
Artificial Intelligence in Business: Opportunities & Challenges

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ABSTRACT

From many years technological innovations are the fundamental drivers of economic growth. The most important general-purpose technology of our era is Artificial Intelligence. AI is on the verge of becoming a critical part of every business infrastructure, making it vital for company decision-makers to understand how this technology can, and will, disrupt traditional business models. The impact of AI is increasing in manufacturing, retailing, transportation, finance, health care, law, advertising, insurance, entertainment, education. This paper offers a perspective on how these technologies are impacting business and society, and presents a framework for understanding how Artificial Intelligence can deliver value for the organization and industry. This paper talks about how AI is spurring workforce change, data management, privacy, cross-entity collaboration, and generating new ethical challenges for business. This paper emphasizes on the need for business to transform its core processes and business models to take advantage of AI. And it seeks to help managers understand and act on the tremendous opportunity from the combination of human and machine intelligence. The paper also focus on challenges that need to be addressed while embracing AI.

Keywords: AI; Artificial Intelligence , ML; Machine Learning , Cognitive Computing, Deep Learning, Natural Language Processing (NLP)

INTRODUCTION

AI technology is evolving faster than expected and it is proving to be most effective in producing dramatic results in business today. AI is on the verge of becoming a critical part of every business infrastructure, making it vital for company decision-makers to understand how this technology can, and will, disrupt traditional business models. Adopting to artificial intelligence can make business cost-effective , more productive by cutting down the time we spend doing basic administrative tasks and better customer engagement. Artificial Intelligence has the potential to streamline business processes, improve customer services and leverage sensor-driven data for marketing and advertising. Today, there are numerous applications of artificial intelligence in the consumer and business spaces, from Apple's Siri to Google's DeepMind. Siri, for example, uses natural language processing (NLP) to interpret voice commands and respond accordingly. Google's DeepMind, on the other hand, uses deep learning.

OBJECTIVES OF STUDY

1. To study about Artificial Intelligence and its Technologies.
2. To identify the current impact of AI on Business.
3. To identify Challenges faced by Business in adapting AI
4. To explore Business Opportunities using AI

ARTIFICIAL INTELLIGENCE AND ITS TECHNOLOGIES

AI is defined as an area of computer science that emphasizes the creation of intelligent machines that work and react like humans.[3] The term 'artificial intelligence' commonly applies to devices or applications capable of carrying out specific tasks in human ways, by mimicking cognitive functions such as learning,

reasoning problem-solving, visual perception and language-understanding. Artificial Intelligence (AI) is defined as intelligence exhibited by an artificial entity to solve complex problems and such a system is generally assumed to be a computer or machine. Accenture defines AI as information systems and applications that can sense, comprehend and act which captured the attention of Business Executives along with technologists and research scientists.

AI can be broadly classified into Applied AI & Generalized AI. Applied AI includes systems designed to intelligently carry out a single task, eg move a driverless vehicle, or trade stocks and shares. Generalized AI includes systems or devices that can theoretically handle any task, as they carry enough intelligence to find solutions to unfamiliar problems. [1]

The important AI Technologies are Natural Language Generation Speech Recognition Virtual Agents Machine Learning Platforms AI-optimized Hardware: Decision Management Deep Learning Platforms Biometrics Robotic Process Automation Text Analytics and NLP:

Machine Learning (ML) – uses computer algorithms based on mathematical models using probability to make assumptions and can make predictions about similar data sets.

Cognitive Computing – builds upon ML using large data sets with the goal to simulate human thought process and predictive decisions.

Deep Learning – builds on ML using neural nets to make predictive analysis. The use of neural nets is what is differentiating Deep Learning from Cognitive Computing right now. Deep Learning is also helping improve image and speech recognition.

Predictive application programming interfaces (APIs) – A predictive API basically uses AI to provide a predictive output (from a standardized set of outputs), when you have data sets.

Natural Language Processing (NLP) – programming computers to understand written and spoken language just like humans, along with reasoning and context, and finally produce speech and writing. Many machine learning companies use NLP for training on unstructured data.

Image Recognition – recognizing picture and objects as humans, as well patterns in visually represented data, which may not be apparent.

Speech Recognition – converting spoken language to data sets that can be processed by NLP.

