

Artificial Intelligence in Business

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Abstract - Today's business world involves high level complexity tasks and business growth depends on good strategies that drive its vast growth. Now a days business people do not rely on traditional business methods for their business growth because of availability of vast amount of data. Thus they rely on artificial intelligence technology to drive their business growth. Artificial intelligence boost business revenue, increase efficiency and productivity of business, improve customer experience, automation of business processes, improve marketing activities, better understanding of customers, improved and more reliable customer service, Fraud detection etc., Various applications of artificial intelligence in business includes AI in customer service, business intelligence, personalized and targeted marketing, product recommendation and predictive analytics, natural language processing. The current era of data has roused the rise of many applications of artificial intelligence in business. In this article, introduction to AI, applications of AI in business, need of AI in business, companies adopted AI, future trends of AI are discussed. The paper concludes with conclusion and discussions highlighting the need of AI in business.

Keywords : Artificial intelligence, business intelligence, marketing, fraud detection, customer service, predictive analytics

I. INTRODUCTION

Machine Intelligence that simulates human intelligence processes is known as artificial intelligence. In AI systems, large amounts of labeled training data are ingested. Then the system analyzes the data for correlations and patterns and using these patterns predictions about future states are made. AI implementation includes learning processes, reasoning processes and self-correction processes. Learning processes focus on acquiring data and creating rules for how to turn the data into actionable information. Reasoning processes choose the right algorithm and produce desired outcome. Self-correction processes involve continually fine-tune algorithms and ensure they provide the most accurate results possible. AI performs tasks better than humans.

II. TYPES OF ARTIFICIAL INTELLIGENCE

Based on functionalities and capabilities, AI can be classified into two types. 1) AI based on functionalities 2. AI based on capabilities. Based on functionality, it is divided into four types such as 1. Reactive machine 2. Limited theory 3. Theory of mind 4. Self-aware AI.

1. Reactive Machine :

The most basic and oldest type of Artificial Intelligence is reactive machine. It has no memory power, so it can not use

previously gained information/experience to obtain better results. Chess-playing supercomputer of Deep Blue and IBM are best examples of reactive machine.

2.Limited Theory AI :

Limited theory AI has memory, so it can use past information/ experience to make better future decisions. It is used in many self-driving cars to store data like GPS location, speed of nearby cars, size /nature of obstructions etc.,

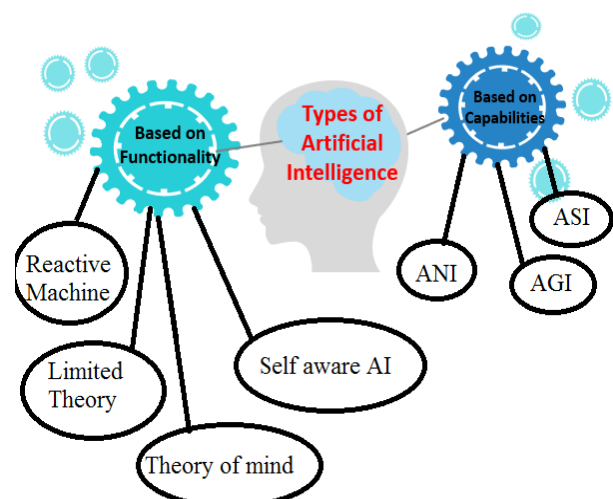


Fig.1 Types of AI

3.Theory of mind AI :

It is not present today . It will have a very deep understating of human minds ranging from their needs, likes, emotions, thought process, etc. This AI will be able to alter its own response.

4. Self aware AI :

Self aware AI are found only in science fiction movies . It can understand and evoke human emotions and have emotions of their own Based on capabilities , it is divided in to three types such as Artificial narrow intelligence (ANI),Artificial general intelligence(AGI),Artificial super intelligence(ASI).

1.Artificial narrow intelligence (ANI) :

ANI performs narrowly defined tasks like humans .It fails to perform unprecedented task. It is a combination of all reactive and limited memory AI.

