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Research Article

Artificial Intelligence in Business: Prospects and Dangers

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ABSTRACT

Artificial intelligence (AI) is revolutionizing various industries, including business, by improving relationships and interactions between individuals and stakeholders. This technology, combined with robots, has significantly impacted how businesses operate, with the benefits outweighing the risks. AI has transformed the way humans perform tasks and brought together humans and machines in ways that were previously unimaginable. It has revolutionized businesses' decision-making by analyzing large volumes of data and using the results to predict and make suggestions. This new technology has the potential to revolutionize corporate decision-making by enabling faster strategic choices. The progress made by researchers and scientists is considered a huge success. This paper aims to examine the significance of AI for business applications, focusing on the opportunities and risks associated with utilizing AI for business purposes, as well as its potential future applications in business contexts.

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1. Introduction

Artificial intelligence (AI) is a rapidly evolving technology with the potential to revolutionize numerous industries and make a substantial contribution to the global economy. As a factor of production, AI could potentially contribute $15.7 trillion by 2035, with China and the United States being primed to benefit the most. AI, which has been in existence for several decades, is defined as the ability of a computer to perform tasks that typically require human intelligence (Haenlein & Kaplan, 2019). It is a transformative force that has had a significant impact on all industries, with the ability of a computer to perform tasks that were not programmed to do. As AI continues to evolve, it is expected to have a significant impact on the way we work and live in the world. AI, the concept of computers simulating human intelligence, has roots in ancient civilizations like Chinese and Greek. Its modern history began in 1936 with Alan Turing's turning machine, which was the precursor to the modern computer. In 1955, John McCarthy et al. introduced the term 'artificial intelligence', creating the field of AI. In recent decades, programming using AI components has emerged. Early AI systems focused on general intelligence, but the ELIZA chatbot passed a Turing test in 1966, demonstrating its narrowness. However, funding dropped in the early 70s due to discouragement from governments and researchers. The Japanese government's major AI project failed in 1980, causing the field to regain momentum until 1993 (Haenlein & Kaplan, 2019; Toosi et al., 2021).

Artificial intelligence (AI) is the science and engineering of creating smart machines, particularly intelligent computer programs. In other words, AI is a branch of computer science by which we can create intelligent machines that can behave like a human, think like humans, and able to make decisions (Hassani et al., 2020). When a machine is capable of functions typically associated with human intelligence, such as learning, thinking, and problem-solving, it is said to possess artificial intelligence. The remarkable aspect of artificial intelligence is that, unlike preprogrammed machines, it is possible to build a machine with preprogrammed algorithms that can operate independently. AI is thought to be an old technology; in fact, some claim that, according to Greek mythology, there were mechanical men in antiquity who could work and act like humans (Martínez & Fernández-Rodríguez, 2015). There are three types of AI: Narrow AI, General AI, and Super-intelligent AI. Narrow AI is goal-oriented

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and designed for specific tasks, such as speech recognition, facial recognition, or driving a car. It operates under a narrow set of constraints, resulting in its name.

General AI is a concept where machines possess general intelligence, mimicking human behaviors and intelligence. They can learn and solve problems using their intelligence, thinking, understanding, and choosing how to act. However, this type has not yet been achieved (Hwang & Chien, 2022).

Super-intelligent AI is a hypothetical type that mimics human intelligence and behaviors, becoming self-aware and surpassing the capacity of human abilities. It can replicate the multifaceted intelligence of humans, possessing superior abilities in science, sports, medicine, and art. Its decision-making and problem-solving abilities would be way superior to that of humans. Despite the challenges, AI continues to advance in the field of artificial intelligence (Hwang & Chien, 2022).

AI systems are revolutionizing the way businesses operate by automating repetitive tasks, reducing human error, and streamlining processes. These systems can handle large volumes of data and perform complex calculations faster than humans, enabling businesses to make quick and accurate decisions. AI also provides valuable insights from data analysis and pattern recognition, allowing businesses to identify trends, customer preferences, and market opportunities (Enholm et al., 2022). This information can be used to develop targeted marketing strategies, improve customer experiences, and optimize product offerings. AI-powered chatbots and virtual assistants enhance customer experiences by providing personalized responses, freeing up human agents to focus on more complex issues. AI systems also enable real-time threat detection and mitigation, strengthening cybersecurity efforts by continuously analyzing data patterns and network behavior (Burström et al., 2021). Fig. 1 shows comparative Risk and revenues of AI in business.