CURRENT IMPACT OF AI IN BUSINESS

AI is capable of automating business intelligence and analytics processes, providing a holistic end-to-end solution. Below are a few examples of how AI is Impacting Business being used to improve efficiency:

) **Improved customer services:** Apps are developed for mobile users to facilitate easy transaction to customers. Analyst firm Gartner predicted that 85% of all customer interactions will take place without a human agent by 2020. Chatbot is a Light weight AI program designed to provide communication with users the way a human assistant would

) **Workload automation and predictive maintenance.** With Internet of Things and AI solutions, companies can reduce operating costs, increase productivity and eventually create a knowledge-based economy;

) **Effective data management and analytics.** By the end of this year, there will be billion connected gadgets worldwide. As more companies start using IoT solutions for business purposes, the amount of data generated increases Artificial Intelligence can perform effective data management and also analyze data to obtain meaningful insights into asset and personnel management.

) **Evolution of marketing and advertising.** New technologies have changed the way marketers have been working for decades. With Artificial Intelligence, marketers can automate a great share of routine tasks, acquire important data and devote more time to their core responsibilities—that is, increasing revenues and customer satisfaction.

) Artificial Intelligence in HR

It is widely believed that the role of managers is becoming a key determinant for enterprises' competitiveness in today's knowledge economy era. The main purposes of the study are to discuss the appointment of managers in enterprises through fuzzy neural network, to construct a new model for evaluation of managerial talent, and accordingly to develop a decision support system in human resource selection.

APPLICATIONS OF AI USED IN BUSINESS

The Most Important Applications of AI are

Commuting: It is observed that most of the commuters waste lot of time in traffic. Google's AI-Powered Predictions is an application that predicts the traffic and gives right information to the commuter. Ridesharing Apps Like Uber and Ola use AI to calculate fare by estimating time, distance and traffic.

Email: Email is one of the means used for exchanging messages. Spam Filters and Smart Email Categorization are AI based application programs that filter and categorize the mails in the Inbox

Grading and Assessment: Applications designed for grading and assessment of student performance also use AI. Plagiarism Checkers is an application used for Plagiarism checking on research articles.

Banking/Personal Finance: Everyday financial transactions are also heavily reliant on AI.

Banking/Personal Finance sector . Most large banks offer the ability to deposit checks through a smartphone app "Mobile Check Deposits", eliminating a need for customers to physically deliver a check to the bank. AI is used to create systems that learn what types of transactions are fraudulent. FICO is AI Application used by many banks for making credit decisions, and in determining the specific risk assessment for individual customers.

Social Networking: It is found that Social networking sites uses AI in recognising faces and also in personalizing news feeds. Facebook uses AI to recognize faces. Facebook also uses AI to personalize our newsfeed and ensure us in seeing posts that interest us. Facebook announced a new AI initiative: DeepText, a text understanding engine that, the company claims "can understand with near-human accuracy the textual content of several thousand posts per second, spanning more than 20 languages. Pinterest uses computer vision, an application of AI where computers are taught to "see", in order to automatically identify objects in images (or "pins") and then recommend visually similar pins.

Online Shopping: online shopping sites use AI for Search relevant product and also to get recommendations on nearing products. AI is also used in securing online transactions.

LITERATURE SURVEY

Artificial Intelligence is a branch of Science which deals with helping machines, finds solutions to complex problems in a more human-like fashion. This generally involves borrowing characteristics from human intelligence, and applying them as algorithms in a computer friendly way. [6]

Artificial Intelligence is defined as the scientific studies that computers can think, do, interact and act in many fields as a human that people are good at[4]

Artificial intelligence describes the work processes of machines that would require intelligence if performed by humans. The term 'artificial intelligence' thus means 'investigating intelligent problem-solving behaviour and creating intelligent computer systems'.[1]

AI has a broad discipline in today's world that promises to simulate numerous inherent human skills such as automatic programming, case-based reasoning, neural networks, decision-making, expert systems, natural language processing, pattern recognition, speech recognition and market competition due to technological advancement etc.[1]

The exponential rise of this technology can be attributed to 3 key factors:

- The emergence of smarter, modern-day algorithms

- Easy access to a huge volume of data because of increased mobile usage, connected devices and sensors
- Cloud enabling cheaper and easier access to large scale compute power and bigger storage[2]

AI technologies bring more complex data analysis features to existing applications. Enterprises that utilize AI-enhanced applications are expected to become more diverse, as the needs for the ability to analyze data across multiple variables, fraud detection and customer relationship management emerge as key business drivers to gain competitive advantage.[1]