2.Artificial general intelligence(AGI) :

AGI has the capability to train, learn, understand and perform functions just like a normal human does. It will react like humans and improvise while facing unprecedented scenarios.

3.Artificial super intelligence(ASI):

ASI performs all the tasks better than humans. It has superior data processing, memory, and decision-making ability.

III. APPLICATIONS OF AI IN BUSINESS

Artificial intelligence has many applications in various fields such as business, finance, agriculture, games, astronomy, health care, transport, education, e-commerce, robotics, entertainment, automotive, socialmedia, data security, transport etc., AI can solve complex problems in all sectors and provide effective solutions. It makes every one's life more comfortable and fast.

2.1 AI in customer service

Satisfying digital customer is very difficult with traditional business strategies. Thus AI facilitates customer service teams to organize and prioritize customer service related activities. With the help of chat-bots, interaction between human customer representative and customers happen in real-time to resolve complaints, place orders, get information and do almost anything they would require. Business costs are reduced and customer care accessibility and conversational experience are improved exponentially. Using AI Customer chat transcripts are analysed and highlight the instances of customer felt irate and dissatisfied.

2.2 Business intelligence(BI)

BI parses vast amount of business generated data and create reports, performance measures, and trends that inform management decisions. Companies that wish to make better use of their data uses Business intelligence to produce effective solutions. Thus AI improve the effectiveness of marketing, understand customers better, perform segmentation to create personalized experiences, and develop business strategies to aid corporate decision making and leverage artificial intelligence in business management. Using BI tools, strategies and decisions that have great influence on business metrics are established, valuable forecasts and predictions from data are made and automate business processes.



Fig.2 Applications of AI

2.3 Personalized and targeted marketing

Today's biggest marketing trend is personalized marketing. Personalized marketing is applying one to one marketing strategy to specific customer. It increases the efficiency of a business's marketing strategy. To improve company revenue it is required to know the wants of a consumer and what to market to each consumer. Catering messages to individual customers using customer's past search and purchase activities record of data , AI can predict and target customers in order to increase the chances of sales and effectiveness of marketing activities and identify how to satisfy customer needs. At the same time it reduces the overall marketing cost. Thus personalization increases relevance and engagement. It ultimately drives trust and sales.

2.4 Product recommendation and predictive analytics

AI-enabled products and services are offered by AI adopted companies to push more and more products in front of customers. Predictive analytics is a type of AI software made for correlating disparate information and making predictions based on it. To increase the effectiveness of marketing efforts, AI recommends products to customers based on their interests. AI understands the habits/behaviours of customers to predict which product to recommend. AI can be used for fraud detection and also to predict customers who can repay loans before approving loan requests in banks, fintech companies etc.,. Using AI recommendation, a company can reduce expenses more.

2.5 Natural language processing (NLP)

NLP or Natural Language Processing is a platform that can conduct sentiment analysis on textual data. In today's business era, sentiment analysis is crucial for understanding a customer's state of mind. It improves Customer Satisfaction, Reduces Customer Irritation, averts business loss, empowers and enhances business. Thus AI is very useful to generate automated business reports without human supervision and also to understand people's perception about a company and their brand by analyzing various online comments, tweets, etc.,.

IV. COMPANIES ADOPTED AI IN BUSINESS

Alibaba: The company's business operations are integrated with AI to predict products customers may want to purchase and also to automatically create product descriptions.

Uber: Uber uses AI to predict demand and thus reducing estimated time of arrival and efficiently matching riders and drivers. Drivers can communicate with riders with a single click via automatic response recommendations to the rider's messages using Uber's AI one-click chat feature.

Facebook : Using AI, Facial recognition technology is used by Facebook.

Amazon : Personalised AI recommendations, automated factories and the Amazon Alexa digital assistant.

Netflix: Personalised AI recommendations.

Instagram : To fight cyberbullying using AI and take down offensive comments.

Fintech : Robo-advisors are used as online financial advisors. It delivers personalised financial advice in an accessible and cost-effective way.

