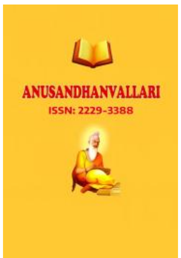

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Role and Challenges to Adopt Artificial Intelligence for Enhancing Business Competitiveness

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Abstract

Artificial intelligence (AI) was developed in the mid-1950s. AI is a revolutionary technology which reshaping businesses' activities worldwide. Nowadays, many organizations are enhancing the usage of AI techniques like robotics, automation, machine learning, and predictive analytics to increase the efficiency, productivity, and competitiveness of their business. The main aim of this study is to examine how artificial intelligence assists businesses in gaining competitiveness and increasing operational efficiency, strategic decision-making, customer satisfaction, innovation, organizational performance, predictive analytics, digital transformation, and global competitiveness, as well as efficiently managing human resources. This study is based on secondary data, which is collected from research papers, reports, and websites. Finding of this study shows that artificial intelligence literally works and provide the benefits like cost reduction, customer satisfaction, increase productivity, better competitive advantage, more innovative, increase global competitiveness and digital transformation, predictive analysis etc. along with the benefits some challenges also highlights like huge deployment cost, limited technical knowledge, issue of data privacy, ethical and legal issues, fear of layoff and oppose to change etc. which resist to businesses to adopt artificial intelligence smoothly. In conclusion, this study finds that businesses that intentionally adopt AI technologies are more likely to be flexible and growing, particularly in a highly competitive digital economy.

Keywords: Artificial Intelligence, Importance, Challenges, Business Competitiveness.

Introduction:

"Artificial Intelligence" was founded in the mid-1950s by John McCarthy, an American computer scientist, with the help of his colleagues. Artificial intelligence is a revolutionary technology which provides the assistance to businesses for reshaping their business activities, and they are able to gain competitive advantages. Actually, AI technologies include robotics, automation, machine learning, predictive analytics, etc. These techniques are helpful for businesses to operate, talk with people, and gain competitive advantages at a global level. In the era of globalization, businesses are facing a high level of competition due to instant changes in market conditions, technologies, customer expectations, and new business ideas.

"AI-enabled systems within organizations are expanding rapidly, transforming business and manufacturing, extending their reach into what would normally be seen as exclusively human domains. So, organizations are adopting AI technologies to increase their efficiency and productivity, reduce operational costs, improve customer satisfaction, and beat competition at a global level. Artificial intelligence is used in the day-to-day functioning of organizations like inventory management, strategic decision-making, optimizing supply chains, helping in digital marketing, financial analysis, detecting financial fraud, and demand forecasting, and maintaining customer relationships. "AI technology can process large amounts of data in ways unlike humans. The goal for AI is to be able to do things such as recognize patterns, make decisions, and judge like humans". Businesses become more efficient by using predictive analytics and intelligent algorithms to identify market trends and find out customer choices. “AI is also used in banking, logistics, economics, retail, information technology, manufacturing, marketing, human rights and healthcare” .Artificial intelligence is used in banking to detect financial fraud, manage risk, and provide customer support. Artificial intelligence is used in retail to increase sales through customer satisfaction. In manufacturing organizations, Artificial intelligence is used through automation and robotics to enhance productivity and quality control. In India, Artificial intelligence adoption is moving speedily due to digitalization, extending network coverage, and continuous technological advancement. Initiatives like “Digital India” and “Startup India” also promote the usage of AI in businesses. At the national and international level, “Artificial Intelligence has been changing business as proven by Airbnb, Ola-Uber, Flipkart, eBay, Amazon, etc., and other enterprises that have incorporated its use to instrument state-of the-art business models”

To get competitive advantages at the national and international levels, more and more Indian organizations are investing money in artificial intelligence technologies to enhance their operational efficiency. Not only large business firms but also small and medium-sized organizations are investing in artificial intelligence technologies for their long-term survival. Along with the benefits of artificial intelligence, there are many hurdles for businesses as well, such as high deployment costs, limited technological expertise, data privacy issues, cyber security risks, ethical and legal issues, and fear of layoffs. Due to a shortage of funds, small business organizations are not able to adopt artificial intelligence smoothly. But due to the increasing trend of usage of artificial intelligence by organizations to get competitive advantages, it has drawn the interest of researchers, policymakers, and business organizations. So, the current study aims to examine the importance of artificial intelligence for boosting business competitiveness, along with knowing about the obstacles which are facing by the business organizations for adopting artificial Intelligence.

