Deployment of AI and robotics technology in business is helping organizations in attracting new customers and expanding their operations globally.

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Abstract

The deployment of artificial intelligence (AI) and robotics in businesses is revolutionizing how organizations, providing significant advantages in attracting new customers and expanding operations on a global scale. These technologies not only help businesses in analyzing big data to understand consumer behavior but also help them in enhancing customer engagement, streamlines production processes, improves efficiency, and reduces operational costs. Together, these technologies boost innovation and offers new opportunities for growth in international markets as well. As many organizations are likely to integrate AI and robotics in their businesses through various chains, they are going to achieve greater competitiveness and scalability in an increasingly digital and interconnected world..

Keywords: Artificial intelligence, robotics, automation, customer, Employees, Organization, productivity etc.

1. Introduction

Today, we continuously talk about AI, robotics and it's consequences on our society. Some are against the usage of such technologies and some are in favor especially the business community. But in real sense, we cannot deny the truth that in coming times, it will dominate the society especially humans.But on other sides, it will give competitiveadvantage to business organization in both domesticand international market. With the deployment of such technologies in business, not only productivity will increase butalso errorfree operations will be run which results new business opportunities globally.

2. Historical Background

The history of artificial intelligence (AI) spans several decades and is marked by periods of innovation, challenges, and significant breakthroughs.The conceptual foundations of AI were laid during this period. British mathematician and logician **Alan Turing** proposed the idea of machines simulating human intelligence in his 1950 paper "Computing koMachinery and Intelligence." He introduced the Turing Test as a measure of a machine's capability to exhibit intelligent behavior.Since the digital computer came into existence in 1940s, by the time through continues research and study, it came to know that computers can be programmed to perform complex tasks with more accuracy and speed. Despite continuous advances in computer processing speed and memory capacity, there are yet no any program designed that can match human flexibility over large domains or in tasks. On the other hand, some programs have matched the performance levels of human experts.

3. New technologies

3.1 Artificial intelligence

It is a kind of technology that enables computes and machines to mimic like humans whichposses human intelligence and problem solving capabilities. The term artificial intelligence is basically applied to the project of developing systems which is inbuilt with the intellectual processes characteristic of humans, such

as the ability to see, understand, discover meaning, generalize, or learn from past experience.Alan Turing was the first person who conducted research in the field called machine intelligence. AI was founded as an academic discipline by **John McCarthy, Marvin Minksy, Nathaniel Rochester,** and **Claude Shannon**. In 21stcentury, the use of AI has been increased rapidly and is influencing automation, data-driven decision-making, and the integration of AI systems into various economic sectors and areas of life, impacting job markets, healthcare, government, industry, education etc.

3.2 Robotics

It is a comprehensive concept that includes mechanical engineering, design and programming. These machines are in direct contact with the physical world and have been used instead of humans to perform monotonous and repetitive tasks. This means that certain parts of the process or the entire process are carried out without human intervention. Robots canbe classified according to their size, application or purpose. Historically robots have existed since ancient times. During the Industrial Revolution, man developed the engineer's ability to control electricity so that machines could be powered by small motors. In the early 20th century, the concept of a humanoid machine was developed. The first uses of modern robots were industrialrobots in factories. Theseindustrial robots were stationary machines that could perform tasks that allowed production with less human labor. Digitally programmed industrial robots equipped with artificial intelligence have been built since the 21st century.

4. AI led business areas

Many industries have already started using AI business modeland switching from traditional business model to AI business modelwhich is driven by advancement in technology, Government support and to gain competitive advantage in such AI dominating world. Here are some of the key aspects of AI led business model that is being run in India in different sectors.

4.1 The following table presents the AI's role in different sectors, highlighting the key applications that are being used and companies that are using these AI led applications.

