificial intelligence, the high costs of infrastructure, and the lack of quality of data generated by artificial intelligence, as the figure 03 shows.

Fig.4. : Challenges of adopting AI in Business



Source: https://aistatistics.ai/business/, consulted 13/07/2025

Through Figure 04 , it is clear that the lack of administrative commitment, the lack of investment and the absence of a clear strategy pose challenges for a small group that often does not exceed 10% of companies , while the most important challenges facing the reliance on artificial intelligence in business are measuring and proving the commercial value of artificial intelligence solutions, as 42%of companies believe that this challenge is the most important in the face of the reliance on artificial intelligence in their business , and 38%of companies believe that the lack of technological infrastructure to support artificial intelligence is one of the most important challenges in addition to other challenges such as the inability to maintain qualified talent in the field of artificial intelligence, and the lack of quality of data generated by artificial intelligence

6. Business Intelligence's Future

According to a McKinsey report, there will be 44 times more data in 2020 than there was in 2011. Other studies have shown that we need to prepare for the tsunami that big data will bring about by giving data analysis a higher priority than data collection and by emphasising the long-term value of business intelligence practices for all stakeholders, but especially for data scientists and employees (Melo & Machado, 2019).

However, in current economic environment, the purposes of business intelligence have begun to shift, with an increasing emphasis on operational efficiency rather than data and instantaneous decision-making. turn into, "What the next thing? .The new objective is to guarantee the total effectiveness of business operations. Consequently, business process efficiency levels have diversified in a way that makes it possible to integrate business processes with IT technology (Suliman Bataweel, 2015). Instead of the old trend that emphasised on extract, transform, and load (ETL) and report preparation, the current generation of business intelligence is now more concerned with data exploration and visualisation (Obeidat, North, & al, 2015)

7. DISCUSSION

Based to a study conducted by Paul Pallath, Global Head of Technology for Data, Analytics, and AI at Levi Strauss, there are a number of reasons why end users may not trust artificial intelligence solutions. Of those surveyed, half stated that a lack of understanding (49%) or training (46%) was the cause of their lack of trust. Therefore, the financial and non-financial benefits of AI rely on the employees who use and trust AI. that people themselves must participate in the process rather than being exposed to artificial intelligence in order for trust to be established in it (Ransbotham, Candelon, & al, 2021).

As stated by Grosz, the robustness and capacity of human intellect to swiftly and flexibly apply knowledge acquired in one context to another sets it apart from the fragile state of artificial intelligence systems of today. senses and the capacity for thought despite their remarkable discovery-making abilities that surpass those of humans. "**Stop thinking about robots taking over**," GROSZ says in reference to the idea that artificial intelligence would replace people and that it can accomplish any activity, including ones that they are unable to complete. stupid systems that people mistake for intelligent ones are a greater threat to us than clever systems that are aware of their limitations " (Shaw, 2019).

Artificial intelligence is producing an increasing number of algorithmic patterns and outcomes that are only understandable by a limited audience, unclear to many, or unintelligible to humans altogether due to advancements in autonomy and contemporary self-learning. Not only has complexity grown. In addition to being utilised for autonomy and learning, algorithms' diversity and complexity also have an impact on the applications of AI (Berente, 2021).

Since algorithms include poorly generated code or redundant mechanisms cause system failure, there is always a chance of making serious mistakes when applying artificial intelligence. As these technologies become more complex, these errors may have unexpected and unintended consequences. This is quite desirable, as demonstrated by the fact that it can have an impact on people's lives and health in disciplines like medicine. exist in the banking sector, where errors can result in large financial losses, or be at risk (Evstratov & Guchenkov, 2020).

In this framework, one of the greatest challenges is whether artificial intelligence should be centralised or available to anyone. The answer to that question depends on the degree of security we are willing to accept in return for particular advantages. The issue of who we should trust more in light of the discrepancy between artificial intelligence and human achievement, and who will pay the price? And if artificial intelligence is centralised, then who will be in charge of it? Strict guidelines must be implemented to address situations in which artificial intelligence systems clash, such as when two opposing AI systems provide disparate outcomes and are not produced by the same company. Otherwise, a "**red button**" must be put in place to stop these algorithms if they cannot be controlled (Corea , 2019).

In fact, the efficiency of using and controlling artificial intelligence will ensure maximum benefit in business intelligence. The quality of data that artificial intelligence can provide to the decision-maker will be crucial in determining the extent to which business intelligence relies on artificial intelligence, and to what extent investment in it is warranted.

8. CONCLUSION

AI is currently an innovative instrument that is revolutionising business intelligence (BI) procedures. The benefits and advantages of artificial intelligence and its techniques, particularly in the analysis of data and the ability to protect it, forecasting, improving decision-making, and increasing the efficiency of operational processes, are made possible by its creative techniques, which have led to solutions for many problems. All of this is done quickly and with a flexibility that makes adoption of artificial intelligence possible. Its capacity to scale and learn continually, along with its objective nature, enable a more profound comprehension of data and promote data-driven decision-making, so bringing about a transformative shift in the way organisations analyse data. Organisations are successfully utilising this potential advantage in order to foster innovation, obtain a competitive edge, and prosper over the long term in a big data and data-driven environment. All of this does not,

however, imply that big data and artificial intelligence are now at our disposal. its technology, since it has encountered numerous moral dilemmas pertaining to corporate transparency, trust and responsibility, data protection, and bias in service delivery—all of which have the potential to compromise business intelligence. Furthermore, when the required regulations are not in place, the outcomes are frequently prone to disagreements. Moreover, as the emphasis on enhancing overall corporate efficiency and data exploration and visualisation has become a gamble, the objectives and future of business intelligence are always changing. , Therefore, it can be argued that artificial intelligence in business intelligence cannot be unleashed unless weaknesses such as bias, regulatory compliance, and ensuring data transparency and privacy are addressed.

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