Review of Literature:

• Nilson (2010) studied the evolution and development of artificial intelligence and also discussed how artificial intelligence replicates human problem-solving capabilities and thinking. Researcher found that artificial intelligence improves business operational efficiency through sound decision-making, automation, and knowledge management. Businesses become competitive through artificial intelligence.

• Agarwal et. al. (2018) examined the managerial and economical aspect of artificial intelligence. Researchers found that artificial intelligence reduces the cost of prediction and assists businesses for better decision making. This also helps to get better efficiency and more competitiveness. .

• Dwivedi et. al. (2021) studied the opportunities and challenges of artificial intelligence in businesses. Researchers found that artificial intelligence improves businesses' efficiency, strategic decision-making, and customer engagement. There are many challenges also in front of businesses for the adoption of artificial intelligence, like dependency on technology, data privacy issues, and ethical issues.

• Grover and Dwivedi (2022) studied the relationship between artificial intelligence and business value creation. They found that business performance improved by using artificial intelligence through strategic decision-making and adopting innovation, and also found that successful implementation of artificial intelligence in business, employee willingness, technological infrastructure, and institutional support are the most influential factors.

• Perifanis and Kitsios (2023) analyzed the effect of AI on the strategic efficiency and competitiveness of businesses. Researchers found that AI improves business strategic planning, customer satisfaction, market share, and organizational innovation, and results in competitive advantages.

• Taneja (2024) studied the contribution of AI to the operational efficiency of business. The researcher found that AI facilitates business organizations in the predictions and analysis of huge data, detection of fraud, risk management, enhance the productivity of employees, improve the decision-making process, providing better services to customers, analysis of competitors' strategies, design the product to meet the expectations of consumers, inventory management, provide training to employees, reduction in human error, automation in various tasks like managing the social media posts, emails, provide customers services for 24/7 and solve the customers' queries. AI enhances efficiency in business operations and facilitates the economic and industrial development of the nation.

By reviewing the literature, it is identified that artificial intelligence now feels like a tool for business, which assists and helps them. In a way, it boosts business competitiveness and also operational efficiency, more or less. It even supports innovation and customer satisfaction indirectly, sort of, but not always in a straight line. Most researchers tend to agree that artificial intelligence strengthens productivity and assists with decision-making. There are many obstacles, also. Literature concludes that businesses that adopt AI techniques intentionally are more likely to be flexible and growing.

Research Gap The previous literature analyzed the correlation between artificial intelligence and business efficiency. Most studies indicate some benefits like automation, strategic decision making, economic activities, increased productivity, innovation, customer satisfaction, and some part of challenges. But not cover the other beneficial aspects and challenges related to the adoption of artificial intelligence. So, there is a need for a more comprehensive study to know how artificial intelligence provides a competitive advantage to business organizations and challenges are facing by them to adopt the artificial intelligence. So, the present study tries to contribute to finding out the importance and challenges of adopting Artificial Intelligence for Enhancing Business Competitiveness.

Statement of Problem:

AI is a very important tool for improving business competitiveness by increasing operational efficiency, reducing operational costs, improving customer experience, proper management of human resources, better sales forecasting, and predictive analysis. In spite of the benefits, there are many challenges that organizations face, such as cyber security issues, less awareness about how to work with artificial intelligence techniques, data privacy issues, and ethical and legal issues. Because of these challenges, organizations avoid adopting artificial intelligence with full potential. So, there is a requirement to examine the importance along with the challenges faced by business organizations in adopting artificial intelligence to enhance their competitiveness by reviewing existing literature.

Objectives of the Study:

The main aim of this paper is to analyze the importance and challenges of adopting artificial intelligence for Enhancing Business Competitiveness.

Specific Objectives

1. To study the concept of the importance of artificial intelligence in businesses.
2. To identify the challenges associated with artificial intelligence adoption in businesses.
3. Research Methodology: Research Design The present study is descriptive in nature. Here, the study attempts to analyze the importance and challenges of adopting artificial intelligence for enhancing business

competitiveness by reviewing available literature and using other published information. For this study, data is collected from secondary sources like research papers published in national and international research journals, articles, reports, and websites.