Sector	AI Applications	Example Companies
Retail	Personalized recommendations, Inventory management, Customer service Chatbots	Flipkart, Amazon India
Healthcare	Early disease detection, Medical imaging, Diagnostics, Personalized treatment plans	Niramai, SigTuple
Finance & Banking	Fraud detection, Risk management, AI-driven Chatbots, Credit risk prediction	HDFC, ICICI
Agriculture	Precision farming, Crop health monitoring, supply chain management, Weather analysis	CropIn, Intello Labs
Manufacturing	Predictive maintenance, Quality control, Supply chain optimization	Various industrial companies
Education	Personalized learning, Adaptive assessments, Student progress tracking	BYJU'S, Vedantu
Transportation & Logistics	Route optimization, fleet management, last-mile delivery efficiency	Delhivery, Rivigo
Energy	Smart grid management, predictive maintenance, energy distribution optimization	Various energy firms

Table 4.1 AI's role in different sectors

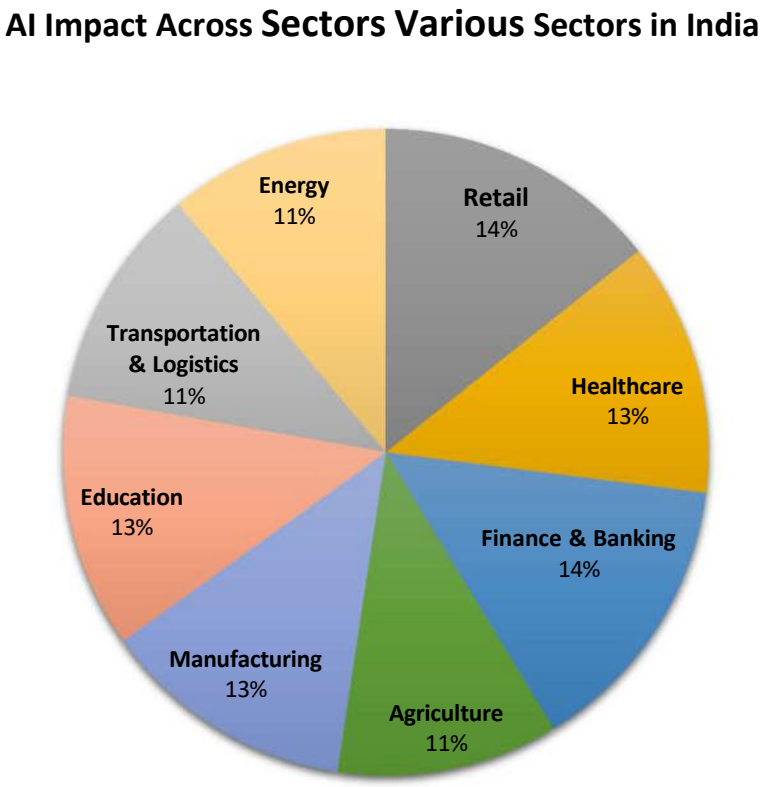

Figure 4.2 Sector-wise AI Impact

Here is the pie chart representing AI's impact across various sectors in India. Each sector's share is based on its relative impact level. Let me know if you need any adjustments or a different visualization!

Several Indian companies like TCS, Infosys, Wipro, Reliance, HDFC Bank, Flipkart, Zomato, Lenskart, etc. have already successfully deployed AI in their business operations, which results in increasing efficiency, improving productivity, rapid growth, innovation, and expansion of business globally. Here are some notable examples:

4.2 Here is a pie chart representing the benefits companies are gaining from AI technology. It represents the key advantages such as operational efficiency, customer experience enhancement, risk management, supply chain optimization, and personalization..

