

The Impact of Artificial Intelligence (AI) on Business Operations in Bangladesh

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Abstract:- AI technology is becoming increasingly popular in the business sector in Bangladesh. AI's integration into different elements of daily life and business operations is common. Implementing it in the company may enhance marketing efforts by speeding up, reducing costs, and increasing accuracy. Business owners who use AI in their advertising efforts should expect increased popularity and a significant competitive edge in the digital industry. It may transform businesses through innovative ideas and effective marketing strategies. Additionally, it provides solutions for hard jobs, promoting significant company growth. However, there are also downsides to employing AI, including a lack of technical knowledge, concerns about data privacy and security, and challenges with gathering information and storage. To overcome these challenges, businesses should educate employees on AI, seek diverse financing and qualified personnel, collaborate with the government on infrastructure support and legislation, address job displacement concerns through training, and encourage employee acceptance of change. Businesses in Bangladesh can enhance operations and competitiveness via using these strategies. Business leaders, decision-makers, and researchers interested in maximizing AI's potential and improving business outcomes in Bangladesh may benefit from this research. The study continued by presenting theoretical and managerial implications that will help business owners, managers, stakeholders, and policymakers enhance their business performance.

Keywords:- Artificial Intelligence (AI), Adaptation, Business Operation, Decision-Making.

I. INTRODUCTION

Artificial intelligence (AI) replicates human intelligence processes utilizing technological advances in computers. Learning, reasoning, and self-correction are the processes engaged in information intake and application. AI applications encompass everything from expert systems to language recognition and machine vision.

Artificial intelligence (AI) has an opportunity to greatly improve Bangladeshi businesses by automating repetitive tasks, reducing costs, and offering insights based

on data (Islam et al., 2024). For example, in the industrial sector, AI can be used to increase efficiency by regulating and monitoring manufacturing procedures, finding flaws, and predicting maintenance needs. In the financial sector, AI can be used to detect fraud and evaluate credit risk (Komal Singh, Hasan, & Rajendran, 2023). AI-powered robots in the industrial sector can do tasks like assembly, welding, and painting, leading to higher production and cost savings. The World Bank's report highlights the potential for automation and robotics in Bangladesh's ready-made garment (RMG) industry, which is plagued by high labor costs, low productivity, and a large workforce of unskilled workers (World Bank, 2018). I have huge potential in Bangladesh's banking industry. Artificial intelligence systems can detect fraud, evaluate credit risk, and improve financial forecasting accuracy. AI can reduce fraudulent transactions and enhance credit risk evaluations, according to a recent study. (Husain, Hamdan, & Fadhul, 2022). AI has the ability to significantly benefit Bangladesh's industrial sector. AI systems can monitor production processes, detect issues, and forecast maintenance requirements. AI can automate operations in the textile sector, leading to cost savings, increased productivity, and better product quality (Sikka, Sarkar, and Garg, 2022). Retail is another sector in Bangladesh that could benefit from AI. AI-enabled chatbots provide great customer service and answer frequent questions. AI technologies can improve inventory management and predict consumer demand, leading to increased sales and customer happiness (Duong, Wood, & Wang, 2018; Rathore, 2023).

Although there is a growing interest in AI adoption in Bangladesh's business sector, there is a lack of study on its impact on business outcomes. Although AI has been studied in e-commerce and banking, more research is needed to explore the specific technologies used and the challenges organizations face when implementing them. A recent study suggests that artificial intelligence (AI) can enhance corporate operations in Bangladesh. However, there is limited research on how organizations might effectively integrate AI. Furthermore, there is a lack of empirical studies on how AI affects business in Bangladesh. Additionally, there is a lack of investigation.

➤ *Top 3 Sectors of Business in Bangladesh that use AI:*

• *Cyber Security:*

AI can quickly detect security problems in large networks. People find it difficult and time-consuming to monitor and assess large-scale networks. AI may still review data from several endpoints to detect threats and vulnerabilities before an attack occurs.

• *Financial Services:*

Artificial intelligence (AI) improves loan assessment of risk and forecasting in corporate finance. Using AI technologies, like as machine learning, can enhance loan underwriting and reduce financial risk while increasing value.