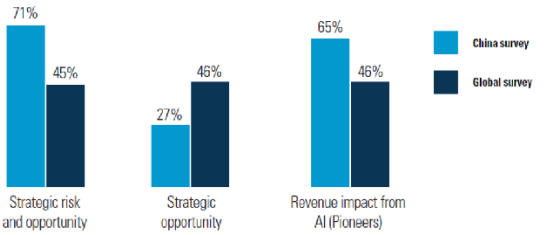

Fig. 1. comparative Risk and revenues of AI in business.

The paper takes the initiative to study the importance of Artificial Intelligence for business Usage. Also, it tends to reflect the opportunities and risks of using AI for business purposes. The study extends to the future interventions of AI concerning Business Usage.

2. Literature review

In recent years, artificial intelligence (AI) has revolutionized the field of dermatology by advancing image classification methods. These methods have led to the development of algorithms capable of recognizing skin lesions, particularly melanoma. Studies have shown that these algorithms can match or surpass the accuracy of dermatologists. However, the principles underlying these methods can be challenging for practitioners. The growing burden of skin cancer in the Western world presents a significant opportunity for AI to assist in skin lesion diagnosis, particularly at the interface between primary and secondary care. Dermatologists are well-positioned to explore the utility of AI and ensure its safe and ethical implementation within healthcare systems (Du‐Harpur et al., 2020).

AI, a relatively young concept, has the potential to revolutionize urban landscapes and establish a "smart city" if used responsibly. Its deep learning capabilities can empower machines to solve problems, revolutionizing transport systems and urban development. However, AI-based mobility must be user-centered, satisfying human users, markets, and society. Trust and risk reduction are crucial for this transition. This paper explores the relationship between AI, transportation, and the smart city, focusing on key initiatives like Connected and Autonomous Vehicles (CAVs), autonomous Personal and Unmanned Aerial Vehicles (PAVs and UAVs), and Mobility-as-a-Service (MaaS). It also discusses enabling technologies like IoT and Physical Internet, and broader transformations like Industry 4.0. This work serves as a reference tool for researchers and city planners, providing clear definitions of smart mobility terms and their roles in the future (Nikitas et al., 2020).

AI technology is expected to significantly impact industries within the next decade, leading to increased interest and research on user acceptance. However, existing literature lacks systematic synthesis, limiting our understanding of AI adoption. A systematic review of 7912 articles using five databases identified 62 articles, with the extended Technology Acceptance Model (TAM) being the most frequently used theory. The review found that perceived usefulness, performance expectancy, attitudes, trust, and effort expectancy significantly and positively predicted AI behavior across multiple industries. However, in some cultural scenarios, the need for human contact cannot be replicated or replaced by AI, regardless of perceived usefulness or ease of use. Further research using naturalistic methods is needed to validate the theoretical models that best predict AI adoption (Kelly et al., 2023).

Artificial Intelligence, a technology with an accelerated evolution, is increasingly being used in business. Machine Learning, also known as Neural Networks, is a key component in this technology. These technologies are increasingly being used in digital marketing, decision-making, and industry 4.0. As the competitive advantages of AI are realized, interest in this technology

is expected to rise. This research analyzes the state-of-the-art research on Artificial Intelligence in business, identifying key trends and proposing future research lines (Ruiz-Real et al., 2021). The emergence of intelligent products and services raises questions about the potential of AI to transform the world. This paper explores the implications of AI, from research and innovation to deployment, and its impact on governments, communities, companies, and individuals. It examines influential academic achievements, innovations, entrepreneurial activities, and factors contributing to AI advancement. The research considers two lists of top 100 AI start-ups to explore entrepreneurial activities towards AI. The findings will provide an improved understanding of AI's innovations, its impact on businesses and society, and how it can transform business operations and the global economy (Soni et al., 2020).

