THE ROLE OF ARTIFICIAL INTELLIGENCE IN BUSINESS DECISION MAKING

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Abstract: *In this paper, we have studied AI for Business Decision Making -- Accuracy and Efficiency: The Impact on Cost ReductionCustomer ExperienceRisk Management Available online: Let a Literature Review and Real World Examples Provide Insight into Possibilities It covers such things as the challenges businesses find, data quality and ethical considerations, skills shortages and integration complexity. A blend of both — AI and human judgement would be best suited to make good decisions, according the research. This way businesses can utilize AI for taking growth and innovation to a next step.*

Keywords: *Artificial intelligence, business decision-making, machine learning, predictive analytics, decision support systems, expert systems, natural language processing, big data, cognitive computing, automation.*

Introduction

Academic literature has been examining at length the introduction of AI in business decisions. Artificial intelligence is the development of computer systems serial that are able to perform tasks normally requiring human intervention, such as decisions or perceptioncence (Russell & Norvig). Business decision-making is a process of identifying and choosing alternatives based on the values, preferences, beliefs and information available to the relevant actors (Simon, H. A.). AI tools such as machine learning, predictive analytics, decision support systems, expert systems natural language processing (NLP), big data development technologies and cognitive computing & automation help to improve business decisions. In this paper, we will walk through the effect data and AI have on business decision-making as well as some of the challenges in properly utilizing them

Literature review

The integration of artificial intelligence (AI) in business decision-making processes has been extensively examined in academic literature.

Artificial intelligence refers to the simulation of human intelligence in machines that are programmed to think and learn like humans. These systems can perform tasks such as decision-making, speech recognition, and visual perception.

Russell, S. J., & Norvig, P.

Business decision making is the process of identifying and choosing alternatives based on the values and preferences of the decision-maker. It involves assessing information and potential outcomes to determine the best course of action. Simon, H. A. "The New Science of Management Decision". Prentice-Hall.

Machine learning is a subset of AI that involves the use of algorithms and statistical models to enable computers to improve their performance on a specific task through experience and data analysis. Mitchell, T. M. (1997). "Machine Learning".

Predictive Analytics: Predictive analytics uses historical data, machine learning, and statistical algorithms to predict future outcomes and trends. It helps businesses make data-driven decisions. Siegel, E. "Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die". Wiley.

Decision support systems are computer-based information systems that support business or organizational decision-making activities by providing relevant data and analytical tools. Power, D. J. "Decision Support Systems: Concepts and Resources for Managers.

Expert Systems: Expert systems are AI programs that mimic the decision-making abilities of a human expert. They use knowledge and inference rules to solve complex problems. Jackson, P. "Introduction to Expert Systems". Addison-Wesley.

Natural Language Processing (NLP): Natural language processing is a branch of AI that focuses on the interaction between computers and humans through natural language. It enables machines to understand, interpret, and generate human language. Jurafsky, D., & Martin, J. H

Big data refers to extremely large data sets that can be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions. Mayer-Schönberger, V., & Cukier, K. (2013). "Big Data: A Revolution That Will Transform How We Live, Work, and Think".

Cognitive Computing: Cognitive computing refers to systems that learn at scale, reason with purpose, and interact with humans naturally. They help organizations make better decisions by understanding complex data. Hurwitz, J., Kaufman, M., & Bowles, A.

Automation: Automation involves the use of technology to perform tasks without human intervention. In business decision-making, automation can streamline processes and improve efficiency. Groover, M. P. "Automation, Production Systems, and Computer-Integrated Manufacturing".

This concept is well studied in the business decision-making process as a whole when we introduce artificial intelligence (AI). Any task that a human can do such as decision-making, speech recognition and visual perception is within the reach of AI whereby this simulates human intelligence in machines. Basically, business decision making is figuring out what to do with all that while weighing (based on values and

preferences) a bunch of alternatives. Artificial intelligencewhich includes machine learningis when machines and computers perform tasks that typically require human intelligence, such as decision making or presenting new information to the system. Predictive analytics uses propagated historical data and machine learning to predict prospects for tomorrow leading more analytical decisions. Decision Support Systems (DSS) ⊂ Expert systems provide relevant data and replicate human experts progression to solve complex issues. NLP is a part of ML that helps machines to understand and generate natural language. Big data means analyzing large datasets to make sense from patterns and trends. Cognitive computing systems learn, reason, and interact naturally with humans to enhance decision-making. Automation uses technology to perform tasks without human intervention, streamlining processes and improving efficiency in business decisions.

Research methodology.

A systematic approach to scientific inquiry, including monographic observation, statistical abstraction, logical reasoning, and prospective forecasting methods, was extensively employed throughout the course of this research. Additionally, the methods of analysis and synthesis were effectively utilized in the execution of the scientific investigation.

Research result

A Gartner study has shown the fact that AI-based companies improved their decision accuracy by 25%. AI-enabled companies can reduce their decision-making time by up to 40% which in turn increases their productivity, as per the report of McKinsey & Company. As per the research of Accenture, businesses that use AI can save up to 30% through the introduction of automation and better decisions. 62% of customers are of the opinion that companies should change based on their behavior and, AI personalization is contributing to the increase of customer satisfaction by 20%, according to the survey of Salesforce. AI impacts the domain of risk management in finance to a larger extent. The study of PwC reported that 70% of financial firms use AI to detect and prevent fraud, and this has halved the number of fraud cases.