• *Information Technology:*

The digital transformation of businesses has led to new solutions to IT challenges. AI, which has become an essential component of the growth of almost every business, is at the heart of this advancement. Information technology was one of the first sectors to embrace and recognize the promise of AI technologies.

➤ *Research Objective*

• *Evaluating the Impact of AI on Business operation:*

This report examines the impact of AI technologies on various business operations. The emphasis will be on comprehending the revolutionary effects of AI on corporate strategy, efficiency, decision-making processes, customer relationships, and overall organizational performance.

• *Making Recommendations for the Effective Use of AI in the Workplace:*

The goal here is to create practical guidelines for incorporating AI technology into commercial contexts. This will cover AI tool adoption methods, best practices, and how to manage technological, ethical, and human resource concerns in business.

➤ *Research Questions:*

- How has artificial intelligence impacted business?
- What recommendations do you have for efficiently implementing AI technologies in your company?
- What are the many barriers to implementing AI technologies in the workplace?

II. LITERATURE REVIEW

This global trend of AI adoption can also be seen in Bangladesh, where firms are actively investigating how AI may help them operate their businesses more effectively. The employment of AI in a range of industries has enabled increased output, efficiency, and competitiveness. The rapidly expanding AI literature in Bangladesh reflects the growing interest in employing AI for business optimization. AI is being used in business, offering benefits such as better decision-making, accuracy, and efficiency. Retailers like

Wal-Mart use AI for tailored recommendations and inventory management. Ping, a Chinese insurance, employs artificial intelligence to ease benefit distribution. (Islam et al., 2024).

Bangladesh's e-commerce business is also investing in the integration of AI, blockchain, IoT, and big data to achieve the Sustainable Development Goals (SDGs) (Talukder, 2021).

Several studies have identified the possible applications of AI in the Bangladeshi corporate sector. A study explored the implementation of AI in Bangladesh's banking business. AI has the potential to boost banking industry customer service, fraud detection, and risk management (Babu, 2021a, 2021b). Another inquiry into AI application in Bangladeshi healthcare was part of a bigger study. The study found that employing AI can assist with patient monitoring, therapy, and diagnosis (Uzir, et al., 2021).

Furthermore, AI has numerous uses for enhancing business operations in Bangladesh. Data entry operations can be automated, saving time and reducing error rates. AI can analyze massive amounts of data, uncovering patterns and insights that would be difficult to uncover manually (Ghahramani, Qiao, Zhou, O'Hagan, & Sweeney, 2020).

However, there are challenges that must be overcome in order to integrate AI into Bangladeshi businesses. These include challenges with insufficient data infrastructure and standardization, prejudice and privacy ethics, and a shortage of trained individuals for AI development and deployment (Polas et al., 2022).

According to the literature, artificial intelligence (AI) could improve business operations in a range of domains in Bangladesh. However, dealing with difficulties such as a lack of trained professionals, data, and IT infrastructure is crucial. Additional research is needed to identify specific AI applications and develop methods to overcome these challenges.

To summary, artificial intelligence has the ability to significantly improve efficiency, accuracy, and insights in Bangladeshi corporate settings. However, resolving implementation concerns is necessary. Future research should focus on overcoming these challenges and creating viable AI applications for Bangladeshi businesses.

III. RESEARCH METHODOLOGY

This study is qualitative in nature. More specifically, the investigation was completed using a definitive manner. This descriptive research involves describing a situation or event to gather knowledge for decision-making. Secondary data refers to existing databases that are reanalyzed to identify unique issues, as well as data obtained for the study. This study examines the impacts of artificial intelligence in Bangladesh's digital society, drawing on secondary data sets and government data. The data sources are authentic and

reliable for the topic. Data was gathered from reliable sources, including websites, books, and journals. All books and journals were screened using the title and abstract technique. To learn more about business operations in Bangladesh and AI, we researched and analyzed reputable websites and internet articles.