The law and ethics of Western democratic states are based on liberalism, which emphasizes privacy, autonomy, and state equality. However, these principles are often incompatible with the techno-political and economic dimensions of artificial intelligence. The data economy and AI have transcended liberal legal imagination, leading to private market consolidation and an unequal hierarchy of control. The ethical implications of AI depend on the purpose of the social system that operates it. The authors propose data intermediaries, such as attention cooperatives, as an alternative to artificial life, which are sociotechnical systems composed of individuals with collectively pursued purposes (Benthall & Goldenfein, 2021). Artificial intelligence (AI) is being utilized to improve decision-making processes for complex and ill-structured problems, reducing costs, increasing revenue, and enhancing customer satisfaction. However, most AI algorithms require labeled datasets, making it difficult for decision-makers to obtain model insights. To address this, an approach called informed AI (IAI) is proposed, integrating human domain knowledge into AI to develop reliable data labeling and model explainability processes. IAI defect explorer (I-AIDE) is used to identify product defects and extract customer voice, helping managers make informed decisions to improve quality and customer satisfaction (Johnson et al., 2022).

Previous research explores the definition and true meaning of artificial intelligence, its applications in daily life, and the use of AI in the business field. They also define the opportunities and risk factors for AI in business. The study also studies the meaning, role, opportunities, and risks of AI in the modern Business world. Fig. 2 Shows AI-powered innovation in Business.

2.1. AI's Potential for Innovation

One disruptive technology that has changed the way we operate is artificial intelligence. Its influence on industries is on par with the change the internet has brought about. AI technology is widely used by organizations to:

→ Enhance operations

→ Lower operating costs

→ Enhance customer experience

→ Increase efficiency

→ Increase revenue

Fig. 2. AI-powered innovation in Business.

2.2. Automation of Routine Tasks

Productivity is increased by automation using AI. One of the areas where AI has aided with automation is real estate valuation. AI has significantly improved several industries through automation, including portfolio management, sales, tax assessment, financing, and REIT values. Thanks to techniques like Automated Valuation Models, valuations may now be determined more quickly using the available data. Automation increases productivity and frees up more staff time for other activities. There will be further advantages, including lower operating costs if some jobs have been automated. Revenue growth and improved customer experience are other advantages.

2.3. Enhanced Decision-making

Effective decision-making is essential for every business's management to succeed. AI has completely changed the way businesses make decisions. Currently available tools for business decision-making include big data, data mining, and large, useful datasets. As a result, data security has also improved. Whereas humans base their conclusions on experience or both, AI bases its decisions on historical facts. Therefore, firms can make better decisions when AI and human talents are combined.

2.4. Personalized Customer Experiences

All platforms where client information may be gathered are accessible to AI. Businesses can better respond to client requirements by programming computers with data from past activities and interactions. Businesses may personalize consumer experiences with the use of

such data. Businesses can utilize AI to pinpoint the specific needs and preferences of each consumer, and then tailor their marketing, offerings, and products to enhance customer satisfaction and experiences. Chatbots may allow users to communicate directly with artificial intelligence more often.

2.5. Improved Operational Efficiency

The majority of client interactions can be automated by businesses using artificial intelligence. In a similar vein, AI may help a company that struggles to fulfill deadlines. Any business, regardless of specialty, might realize increased operational efficiency with the use of AI-driven solutions. It assists companies in foreseeing and estimating the speed at which specific operational goals and objectives may be accomplished. These insights give supply chain experts the knowledge they need to decide quickly and correctly, increasing the efficiency of how their goods are distributed and delivered. AI can assist delivery vehicles in finding faster routes as well.

2.6. Innovation in Product Development

All stages of production employ artificial intelligence. In manufacturing, product development is a crucial domain. For this reason, businesses employ AI to improve the quality and design of their products. If the company wants to flourish, innovation in product creation has to be a constant activity. AI analyses data to discover how best to modify products to satisfy the ever-changing wants of customers. Better goods are made and more consumer wants are satisfied when there is more data accessible. Artificial intelligence algorithms are employed in quality control to identify production problems and prevent flaws in finished goods.

