

**Role and Application of Artificial Intelligence in Business**

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**Abstract**

Artificial intelligence (AI) refers to the simulation of human intelligence in machines. Artificial Intelligence technology has led to creation of AI tools that mimic human intelligence. These machines/AI tools have the capability of performing the tasks that depend upon and are associated with human cognitive skills, like, learning and logical reasoning. AI is impacting all spheres of our lives. It has reshaped the arena of business as well, and is being used by organizations for data analytics, automation, pattern recognition, decision making and content creation. Different areas of business, be it marketing, customer service, production or human resources, can use AI to improve operations and productivity. The present paper provides an overview of the role and application of AI in business organizations.

*Keywords:* Artificial Intelligence, Business, Generative AI, AI applications.

**Introduction**

Artificial intelligence refers to a process of simulation of human intelligence in machines. Artificial Intelligence is the domain of computer science that creates systems which can mimic human intelligence and are capable of solving problems. Artificial intelligence is capable of analyzing and processing large amounts of data (big data) at a very fast rate. The AI machines/ tools have the capability to perform the task that usually requires

human cognitive skills. Machine learning, Deep learning, Generative AI, Computer Vision and Natural Language Processing are some of the important trends in the arena of artificial intelligence. ” Machine learning is a subfield of artificial intelligence that uses algorithms trained on data sets to create models that enable machines to perform tasks that would otherwise only be possible for humans, such as categorizing images, analyzing data, or predicting price fluctuations

(coursera.org)". These models can classify information and can also predict outcomes. Deep learning is a type of machine learning which is based on artificial neural networks (interactions somewhat similar to neurons in human brain) which process the data and try to identify some complex features of the data and make inferences, learn whether those inferences are correct and apply what is learnt in the new data sets. Generative AI is an AI model which can generate content in the form of text, images, audio on provision of some inputs in the form of prompts. Chat GPT and GitHub Copilot are examples of the tools based on Generative AI. These tools are capable of writing computer codes, blogs or articles and are also capable of creating designs. Computer Vision is a sub part of AI which enables computers to recognize and interpret observed inputs in the form of images and videos. Computer vision tries to replicate the human vision but the inputs come through cameras and algorithms. Natural language processing is an AI based technology which makes it possible for computer systems to understand and interpret text and speech.

AI tools and applications have impacted almost all spheres of our lives, AI based assistants like Siri and Alexa have become a part of many households.

### **Objectives of the Study**

- To study and understand how AI can be applied in business to improve operations.
- To study the challenges in adoption of AI in Business

### **Applications of AI in various fields of Business**

The AI revolution has reshaped the arena of business as well and is being used by organizations in areas such as Data Analytics, Automation, Decision Making, Pattern Recognition, Content Creation etc. AI has a vast potential to revolutionize various industries like Healthcare, Banking and Finance, Education, Customer Service and Supply Chain & Logistics. Different areas of business like, marketing, customer service, production, human resources are all depending on AI to improve operations and productivity. Some of these applications are discussed below:

#### *Production*

- Solving problems arising during production process:

AI is being used to identify patterns in problems that arise during production processes. The system matches the problem arising in the real time with solutions used in the past for similar issues.

- Creation of Intelligent products.
- Use of sensors in the products is based upon AI technology, for example self-opening and closing doors, sensor powered taps, obstacle indication by the cars when they are backed, baby diapers with moisture sensors.
- Speech recognition in car stereos and home appliances is also AI technology application.
- Producing customized shoes using foot scanning applications too is AI based.

#### *Human Resources*

- Training and Development

AI can be used to study the skills and traits of best performers in the organization and the same skills can be incorporated in the employee development programs.

AI-based data analytics may be used to find skill gaps by analyzing an employee's

performance, goals, and interests. Based on this data, specialized training programs can be created.

- Recruitment

Automatic screening of applicants based on pre-decided criteria like qualification, experience, skills etc. is possible with the use of AI. This saves time and effort

- Job Applicants facilitation

On the career page of the organization, AI can be used to match the applicant skills with the eligible job positions and recommendations can be made. Further AI can also provide interactive guidance for making applications for the job.

- Content Creation for Interviews

AI tools like chat GPT can be used to generate interview questions by providing data related to the job description and skills required.

- Automation of HR processes

Various HR processes like payrolls, incentive management, attendance records,

and performance reviews can be managed more effectively using AI algorithms.

### *Marketing:*

The purpose of marketing is to fulfill the needs of the customer by providing them suitable products and services. AI can play a vital role in better understanding the customer needs, preferences and behavior through data analytics and pattern identification

- **Optimal Market Segmentation**

Use of AI can help in more optimal market segmentation by segregating the customer on the basis of demographics, behavior, interests and preferences. More precise segmentation ensures that suitable products for each segment are created and are promoted to the right audience. Using predictive analytics marketers can get an idea as to what products or services will be appealing to which group of customers.

- **Targeted Advertisement**

On the basis of browsing history, AI can pick the specific products that match with the customer needs and these can be flashed as advertisements for persuasion of the potential buyer. AI based chat bots can also be popped up for interactive navigation of

the web page. This helps in more effective engagement of the prospective customer.