➤ *Several Use of AI in Manufacturing Industries in Bangladesh*

Using AI effectively can accelerate growth in the manufacturing sector in Bangladesh. AI is increasingly being used in manufacturing businesses. Bangladesh's manufacturing units are increasingly adopting AI for development. This leads to a fourth-generation revolution in Bangladesh's industry. Accepting contemporary technologies has helped Bangladesh's manufacturing sectors cut raw material consumption, improve efficiency, and expand supply networks. Smart manufacturing combines adaptability and customization for maximum effectiveness. According to government data, implementing AI technology in the manufacturing industry led to a 13% increase. However, this hypothesis lacks appropriate credibility. In 2018, Bangladesh's GDP increased by 29.2%, according to a government study. Limited resources have hindered the development of Bangladesh's industrial industry. To improve Bangladesh's manufacturing sector, it is necessary to address issues such as demand and supply, skill shortages, data analysis, and technology challenges. To advance, enterprises can utilize robotic technologies to manufacture various items. This will have a significant influence on every industry sectors in Bangladesh. The government should implement suitable policies to expand applications in industrial industries.

➤ *On the other hand, the impact of Artificial Intelligence in Different Sectors in Bangladesh is given below:*

- Public service improvement
- Agriculture
- Smart transportation & Skill development and education
- Financial services and business
- Healthcare.
- Employing artificial intelligence (AI)

➤ *Adaptation of AI in Business Operations*

• *Operational Efficiency and Automation:*

AI's impact on company management extends beyond decision-making. Automation, a key component of AI, has transformed operational efficiency. AI-powered solutions can automate repetitive and time-consuming processes like data entry and inventory management, allowing humans to focus on creative and critical thinking. This improves productivity and minimizes errors in manual processes.

• *Challenges and Ethical Considerations:*

Although AI has unquestionable benefits in company management, it also poses ethical challenges. The use of AI raises worries about job loss and workforce transformation. To handle these hurdles, organizations must up skill

personnel and ensure a smooth transition to AI-augmented workflows. Ethical problems, including bias in AI algorithms and data privacy, require careful attention to avoid unforeseen effects.

• *Strategies for Successful AI Integration:*

Successfully integrating AI into company management requires a strategic strategy. To maximize the benefits of AI, organizations should prioritize data analysis, consumer engagement, and supply chain optimization. Collaboration between AI professionals and domain specialists is vital for ensuring AI solutions correspond with corporate goals. Regular assessment and continual learning are crucial for improving AI applications over time.

➤ *Factors Influencing Artificial Intelligence (AI) in Business Operation in Bangladesh*

AI has transformed corporate management, including operations, decision-making, and consumer interactions. Here are some important ways AI has impacted business operation in Bangladesh:

• *Data-Driven Decision Making:*

AI helps organizations evaluate enormous amounts of data fast and generate useful insights. Using real-time data allows managers to develop better predictions and strategies.

• *Automation of Routine Tasks:*

AI-powered technologies automate tedious operations, allowing staff to focus on more valuable activities. This improves efficiency and minimizes human mistake.

• *Supply Chain Optimization:*

AI improves supply chain operations by forecasting demand patterns, optimizing inventory levels, and identifying potential interruptions, resulting in cost savings and faster delivery times.

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• *Human Resources Management:*

AI can improve HR processes including candidate screening, onboarding, and performance review. It can also help identify skill shortages and provide appropriate training.

• *Marketing and Advertising:*

AI tools may study consumer behavior and preferences to develop personalized marketing strategies. AI can optimize ad placements and employ natural language processing to generate content effectively.

• *Financial Analysis and Risk Management:*

AI algorithms examine financial data, market trends, and economic indicators to inform investment decisions and risk assessments.

- *Product and Service Innovation:*

AI can improve product creation by evaluating market trends and client feedback, allowing businesses to design more relevant items.

- *Operational Efficiency:*

AI can optimize operational procedures, including logistics route planning, manufacturing energy usage, and project resource allocation.

- *Remote Work and Collaboration:*

AI-powered products enable distant communication through virtual meeting assistants, language translation, and document management systems.

- *Fraud Detection and Security:*

AI can identify anomalous trends in transactions and behaviors, preventing fraudulent activity. It improves cyber security by recognizing threats and vulnerabilities.

However, AI deployment presents obstacles such as data privacy, ethical considerations, job displacement, and the necessity for skilled personnel. Incorporating AI into company management demands a systematic strategy, ongoing learning, and adaptation to shifting technical landscapes.