Importance of Artificial Intelligence in Enhancing Business Competitiveness:

Artificial intelligence is becoming the most adopted technological advancement to make businesses more competitive. Worldwide business organizations are adopting artificial intelligence speedily to increase their efficiency and productivity, improve customer satisfaction, manage human resources, and improve decision-making. In a competitive world, organizations can survive in the long term by adopting innovation. AI is also an innovative tool that provides many benefits to become competitive at the national and international levels. Benefits of using artificial intelligence in businesses can be explained through the following points.

Business Operations 'Automation:

Artificial intelligence replaces the boring and repetitive work which usually done in organizations. Machines do more work smoothly with fewer people. Machines conceive data, check the inventory, match customers' needs through invoices, and make qualitative products according to their requirements. No supervision is required to do all these activities. With less effort, more output is achieved with fewer mistakes. Machines with automotive programs manage the routine work of offices, such as administrative tasks and paperwork, in less time. So, people have more time to prepare strategic plans to achieve the objective of the firm.

Better Marketing Strategies:

Business organizations can better understand the choices and demands of customers with the use of AI. Artificial intelligence assists organizations in media marketing and online marketing. Through this, businesses can easily identify the customers' demand and make a strong hold on them. AI helps to get customers engaged and increase sales due to provide right product to them. Businesses become more competitive than others and are able to make better marketing plans.

Better Decision-Making:

Artificial intelligence assists the organization's management in choosing the best option from the various alternatives. AI includes predictive analytics and machine learning algorithms which sort the difficult and complex data. It also helps in sales forecasting, analyse the market trends, measurement of customer behavior and manage the risk of uncertainty and provide guidance them in good decision making and strategic planning. It all helps to the businesses more competitive in market with taking good decision on time.

Business Forecasting and Predictive Analysis:

Artificial Intelligence helps to businesses to predict their customers' demand through predictive analytics. AI systems collaborate with past and current information and try to find the directions and trends of sales, the requirements of production, and the need to expand the market. And predictions are close to the actual demand, then organizations can manage the uncertainty smoothly Organizations become able to get incoming opportunities effectively.

Optimum Utilization of Resources and Cost Reduction:

Artificial intelligence assists to organizations reduce operational costs and use their resources more effectively. Costs associated with labor can be reduced through automation, and routine work can be done smoothly. AI also helps in inventory management, smooth supply chain management, and proper production processes with less fuel and energy consumption. With the help of AI, maintenance of machines and equipment can be done easily. So, maintenance costs can be reduced and stop redundancy wastage. Due to a reduction in cost and less wastage, the profitability of organizations is going to be higher, and they become more competitive.

Data Analytics Provides Competitive Advantage:

Nowadays, data has become the most valuable asset for any business. AI assists organizations in collecting, sorting, analyzing, and interpreting large amount of data speedily and precisely. AI-driven firms can easily analyze their customers' behavior and market situations and prepare competitive strategies. If the organizations use data analytics properly and correctly, then they can do their business operations smoothly, pay attention to customers, and fulfill their demands on time and become more competitive.

Digital Transformation and Global Competitiveness:

Artificial intelligence is an important tool for digital transformation in business organizations to become more efficient, advanced, and competitive with the help of AI technologies. Artificial intelligence also assists businesses in creating business models and implement properly, which strengthens the organization's performance and profitability. At the global level, organizations can also be more competitive by becoming more innovative and providing more satisfaction to customers. So, AI-driven organizations become more competitive and profitable at the national and global levels.

Improvement of Customer Experience:

Customer satisfaction is the backbone of any business's survival. AI assists businesses in providing individualized services to customers and improving customer experience. Chatbots and virtual assistants provide customer support 24/7 and handle customers' queries more effectively. Recommendation engines of Ecommerce businesses also provide data on customer preferences and past purchase records, which helps to give better services to customers.

Product Development and Innovation:

Innovation is necessary for the long-term survival of any business. AI sustains innovation, which can assist organizations in identifying market trends, understanding customers' preferences and capturing incoming opportunities. By identifying customers' needs and market trends, organizations can easily know how to provide new and better products and services to customers.