- **Personalized Promotions**

AI can generate personalized marketing and social media content.

- **Analyzing Customer feedback**

AI can also be used to analyze customer feedback and meaningful information can be extracted through this analysis.

- **Optimizing Marketing Strategies**

Based on the past customer data and product sales records, AI can be used to make predictions for the future markets and accordingly more effective strategies can be evolved. Predictive analytics also help in identifying opportunities for cross selling.

### *Sales*

- **Predictive Sales Forecasting**

AI can provide more reliable sales forecast as it can handle huge data and analyze more effectively through advanced analytics.

- **Lead Prioritization and Lead Scoring**

Artificial intelligence through machine learning can handle and analyze large data sets of sales leads and create a score for each lead (based on salesforce interaction

with customer, emails sent by customer, past buying behavior of the customer etc.).

It can figure out by analyzing the lead scores as to which leads have a potential of being converted into actual sales and can recommend the leads that need to be prioritized.

- Real Time Support to Sales Representatives

AI can be helpful to make recommendations to the sales representatives regarding pricing and negotiation or indicate when to persuade for an upsell or offer a cross sell.

#### *Finance*

- Using AI prediction models, historical market data and economic trends can be analyzed for more accurate forecasting, budgeting and resource allocation.
- AI powered analysis can be carried out to identify suspicious financial transactions in real time.
- AI based on computer algorithms can guide better Stock trading decisions.

#### *Supply Chain and Logistics*

- Inventory Management

AI based cameras and other equipment can be used to collect real time inventory data. Based on real time as well as historical data, AI can also provide predictions regarding potential inventory shortages and over stocking. All this information can be used for optimization of inventory and proper inventory management

- Warehouse Automation and Management

Robots powered with artificial intelligence can sort, segregate, pack and label packages (based on parameters like weight and dimensions), thus leading to quick order fulfillment. Faulty and damaged stock too can be identified. AI provides real time data, which provides insight about the pattern of demand that helps in proper and convenient placement of stock in the warehouse and ensures easy accessibility of fast-moving stock and increases the efficiency of workers as well.

- Supplier Selection

Artificial intelligence tools can rank the potential suppliers by analyzing the data

related to their past performance and reliability, their pricing and quality. This helps in making an informed decision.

- Transportation

AI can provide information about the best route for shipment, based on real time data. This can save time and ensure timely delivery and lead to cost effectiveness.

*Enhanced Customer Experience*

AI customer experience refers to the use of chat bots, voice assistants and other AI powered technologies to provide a seamless experience and improve efficiency at all stages of customer interaction.

- Virtual Assistants are available 24/7
- AI agents can provide effective after sales service and can send updates regarding deliveries. They can be used for fixing appointments as well.
- AI can not only understand words, but can also assess the tone of the customers, and if it is interpreted to be agitated or upsetting, AI can reroute the customer to a human respondent.

- AI can be used to analyze customer feedback based on sentiment analysis and corrective actions may be taken wherever required. Similarly, sentiments depicted by social media posts of customers can also be analyzed to get insights about customers' sentiments and if negative sentiments are revealed, the marketing tactics may be altered and made more appealing for the customers.

**Challenges in AI Adoption**

Though artificial intelligence has its applicability in various spheres of business, and can provide value addition in form of better decision making and better customer service experience, yet there are a number of challenges which organizations have to tackle in order to incorporate AI in the business. Some of these challenges are discussed below

- Organizations are grappling with the issue of acquiring and developing required AI skilled professionals as even the basic task automation AI needs to configure workflows and needs appropriate talent.
- Integration of artificial intelligence in business processes is also a challenge.

When human and AI based machines work together, coordination and inter-communication issues arise, that needs to be tackled. For example, if Chat bots that are not capable enough are used, that may irritate customers rather than improving the overall experience.

- It's easier for organizations to introduce AI based systems on their own platforms but they may find it challenging to incorporate AI into third party platforms like Amazon or e bay, where these organizations may be selling their products.
- Customers have data privacy and security issues and may not be comfortable in providing access to their location, camera or speakers while using any AI tool. Organizations need to be transparent and need to create trust among the customers and encourage them to share their data. The organizations also need to ensure compliance with data privacy and security legislations.
- Another important challenge is to deal with resistance from employees, many of whom feel that AI might replace humans. The

employees need to be convinced the technology only helps in increasing the efficiency and complement the human skill and does not replace them.

- AI systems need to be trained on organizational data. For this purpose, the organizations need sound and well-developed information systems. The effectiveness of AI depends on the quality of data input provided, and further the data needs to be updated overtime.
- The adoption of AI is an expensive proposition and requires investment in hardware, software, training of human resources, collection and updating of data.

### **Conclusion**

Artificial Intelligence with the use of real time data has a potential to provide predictive insights that can help business operations. It can lead to operational efficiencies and improved customer experience. AI is the future, though it's in its nascent stage and will take time before it's fully adopted by the business organizations.

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