2.7. Risks Associated with AI in Business

Although artificial intelligence is a great technology, when applied incorrectly, it might have unfavorable effects. The most significant obstacles and moral dilemmas related to the development and broad use of artificial intelligence in business are discussed in this section. Fig. 3 shows AI risk taxonomy.

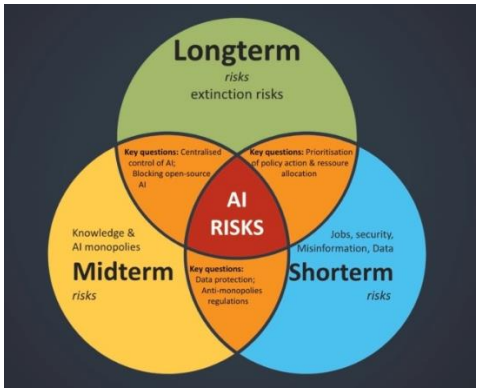

Fig. 3. AI risk taxonomy.

2.8. Ethical and Legal Concerns

When AI systems are trained on biased databases, they have the potential to reinforce or magnify social prejudices. This mostly impacts industries like banking, criminal justice, and hiring. Thus, to promote inclusion and justice, it is imperative to recognize and address this kind of algorithmic prejudice. Businesses that prioritize diversity in their data-collecting procedures might also prevent such biases. To reduce bias, they will also need to regularly assess and improve their models. Transparency must be used by businesses when using algorithms to make decisions.

2.9. Data Privacy and Security

There have been worries that data security and privacy may be jeopardized by artificial intelligence. Data privacy is a major worry as firms rely more and more on artificial intelligence. Protecting people's right to privacy has not always been easy. Businesses are realizing more and more that they must have robust data protection procedures as a result of tighter rules and increasing public awareness. This would result in the processing and use of information responsibly and ethically.

2.10. Job Displacement and Workforce Impact

While AI may boost production and efficiency, it also poses a danger to jobs by dislodging workers. AI-driven automation can replace some repetitive activities, which might displace humans and perhaps have a negative impact on employment in all areas of the economy. Companies need to concentrate and make investments to navigate this moral dilemma by encouraging a change that emphasizes personnel upskilling. In order to fill the jobs that technology has eliminated, new ones must also be created. Similarly, we must make sure that technical breakthroughs are approached with greater responsibility and consideration, taking into account their wider societal influence.

2.11. Dependence on AI and Technology Failures

Businesses frequently grow unduly reliant on artificial intelligence, which can have detrimental effects. Businesses tend to become a lot more receptive to AI as they realize its numerous advantages. They could even lose track of potential technological blunders until it's too late to fix some mistakes that might have been brought on by AI's consequences. Where AI has failed, alternative technologies, systems, or approaches ought to be used. In the meantime, companies should never rule out the chance that their dominating systems will collapse.

2.12. Regulatory and Compliance Challenges

The artificial intelligence sector frequently faces difficulties concerning compliance and regulations. It is tainted by the absence of a uniform and inclusive regulatory structure. At each step of AI's progress, the difficulties get more severe. Artificial intelligence is developing at a rate that surpasses current rules and

regulations because of its more sophisticated uses and ramifications. The ensuing void may give rise to doubts, making it difficult for organizations to determine the appropriate steps to protect user privacy and data security.

2.13. Practical Illustrations of AI in Business

We examine noteworthy case studies under this subtopic that demonstrate the profound influence of AI across several commercial domains. Already, a lot of people utilize this technology, particularly for commercial purposes. Data analysis, automation, and natural language processing have all been transformed by it in both big and little companies. These are a few instances of effective AI use.

IBM: The development of artificial intelligence was aided by the global technology giant IBM. It developed a machine learning platform called Watson to aid in the incorporation of artificial intelligence into corporate procedures. Chatbots are developed for customer service through this kind of interaction.

Amazon: The colossus of online shopping, Amazon, has embraced AI technology to an unprecedented degree. The company provides artificial intelligence services and products for both consumers and businesses. The firm bases a large portion of its professional AI services on consumer goods. AI is introduced into the house with Amazon Echo in the form of Alexa, an intelligent speech server.