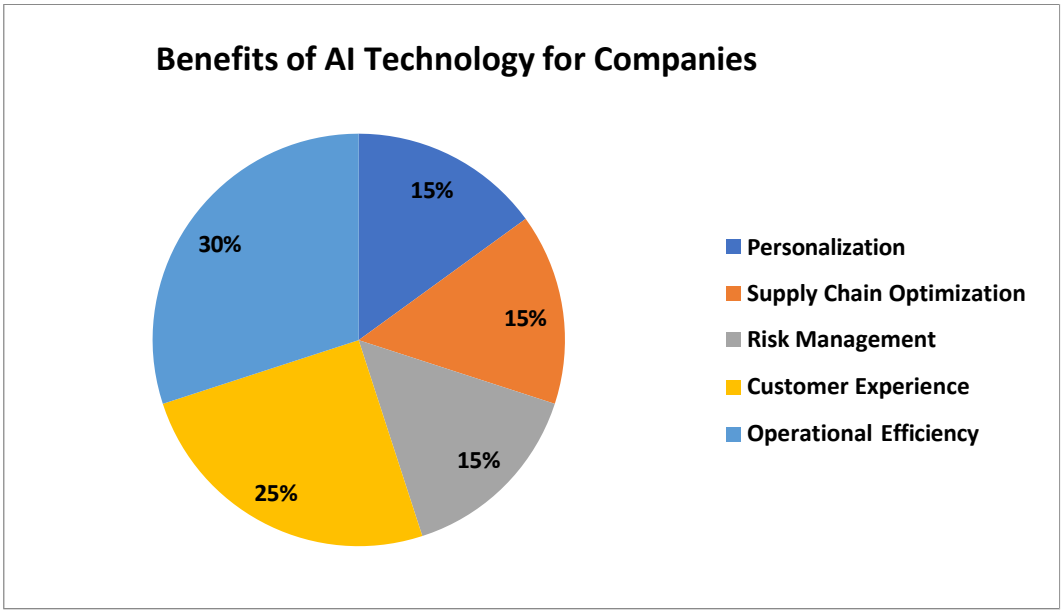

Figure 4.2 Benefits of AI Technology

5. Survey Analysis: AI's Business Impact

We have conducted a survey among 142 employees working in various industries like information technology, banking, education, retail, etc. In this section, the socio-demographic characteristics, viz., gender of the respondents, are presented.

5.1 Gender

Gender	No. of Respondents	%
Male	89	62.68
Female	53	37.32
Total	142	100.00

Table 5.1 Gender-wise Distribution of the Respondents

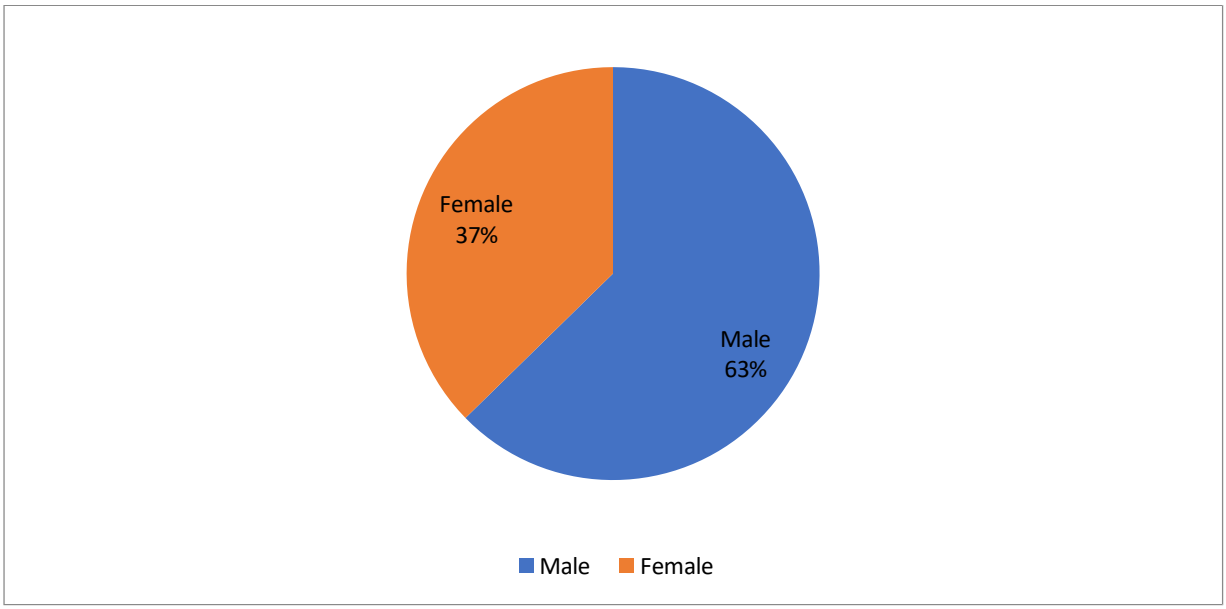

Figure 5.1 Gender-wise Distribution of the Respondents

As indicated in Table 5.1 and Figure 5.1, there were majority of the male respondents in the sample. 89 (62.68%) male employees and 53 (37.32%) female respondents were included in the sample.