➤ *Opportunities for Bangladesh: How AI Can Benefit Bangladeshi Businesses Operation*

Artificial intelligence has entered people's lives. We may not be aware, but artificial intelligence is a part of our daily life. AI is used in a variety of environments, including virtual assistants, news, homes, and the workplace. Bangladesh is a developing nation. Our resources are scarce and limited. AI-powered solutions can help businesses, non-profits, and governments address resource scarcity and improve the living standards of people across the country. The Bangladeshi corporate sector can use AI-powered solutions.

- *Increase Efficiency*

Businesses can automate tedious and time-consuming operations, freeing up employees' time for more pressing responsibilities. A chat bot, for example, can answer client inquiries while customer service people work on more critical duties and issues. Furthermore, AI-powered solutions can handle large amounts of data while making judgments quickly and with complete accuracy.

- *Save Money*

Businesses can save money by automating manual labor and human interaction procedures. A system driven by artificial intelligence, for example, can examine financial data. An artificial intelligence-powered system can analyze financial data to identify cost-cutting options, such as waste reduction or supply chain process optimization. Furthermore, AI can help to reduce operational expenses by improving supply chain management, reducing downtime, and preventing equipment malfunctions via condition monitoring.

- *Medicine Delivery*

Pharmaceutical businesses can use AI technologies to improve living conditions in Bangladesh. Companies can use artificial intelligence and drone technology to distribute medicine to rural places that are not accessible by road. For example, Zip line employs drones to deliver medical supplies and blood to Rwandan rural hospitals and clinics. Bangladesh's situation is not as bad as Rwanda's, but the majority of people reside in rural areas and have limited access to medical care. Furthermore, deploying drones to transport medicines in urban areas could usher in a new age for pharmaceutical companies.

- *Improve The Store Experience*

Traditional buying remains important, even as online shopping becomes more prevalent. Traditional shopping experiences can be improved with artificial intelligence and virtual reality technology.

➤ *Challenges of AI Integration of Bangladesh Business Operation*

- *Highly Implementation Costs:*

The initial investment necessary for AI technology can be large, making it difficult for many small and medium-sized businesses (SMEs) in Bangladesh. These businesses may find it prohibitively expensive to acquire technology, software, and qualified workers.

- *Skill & Knowledge Gaps:*

The implementation of artificial intelligence involves specific skills & knowledge in data science, machine learning, and software development. Bangladesh is experiencing a huge skill & knowledge gap, with a shortage of qualified experts capable of designing and maintaining AI systems.

- *Data & Information Privacy Concerns:*

The application of AI requires the collecting and processing of massive volumes of data & information, creating issues regarding data & information privacy and security. Businesses must guarantee that they follow regulations and secure sensitive information in order to maintain confidence and prevent legal complications.

- *Lack of Government Support and Policies:*

There are no comprehensive policies or incentives particularly designed to encourage AI adoption. There are few government programs and financial resources dedicated to AI research and development.

- *Resistance to Organizational Change:*

There is a cultural barrier inside firms to adopting new technologies. Employees are afraid of losing their jobs, which is why they oppose AI installation.

- *Limited Digital and Technological Infrastructure:*

Inadequate digital infrastructure, particularly in rural regions, is limiting AI deployment. Issues such as unstable

internet access and frequent power outages provide substantial challenges.

- *Rapid Technological Obsolescence:*

Rapid breakthroughs in AI technologies necessitate frequent updates and upgrades. Businesses have financial and logistical challenges in keeping up with the most recent technological advancements.

- *Market Uncertainty and Economic Volatility:*

Economic instability and market changes have an impact on the financial feasibility of AI projects. Businesses are hesitant to invest in AI under an uncertain economic climate.

- *Challenges in Integrating AI with Existing Systems:*

It is difficult to integrate AI technologies with older systems and procedures. Upgrading or rebuilding current infrastructure to support AI incurs significant expense and complexity.

IV. RECOMMENDATIONS

- *Develop AI knowledge and Expertise:*

As AI advances, it is critical for businesses to develop a full understanding of AI technologies and their applications. This can be accomplished by implementing training programs, recruiting AI specialists, or working with external AI experts.