Tesla : using AI Autonomous vehicles are designed and manufactured.

Twitter : Twitter uses AI to identify hate speech, fake news and illegal content. Nearly 300,000 terrorist accounts that had been identified by AI are removed in six months.

Roomba robot vacuums. Little vacuum cleaners that look like a giant hockey puck use AI to scan the room, pinpoint obstacles and work out how much Hoovering is needed based on the size of the room. They also learn the most efficient routes around the room and remember it for cleaning rooms.

Nest smart thermostats : It is a Google product using AI. It is used to save energy when we leave home. It monitors various activities of people at home and begins to understand their behavior patterns. It helps the occupants at home to feel comfortable by dynamically adjusting the temperature without wasting energy.

Siemens AG : It uses AI technology for predictive maintenance. The company repairs, replaces or services parts and machinery at the optimum time before it gets broken down using AI.

KenSci : It uses AI techniques for risk prediction platform to identify fraudulent healthcare claims. It makes healthcare more expensive for everyone.

Dominos: The company automated delivery robots using AI to deliver pizzas in Germany.

IBM: Chef Watson tool of IBM uses AI technology to develop new recipes and suggest innovative flavour combinations in restaurants to create unique flavor.

Burberry : Using AI, counterfeit products are identified and improve the customer experience.

Barbie : Using AI technique, Hello Barbie records what the child says and transmits it to server. The server analyses the recordings and gives appropriate response to Hello Barbie. Then Barbie responds with correct response to a child.

Heineken : Dutch company, Heineken uses AI technology to improve its business operations. Also adopts to provide effective marketing, advertising and customer service.

Coca-Cola: The company is providing extensive product list more than 500 drink brands making it the largest beverage company in the world. The company uses AI technology to support new product development and even trial augmented reality in bottling plants.

BP : The Bharat Petroleum energy industry uses AI technique to drive new levels of performance, improve the use of resources and safety and reliability of oil and gas production and refining.

Experian : The credit reference agency uses AI to make quicker and more effective decision-making by analyzing vast amount of data from marketing database, transactional records and public information records.

American Express :The company has millions of AmEx cards in operation and processes trillions of transaction . For effective business processes , fraud detection and to avoid losses , it uses AI techniques.

V. FUTURE OF AI

- Entertainment companies will generate songs and movies using AI technology
- No human supervision is needed in AI automated factories .
- Generating quality training data by AI for company .
- Google with AI : Using AI, search engine would understand exactly what we wanted, and it would give us the right thing in future.
- AI powered language tools will be used for translation services.
- Government sectors will be transformed for public administration.
- AI enabled art creation will be produced.
- Effective cyber security using AI.
- AI powered IT operations will be developed . Key processes, decision making, and tasks with AI Ops solutions , analysis of the volumes of data coming its way will be improved .
- Artificial Intelligence will play a significant role in providing Cloud Solutions. Using deployment of artificial intelligence, monitoring and managing cloud resources and the vast amount of available data will be possible .

VI. CONCLUSION

In recent era , many companies are applying AI for data security, Process automation, customer care etc., Business applications developed using Natural Language Processing are used in half of the businesses. AI significantly lowers cost , increase efficiency, boost productivity and create avenues in to new product. More AI powered enterprises are developed. AI helps Online search providers ,online service providers ,online retailers , online buyers etc in many ways in online purchase and online sales in online business . Cloud based business solutions are provided using AI. Among three types of AI based on capabilities , Artificial narrow intelligence (ANI) can be used only in limited way but Artificial general intelligence (AGI) and Artificial super intelligence (ASI) can be used widely because of its large capabilities. Applications of artificial intelligence in business is constantly increasing more and more. However, there are challenges that limit the use of AI in business. Some of the challenges are data scarcity, algorithm bias limitations in

current computing capability, issues of threats to data security and privacy etc., Even though there are challenges in using AI in business, the future potentials of AI will design the future exactly the way we want. The impact of artificial intelligence in business, will increase business productivity and millions of job opportunities in future.

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