The developments in technologies, different sciences and disciplines, by the help of convergence among them, would support works to achieve these goals and obviously more discoveries would be seen in coming years that will cause disruptive changes in business, life and global economy[4]

Dr. Vishal Sikka, CEO, Infosys said that " As managers and employers, as citizens in our communities, we bear the great responsibility that comes with transformation, to ensure we are driving a purposeful approach to AI. He also said that "We must now think beyond how we've been approaching our education, to recast it as a holistic, continuous and lifelong process of learning — one in which problem-finding is as important as problem solving, and digital literacy is taken as seriously as language literacy."[3]

With new developments in technology, and the emergence of buzzwords like cognitive computing, machine learning and VR, merging human interactions with AI seems to be a possible solution for managing customers' needs.[2]

When combined and designed with the consumer in mind, AI technologies can deliver solutions that drive customer loyalty, engagement, consumption, and satisfaction. And the faster today's companies wake up to the real potential of AI, the better. [2]

Google CEO Sundar Pichai predicted that we will move from a mobile-first to an AI-first world. Data is the oil that powers AI.[2]

More than four out of five companies view AI to be essential, and nearly half see it as a transformative technology. Only a few are making bold investments today, which may trigger a competitive imbalance tomorrow.[5] The biggest AI is helping employees do better work, and companies do work they couldn't do before. The technology is seen producing many new jobs but automating jobs as well.

Elon Musk, Tesla Motors CEO said that "I'm increasingly inclined to think that there should be some regulatory oversight, maybe at the national and international level, just to make sure that we don't do something very foolish ... just keep an eye on what's going on with artificial intelligence. I think there is potentially a dangerous outcome there."

Bill Gates , Microsoft co-founder said that "I am in the camp that is concerned about super intelligence. First the machines will do a lot of jobs for us and not be super intelligent. That should be positive if we manage it well. A few decades after that though the intelligence is strong enough to be a concern. I agree with Elon Musk and some others on this and don't understand why some people are not concerned."

However, as with all adoption of advancing technology, challenges do exist. The use of AI presents an extraordinary mix of technical and ethical hurdles. Organizations using AI to some extent find themselves struggling to really get the most they can out of it.[3]

FINDINGS AND RECOMMENDATIONS

FINDINGS

Although AI is already in use in thousands of companies around the world, most big opportunities have not yet been tapped. The bottleneck now is in management, implementation, and business imagination of what AI is already doing and how quickly it is improving. When viewed AI through the lens of a futures market the following opportunities and challenges were identified

Opportunities

-) Organization that embraced AI can a leader in market as AI is going to be an integral part of business and world in near future.

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-) To improve productivity by building Successful Virtual Assistants which perform repetitive and administrative tasks.
 -) To use Human Skill for intelligent tasks rather than repetitive and administrative tasks.
 -) To integrate and redesign Business Process that leverage potentials of AI .
 -) To Build Applications that generate business value and also helps in cost reduction.
 -) To increase customer base and also provide better customer service.

Challenges

-) Failure to include artificial intelligence as part of Business Strategy by Managers.
-) The gap between ambition and execution of AI is large at most companies.
-) Workload automation and predictive maintenance is required .
-) Talent availability is a serious inhibitor of AI growth.
-) Legacy technology is hindrance for implementing AI applications .
-) Unavailability of AI infrastructure in the country. Currently Organizations are using AI Infrastructure provided by other governments that might be risky.
-) No Proper Law or standards that govern or monitor the activities of organization involved with AI.

RECOMMENDATIONS

-) Companies need to understand the importance of AI and its impact on business.
-) To include artificial intelligence as part of Business Strategy .
-) Introduce changes into Traditional Educations System such that students acquire skills to adapt to changing technological enhancements.
-) Government need to take required initiatives in providing required infrastructure that motivates organization to embrace AI.
-) Incorporating AI into Government Policy.
-) Enforcement of Standards and Law by the Governments is required.

CONCLUSION

Artificial intelligence is moving rapidly from relevancy in technologically niche areas to impacting every industry in the world. There is an urgent need for changing traditional education Systems System such that students acquire skills to adapt to changing technological enhancements. Using uncontrolled AI for certain business functions may cause regulatory and ethical issues that could lead to liability. So in conclusion, the usage, development and governance of artificial intelligence must be spearheaded in a sensitive way at all times.

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