Analysis and Discussion of Results

Artificial Intelligence has become an important part in decision-making in businesses worldwide. Therefore, our study was based on various research and the application of AI in real life.

A decision-making system that employs artificial intelligence is able to be accurate to a great extent because of its ability to analyze a large volume of data, find out the patterns which are usually not detected by human analysis. For example, in retail, predictive analytics can tell you what customers will buy with great accuracy, thus enabling you to have the right amount of stock and not have a shortage of it.

The use of machine learning algorithms and automation makes it possible for data to be processed and insights to be generated in real-time, thus, facilitating decision-making and operational efficiency. Companies like Amazon are using artificial intelligence to manage logistics and supply chain, which in turn saves time and cost.

Implementing AI in decision-making can lead to huge costs savings. Automation of routine and mundane work and improved accuracy of decisions help reduce the cost of operation in a business organization. For example, chatbots based on artificial intelligence addressing customer queries can be used to a large extent thus reducing the high cost required to maintain a full-fledged customer service team.

AI makes customer experience personal. Machine learning collects and analyses the information about customer behavior and preferences to anticipate his needs. Netflix uses machine learning in its recommendation system that helps a user to find the most appropriate content based on his preferences and previous views.

AI helps in recognizing and dealing with the risks by processing of the historical data analysis, as well as forecasting the possible future problems. Banks apply AI to discover the fraudulent transactions which results to security and trust improvement.

The incorporation of AI in business decision-making provides many benefits, however, it also has brought some challenges which needs to be handled.

AI systems are made to analyze data and recognize patterns. But for context specific decisions requiring empathy and ethical considerations, human judgement is essential. Integration goes hand in hand with a hybrid approach where AI takes care of data heavy lifting, and humans take the responsible decisions.

The quality of AI in decision-making is directly related to the quality of data. Low-quality data can lead to wrong predictions and suboptimal decisions. Enterprises have to therefore, focus on building strong data management capabilities, if they want reliable AI-driven insights.

Ethical concerns are raised by utilizing AI, particularly in the areas of data privacy and bias. AI systems can unwittingly propagate biases that are present in training data which causes unfair outcomes. Organizations should follow ethical guidelines and assure transparency in AI decision making process.

The adoption of AI requires a skilled workforce. A workforce that develops and manages AI and becomes proficient at leveraging its potential. However, many businesses struggle with the knowledge to effectively use AI, let alone train others on how to use it.

As we have seen integrating AI into the existing business process is not an easy task and may require a lot of resources. Organizations won't look for isolated solutions but they will demand scalable products that can be integrated in their current systems.

It is very important to build scalable Artificial Intelligence infrastructure for future prosperity.

Conclusion and Recommendations

The research brings to light the role of AI as a catalyst to augmenting business decision making in multiple areas. The associated potential benefits with better accuracy, efficiency, cost savings, customer satisfaction and risk management are indeed substantial. However, some challenges in terms of human-AI interworking, data quality, ethics, skills and scalability need to be effectively managed by firms to reap the greatest value from avid use of AI, so as to better inform managers on a timely basis helping them think strate- gically for growth and innovation.

The study brings forth that there are ample advantages of AI in business decision making including improved accuracy, efficiency, cost reduction, enriched customer experience and risk management for the businesses but there are several challenges which need to be faced by them for fully leveraging these advantages.

AI is good at analysing data and recognizing patterns, but human judgment is needed to make decisions that take into account the specific context in which the decision will be implemented and that involve empathy and ethical considerations. Organizations should use AI for decisions coupled with large amounts of available data and have people make the rest. The quality of AI-based decision-making also depends on data quality, so organizations must develop sound data-management practices to ensure that AI generates accurate and reliable insights. Integrating AI into existing business processes can be complex and resource-intensive. Organizations need scalable solutions that can seamlessly integrate with their current systems and should invest in scalable AI infrastructure for long-term success. By addressing these challenges, businesses can harness the power of AI to make informed, timely, and strategic decisions that drive growth and innovation.

References

1. Russell, S. J., & Norvig, P. "Artificial Intelligence: A Modern Approach."
2. Simon, H. A. "The New Science of Management Decision." Prentice-Hall.
3. Mitchell, T. M. (1997). "Machine Learning."
4. Siegel, E. "Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die." Wiley.
5. Power, D. J. "Decision Support Systems: Concepts and Resources for Managers."
6. Jackson, P. "Introduction to Expert Systems." Addison-Wesley.
7. Jurafsky, D., & Martin, J. H. "Speech and Language Processing."
8. Mayer-Schönberger, V., & Cukier, K. (2013). "Big Data: A Revolution That Will Transform How We Live, Work, and Think."
9. Hurwitz, J., Kaufman, M., & Bowles, A. "Cognitive Computing and Big Data Analytics."

10. Groover, M. P. "Automation, Production Systems, and Computer-Integrated Manufacturing."
11. Vol. 4 No. 7 (Jul - 2024): EJBSOS European Journal of Business Startups and Open Society | ISSN: 2795-9228 "The Influence of Mobile Marketing on Consumer Engagement in the Digital Economy" Karshiev Avazbek Sa'dullayevich.
12. Journal of Marketing, Business and Management(JMBM) vol 2, ISSUE 8 ISSN: 2181-3000 Page 1/56
13. "New characteristics of mobile technology innovations in e-commerce" Ulugmurodov F.F. Karshiev S.A. Akbarov J.V.