5.2 Competitive Advantages of AI

We have also made enquiry to know the areas in which AI is offering a competitive advantage to their firms in the domestic and international markets. So, a choice of six functional areas where AI is used are provided to respondents and they were asked to mark the most prominent functional area where their firms are leveraging the competitive advantage of IT in both domestic and international markets. The results are presented below:

Competitive Advantages of AI to the firms	No. of Respondents	%
• Helps in offering innovative product and services	91	64.08
• Provides Timely and Error Free Services	27	19.01
• Helps in Building Client Trust	10	7.04
• Low Cost of Production	4	2.82
• Reduces dependency on human	6	4.23
• Other	4	2.82
Total	**142**	**100.00**

Table 5.2 Competitive Advantages of AT to the Firms

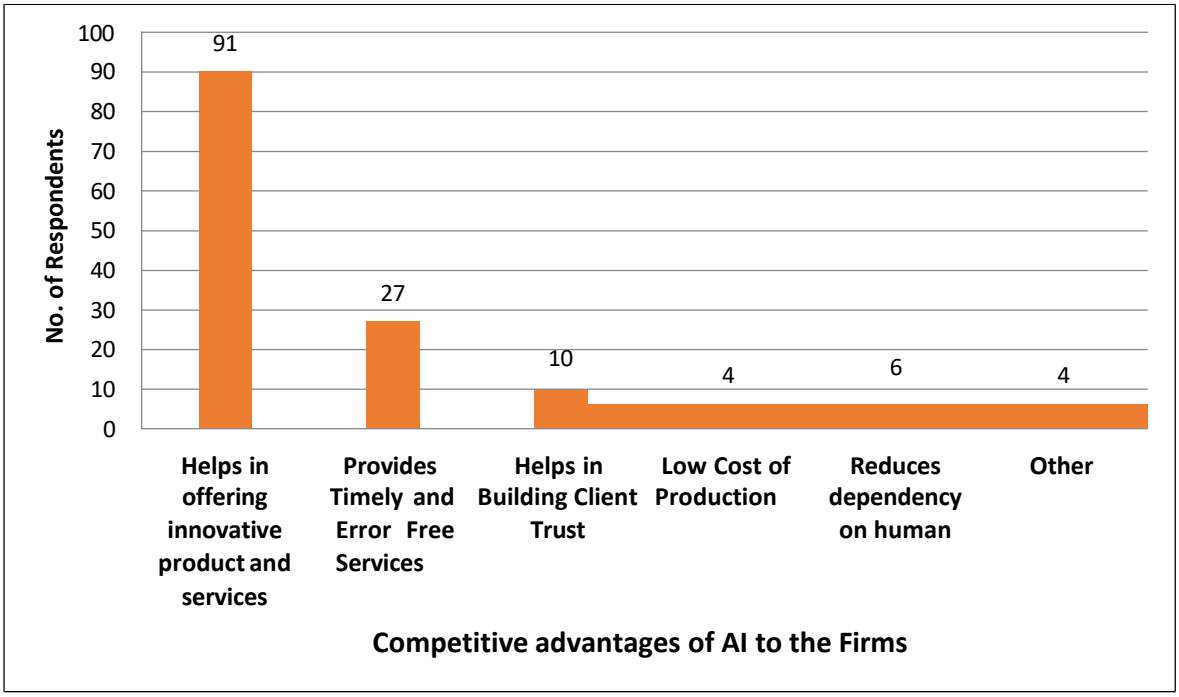

Figure 5.2 Competitive Advantages of AT to the Firms

6. Benefits of Using AI

The benefits of AI to the industries were studied by asking a question to the employees – 'How does AI help employees in their working environment? The responded were provided by five choices as mentioned in Table 6.1 Further the respondents were requested to select the most important benefit of implementation of AI to their respective organizations. The responses are summarized in Table 6.1.

Benefits of AI	Frequency	%
• Reduces complexities in task	23	16.20
• Saves time	81	57.04
• Increases productivity	23	16.20
• Increases accuracy in work	14	9.86
• Other	1	0.70
Total	142	100.00