Management to Human Resources:

AI is also used increasingly in the routine work of businesses like hiring new workers and employees, providing training to employees, analyzing their job performance, and planning accordingly for the requirements of human resources. AI assists organizations in selecting the right person for the right job. AI also helps to employees to acquire the skills through online training classes. After getting the training, employees perform their work effectively. So, organizations become more competitive with the help of Artificial intelligence.

Supply Chain and Inventory Management:

Artificial intelligence actually helps organizations how to manage inventory and its supply chain. With the help of AI businesses forecast the demand of customers and market conditions. So, they make proper arrangement of stock accordingly and prepare the suitable logistics which provide the right products and services to the customer on right place without any delay. Due to proper management of supply chain and logistics, delivery and transportation costs are also reduced. In the speedily changing demands of customers also fulfill properly with the help of AI.

Fraud Detection and Risk Management:

Artificial intelligence really works to detect fraud and manage business risk on time. An artificial intelligence system looks at all the transactions of a business and provides information about prospective risks. Mostly, the banks and financial institutions use Artificial intelligence to detect financial fraud and resolve matters of cyber attacks. To be safe from cyber attacks, organizations can reduce their financial losses. They can be able to manage their financial risks on time and become more stable.

Strategic Significance of AI in Business Competitiveness:

Nowadays, in a fast-changing business environment, organizations feel that they do nothing without artificial intelligence. Because if organizations want to be competitive, they have to change with time and adopt innovation. AI technologies such as robotics, automation, machine learning, and predictive analytics are very useful for businesses to make forecasts about the market and customer preferences, optimize resource use, detect fraud, and manage risk. This all helps to businesses to become more competitive.

Challenges of Artificial Intelligence Adoption in Enhancing Business Competitiveness:

Even so, organizations gain much from AI - faster work, fresh ideas, better output, stronger market position - yet hurdles pop up during adoption and rollout. Still, progress isn’t automatic once systems go live. Every step forward brings new challenges behind closed doors. Not every tool fits smoothly into old routines. Spending cash comes first when a company brings in artificial intelligence. The main challenges of using artificial intelligence in front of business organizations are discussed through the following points:

High Cost of Deployment and Maintenance:

At the beginning, organizations have to spend a lot of money because they need computers, safe internet connections, and a lot of storage for information. Always need to update things as we need to hire experts, and the cost of using cloud services keeps going up. Organizations have to protect themselves from bad people on the internet. All these become a big problem that most people are not prepared for. Big organizations can usually pay for intelligence software. Smaller stores cannot afford it. Organizations have to update things to train people, and computers need to be improved. The costs add up slowly, and this burden stops a lot of teams from getting started with artificial intelligence software.

Shortage of Skilled Workforce and Technical Experts:

Workers have to know about coding, machine learning, data analysis, programming languages, etc., to work with AI. Organizations have a shortage of a skilled workforce who know how to operate these techniques. And firms are not able to use AI properly. Organizations are also facing challenges in training employees to use the AI techniques. So, organizations have to work on the proper implementation of AI in their operations by using a skilled workforce.

Threats of Data Privacy and Security:

Artificial intelligence requires a huge amount of data to make proper decisions. Data related to the customers, such as their income, expenditure level, daily routine work, and many more aspects of their personal information. So, there is a matter of concern for the customers that the information used by organizations can be used to steal their personal information without their consent.

Legal and Ethical Issues:

Decisions come from AI through coded rules. Not every rule shows how it works, nor treats everyone the same. So, it creates a problem for the organizations. Bias sometimes hides inside artificial intelligence systems, shaping outcomes without warning. Unfair treatment creeps in when those patterns go unchecked. Customer support isn't immune either - small slants show up there, quiet but clear. Decisions made by artificial intelligence sometimes led to trouble. Fears pop up when machines watch people without permission. Wrong hands grabbing data cause trouble too. It starts with clear guidelines, so organizations handle artificial intelligence responsibly.

Oppose Technological Change by Employees and Managers:

Sometimes employees and managers oppose the technological changes due to fear of layoffs, and they are not very aware of technology and how to use AI. So, organizations also do not wish to change. They worry that it might not work well. They think it might disrupt how things are done now. Both employees and managers opposing change slow down the organization's progress. Due to the unfavorable approach of organizations towards the usage of artificial intelligence, make them less competitive in the market.