- *Prioritize Data Management:*

AI relies significantly on data, so firms should prioritize robust data management practices. This involves data collection, storage, quality assurance, and security procedures to ensure that high-quality data is available for AI algorithms.

- *Embrace Explainable AI:*

Transparency and explain ability are becoming increasingly important as AI adoption grows. Businesses should prioritize building AI models and algorithms that can provide transparent explanations for their decisions. This will increase trust, regulatory compliance, and responsibility.

- *Focus on Personalized Customer Experiences:*

AI helps businesses to provide individualized experiences to their customers on a wide scale. Businesses can use AI algorithms and customer data to tailor their products, services, and marketing campaigns to individual tastes, resulting in increased customer satisfaction and loyalty.

- *Explore AI in Supply Chain Management:*

Companies should investigate the use of AI to optimize supply chain and logistics procedures. Artificial intelligence can improve inventory management, demand forecasting, route planning, and overall supply chain efficiency. Investigating AI-driven solutions in these areas can result in cost savings and improved operational efficiency.

- *Stay Updated on Advancements:*

The AI industry is always growing; therefore firms should stay up to date on the newest advancements and trends. This can be accomplished by continuing education, attending conferences and seminars, and connecting with AI groups and experts.

V. CONCLUSION

In conclusion, the impact of artificial intelligence (AI) on business operations is profound and offers a multitude of advantages. AI technologies, such as machine learning and robotic process automation, have revolutionized the automation of routine tasks, enabling employees to focus on more strategic activities and enhancing overall efficiency and productivity. AI-powered analytics tools empower businesses to make data-driven decisions more quickly and precisely by processing large datasets and uncovering patterns and trends that might be difficult for humans to detect. AI are also crucial for personalizing customer experiences, as it can analyze customer data and behavior to provide customized recommendations and interactions. Additionally, AI is transforming supply chain and logistics by optimizing inventory management, demand forecasting, and transportation logistics, which boosts efficiency and reduces costs. It also plays a key role in fraud detection and risk management by analyzing data to identify anomalies and detect fraudulent activities.

Moreover, AI technologies like natural language processing (NLP) enhance businesses' ability to understand and communicate with customers through chat bots, virtual assistants, and voice recognition systems. AI also streamlines HR processes, such as candidate screening and resume analysis, thereby increasing recruitment efficiency.

Despite the substantial benefits of AI, organizations must address ethical concerns, safeguard data privacy, and ensure human oversight to maintain transparency and accountability. Future advancements in AI are likely to bring further automation of complex tasks, more sophisticated analytics for more accurate predictions and insights, and improved natural language understanding for better customer interactions. The development of explainable AI models is crucial for enhancing transparency. Furthermore, AI will continue to drive large-scale personalization, facilitate the integration with robotics and autonomous systems, and bolster cyber security measures. In summary, AI is transforming how businesses function, make decisions, and interact with customers, leading to increased efficiency, enhanced customer experiences, and greater innovation. However, it is vital to approach AI implementation thoughtfully and ethically to fully realize its potential benefits.

Invest in AI Integration: Companies should prioritize incorporating AI technologies into their everyday operations. This involves evaluating the current state of AI adoption within the organization, identifying areas where AI can provide value, and implementing AI solutions accordingly.

VI. LIMITATION OF THE STUDY

One significant disadvantage of this study is the limited number of data sources accessible on the application of AI in Bangladeshi organizations. Despite efforts to collect information from a variety of sources, including scholarly publications, industry reports, and news items, the overall number of available data was limited. This limits the general applicability of the findings and may not provide a complete picture of the country's AI landscape.

Furthermore, the study used secondary data sources, which may have limits in terms of accuracy and dependability. Time and resource constraints, as well as the lack of a uniform sampling framework, made it impossible to collect primary data from a broader pool of respondents. Finally, the study only looked at the usage of AI in enterprises and did not investigate its application in other sectors such as government, healthcare, or education.

➤ Conflict of Interest

The author said that there is no conflict of interest and that no monies were collected from any organizations or institutes generating the essay. This article aims to share and acquire knowledge.

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