Table 6.1 Benefits of AI

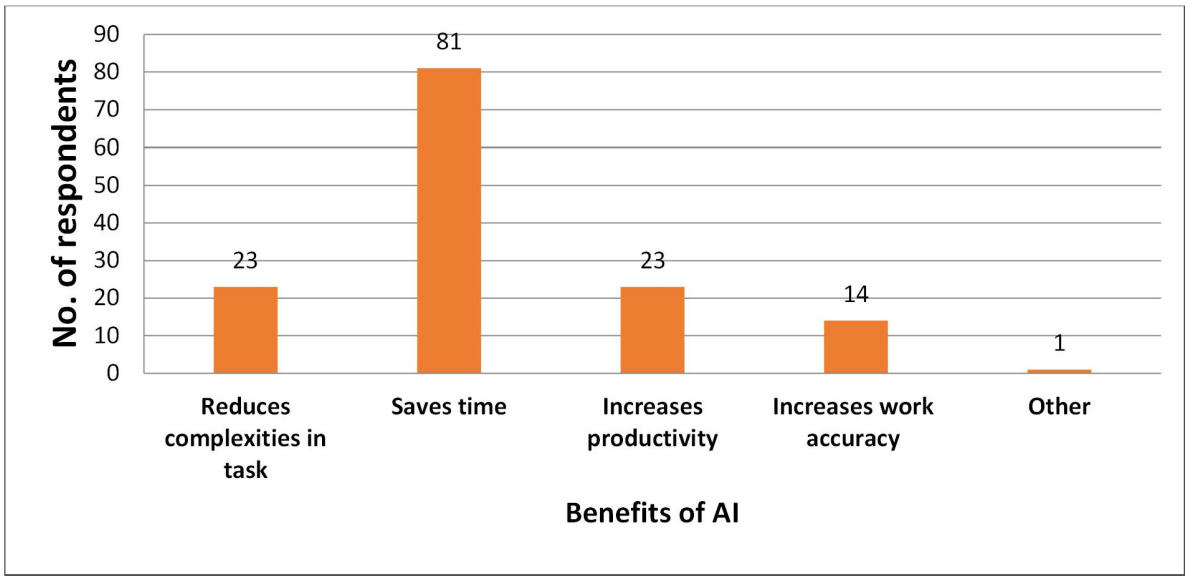

Figure 6.1 Benefits of AI

7. Challenges and Future Outlook

With the rapid developments in AI technologies also creating various challenges like data privacy, lack of AI-supported infrastructure, and shortage of skilled workforce, these needs must be addressed and worked on to support the AI-led business model.

If we talk about the future, despite all the challenges due to continuous advancements in technology and supportive government policies, the future of AI-led businesses looks promising in India. Businesses across sectors are expected to increasingly leverage AI to drive growth, innovation, and competitive advantage.

8. Conclusion

Today, AI technologies are transforming industries in many ways in terms of enhancing their efficiency, improving customer experiences, and boosting innovation. Due to continuous advancement in AI technology, its role in shaping the future business landscape will become even more important, and the organizations need to be prepared for AI-driven transformations while addressing associated challenges to remain competitive in the global market.

https://analyticsindiamag.com/it-services/how-indian-it-partnered-with-ai-startups-in-2024/

https://www.businesstoday.in/technology/news/story/nvidia-to-supply-ai-processors-to-indian-companies-including-reliance-industries-451485-2024-10-25

https://www.scalefocus.com/blog/industries-using-ai-a-comprehensive-guide?utm_source=chatgpt.com

https://unicsoft.com/blog/from-healthcare-to-finance-top-11-applications-of-ai-in-business/?utm_source=chatgpt.com

https://www.reuters.com/sustainability/land-use-biodiversity/comment-how-empowering-smallholder-farmers-with-ai-tools-can-bolster-global-food-2025-01-10/?utm_source=chatgpt.com

https://www.capitalnumbers.com/blog/ai-in-2025-healthcare-finance-retail/?utm_source=chatgpt.com

https://www.leewayhertz.com/ai-use-cases-and-applications/?utm_source=chatgpt.com

https://litslink.com/blog/ai-use-cases-and-applications-across-major-industries?utm_source=chatgpt.com

https://www.researchgate.net/publication/385207676_Applications_of_deep_learning_in_healthcare_finance_agriculture_retail_energy_manufacturing_and_transportation_A_review

https://analyticsindiamag.com/it-services/tcs-ignio-infosys-nia-wipro-holmes-automation-platforms-india/?utm_source=chatgpt.com

https://www.reuters.com/world/india/indias-reliance-industries-consider-bonus-shares-shareholders-2024-08-29/?utm_source=chatgpt.com

https://emerj.com/ai-applications-in-the-top-4-indian-banks/?utm_source=chatgpt.com

https://www.icicibank.com/personal-banking/ipalchatbot?utm_source=chatgpt.com