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Fear of Layoffs and Unemployment:

Artificial intelligence and automation can do a lot of tasks that people used to do. These tasks are often routine and repetitive. When organizations start using automation, people who work there might worry that they will lose their jobs. Some industries like manufacturing, banking, customer support, logistics, and retail are using automation more and more. They want to work and spend less money on labor. Even though artificial intelligence creates jobs for people who are good with technology, many workers do not have the skills they need to keep up with the changes. This can cause a lot of stress and anxiety for people who are worried about losing their jobs.

Cyber security Issues:

When organizations use tools like artificial intelligence, they also open themselves up to online attacks. Because these digital tools do jobs, bad people might try to attack them to get private information or change things around, or even stop digital services without telling anyone. As digital technology gets better, the danger from attacks gets worse. It is harder to see the problems until it is too late. If someone hacks into an algorithm, the algorithm might not work the way it is supposed to. This can happen when attackers find a spot and get in. If there is a breach, the breach can cause a lot of problems, and people might lose trust in the company and their money.

Problem to Measure Profitability:

Some organizations are not sure what benefit they will get from artificial intelligence. It may take some time to see the progress, so it can be hard to notice the results from intelligence at first. Just because organizations spend a lot of money on intelligence does not mean they will see good results right away from artificial intelligence. One reason why organizations are not sure about artificial intelligence is that they are not sure if artificial intelligence really helps them do more work or make more money from artificial intelligence. When it is not clear if artificial intelligence is really helping, organizations tend to stop moving forward with artificial intelligence.

Challenges of Regulatory and Compliance:

Worldwide, rules and regulations are framed regarding the usage of artificial intelligence and the protection of personal data of people and online safety. Organizations that use artificial intelligence need to follow the rules. But when they use it to start the work on artificial intelligence, the rules are changing all the time, which causes a lot of confusion and extra costs for organizations to keep up with artificial intelligence. When organizations do business in countries, they have to deal with different laws in each place, which makes it harder to use artificial intelligence.

Lack of Awareness among Small Businesses:

Small businesses have limited money to spend, so starting to use intelligence feels like it is too expensive. So, even in the initial stage, they resist using artificial intelligence in their operations due to fewer funds and less AI technological awareness. Small organizations often struggle to keep up with organizations that use the latest technology. If they do not get any help, they will fall behind. Help from government agencies can make a difference. Workshops that teach people about tools are very important and can open up new opportunities. If small businesses do not take these steps, they will not be able to make progress with intelligence.

Rapid Technological Changes:

Quick changes in artificial intelligence force firms to adapt fast. Because tools keep changing, updates must happen all the time - old fixes from long ago won't hold up now. Skills rise steadily when humans learn more, right alongside smart machines. Falling behind shrinks once learning matches how fast new tech arrives. Without a sound, everything stops - the device just gives out. What appears right after suddenly matters more than before. Keeping going means spending more, yet what you get remains unclear. Something feeling right today might feel off tomorrow, perhaps when seasons change. Humans fall short - their grasp weakens as machines speed ahead.

Conclusion:

Nowadays, artificial intelligence has become a very significant tool for business organizations to increase their efficiency and competitiveness. Organizations can survive for the long term on the basis of continuous research and development and by adopting innovations. Because innovation helps to organizations to enhance their performance, maintain better customer relationships and experience, and face the competition easily. Artificial intelligence is one of the innovative technologies that help to organizations to be more competitive. .

Along with the benefits of adoption artificial intelligence in business operations, there are many challenges also like high cost of deployment and maintenance, shortage of skilled workforce, and technical expert, threats of data privacy and security, ethical and legal issues, oppose by employees and managers to technical changes, fear of layoff among employees, issues of cyber security, rapid technological changes, lack of awareness among the small businesses and regulatory issues. Small firms have less experience and funds to adopt artificial intelligence properly.

So, they cannot get the full benefit of artificial intelligence and are less competitive than large business organizations. So, customers' response is different towards the firms that use AI. This study concludes that artificial intelligence is a technology that provides a platform for firms to change the way they work, change the administrative structure, and stay sustainable. Organizations that change with time, become more innovative, adopt the technologies quickly, and use artificial intelligence properly over its challenges become more profitable, successful, and competitive.

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