ABB: Energy management is revolutionized by ABB. It makes use of AI to assist commercial and industrial organizations in improving their energy management. By addressing the growing cost of power, the firm contributes significantly to energy conservation.

Alphabet: Google owns this public holding corporation. It began as a component of a reorganization that emphasized Google's ambitions to expand beyond Internet services. Artificial intelligence and machine learning are driving many of the most recent advances in this firm, both gradually and progressively. The two most noteworthy advancements to brag about are autonomous automobiles and healthcare diagnostics.

2.14. AI Failures and Lessons Learned

Obtaining and storing data might present significant difficulties when implementing artificial intelligence. Systems for industrial artificial intelligence that rely on sensor data as inputs may be deemed unsuccessful. Large-scale sensor data collection for this purpose may result in noisy datasets that are challenging to store and process. Similar to this, a lot of businesses have had trouble implementing artificial intelligence since the system does not work well with their current business processes and infrastructures.

AI has been a significant advancement in recent years, but it has also faced several challenges. One of the most concerning issues is algorithmic bias, which can lead to discriminatory outcomes in areas like loan approvals, job applications, and criminal justice. For example, an AI risk assessment algorithm used in US courts to predict recidivism rates was biased against Black defendants, leading to harsher sentences. A lack of transparency in AI systems makes it difficult to understand decisions and identify potential biases, hindering accountability and making it challenging to debug errors. In 2018, a self-driving car developed by Uber struck and killed a pedestrian in Arizona, raising questions about the transparency of Uber's autonomous driving technology and how the car perceived its surroundings.

Overhyped expectations can lead to unrealistic expectations and disappointment when AI fails to live up to the hype. For example, Microsoft's Tay chatbot was spouting racist and offensive language after being exposed to user interactions, highlighting the dangers of releasing immature AI systems into the public sphere. Job displacement is another concern, as AI systems require access to vast amounts of data, raising concerns about privacy and the potential for misuse of personal information. Cambridge Analytica improperly harvested the personal data of millions of Facebook users without their consent, which was allegedly used to target voters with political ads during the 2016 US presidential election.

AI systems can be vulnerable to hacking and manipulation, which malicious actors could exploit to cause harm. Lack of explaining ability and overfitting are also issues in AI systems, as they can become overfitted when trained on datasets not representative of the real world. Safety considerations should be paramount when deploying AI systems in high-risk applications, such as self-driving cars or medical diagnosis. Thorough testing and safety protocols are crucial to mitigate potential risks. Ethical implications, such as fairness, accountability, and the potential for misuse, must be carefully considered. Finally, AI should not focus on narrow intelligence, meaning AI systems that excel at specific tasks, but should also consider the long-term goal of achieving artificial general intelligence (AGI), encompassing a broader range of cognitive abilities.

In conclusion, AI has the potential to revolutionize various aspects of life, but it is crucial to avoid oversimplifying human intelligence or underestimating the complexity of human intelligence.

The intricacy of a project is only one element influencing AI success rates. Businesses that have trouble measuring the return on their AI investments frequently face the following difficulties. Workforce literacy concerning AI and data is low. Getting to business value is not always an easy task. Project management in data science is iterative; it cannot be established and forgotten. Contrary to popular belief,

managing AI risk involves more than just one aspect. Thankfully, there are several strategies businesses can use to position themselves to overcome these obstacles and succeed with machine learning models. These are some of the fixes.

3. Strategies for Mitigating AI Risks

The risks associated with AI are manifold and may occasionally be catastrophic for the objectives of the organizations that employ them, but they can be effectively mitigated with the right tactics. Fig. 4. Shows AI risk migration for safeguarding a business.

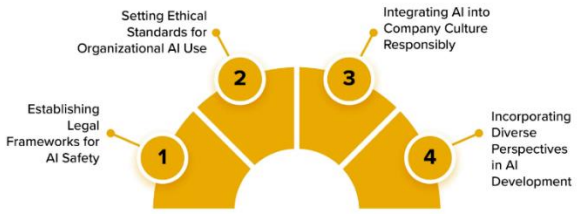

Fig. 4. AI risk migration for safeguarding a business.

3.1. Ethical AI Development

Strict commitment to moral guidelines and precepts is required. To mitigate ethical concerns, companies must include fairness and transparency in their AI algorithms. They must adhere to the established norms and ethical framework for risk management techniques for artificial intelligence. This would be a very practical method of reducing the hazards. Additionally, the organizations must make use of use appropriate validation procedures and independent testing approaches to ascertain the degree of reliability and the AI models' accuracy.

3.2. Robust Data Management Practices

Any organization's approach to this course can be greatly impacted by quality assurance and data validation. Organizations must guarantee the precise and impartial gathering and handling of data. Processes for validating data should be strict. These initiatives biases or contradictions in the data become simple to recognize and handle appropriately.

3.3. Workforce Transition and Training

AI dangers rise when workers are not sufficiently trained via ongoing development to enable reskilling and upskilling. As a result, businesses must include training initiatives in their strategies for worker development. Through this kind of instruction, employees will learn new abilities required for the appropriate and managing artificial intelligence programs with success. Such instruction also assists staff members in keeping abreast of and compliant with any new guidelines or procedures.

3.4. Strong Cyber Security Measures

Businesses should put more money or better into safeguarding AI systems. Businesses may safeguard themselves against impending cyber risks and unauthorized access by putting cyber security measures in place. Among the more successful cybersecurity techniques are frequent vulnerability evaluations, encryption, and access control. This means that extensive testing and model validation are required. When using AI models undergo thorough testing to ensure stability and performance, and organizations can reduce hazards associated with the model.

3.5. Regulatory Compliance and Governance

The organization's responsibility is to uphold compliance and adhere to the directives issued by the appropriate authorities. For their artificial intelligence initiatives to be implemented successfully, businesses also need to keep current on regulatory developments. Businesses have a far better chance of succeeding once they can adjust to the changes without falling behind or carrying on with antiquated procedures. Creating an internal governance framework and making the appropriate decisions based on it is one method to stay up to date with the developments.

4. Perspective for AI in Business in the Future

Research has been done on the potential applications of artificial intelligence in business. We examine the cutting-edge developments in technology and trends that will shape artificial intelligence's role in corporate operations going forward. In this manner, we also offer a financial roadmap for artificial intelligence.

Emerging AI Technologies: Investments in AI are being made to achieve robust content-based insight, reducing user workload and improving confidence in AI. These investments aim to enhance collaboration between humans and machines, enabling them to perform complex cognitive tasks. Experts have shown that a group of humans aided by machines can outperform an expert even in complex cognitive tasks. These investments offer benefits such as collaboration across smart machines, enriched insights, and the ability to leave more routine tasks to AI-enabled systems. In the future, machines will perform intelligent tasks using context with minimal chances of failure, allowing AI systems to refine their characteristics with confidence. This increased symbiosis between humans and machines is a significant benefit of these investments.

Long-term Implications: Artificial intelligence appears to be moving in the same way as traditional computers. This is because artificial intelligence (AI) is already being used in a wide range of commercial, military, and scientific applications the same path that classical computers took. AI is booming in practically every industry, including infrastructure, research, and

the solution of vertical problems that require far more specialized knowledge to handle. There are upcoming apps that will transform our operations in every industry. These applications take the shape of fundamental science research, smart robots, AI-driven drug recovery and design, and healthcare diagnostics.

5. Conclusion

Artificial Intelligence (AI) is a technology that has revolutionized human performance in a variety of tasks critical to human advancement across all domains. It has facilitated human-machine interaction in ways that were unthinkable before it all started. Artificial Intelligence has completely changed how organizations make decisions. By using AI systems' capacity to evaluate vast amounts of data and utilize the results to forecast and provide recommendations based on the data, organizations may be able to make better decisions. It seems that this new technology has the potential to completely transform business decision-making by providing faster strategic options. Our scientists and researchers have made so much progress in the modern era that anything that has been accomplished thus far should rightfully be regarded as a great accomplishment.

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