International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023
DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621

Impact of Artificial Intelligence (AI) For Decision-Making in Organisation

Athira Prakash[1], Nisha Elizabeth Jacob[2], Mariya Merlin[3], Divya Annie Thomas[4], Soumya Koshy[5]

[1,2,3,4] UG –BCA, Kristu Jyoti College of Management and Technology, Changanassery, Kerala, India.

[5]Assistant Professor, Department of Computer Application, Kristu Jyoti College of Management and Technology, Changanassery, Kerala, India.

ABSTRACT

Since the beginning of time, innovation has been the primary force behind rising living standards. But, because innovation renders outdated technology obsolete, it is a very disruptive process. The development of artificial intelligence may have the greatest effects on organisational decision-making of all the new technologies that emerged in the late 20th century.

The consequences of its application in complicated social settings have not been adequately studied because the development of artificial intelligence technologies and models has mostly been focused on psychological models of human cognition. This paper aims to generate research that will advance our understanding of artificial intelligence's effects and function within complex organisations. The linkages between AI technologies and the components of organisational decision-making have been examined in a set of 11 hypotheses that have been created. Here, it is stated that implementing expert systems will result in less complex political decision-making processes, but implementing a natural language system will result in more complex political decision-making processes.

Keywords - Artificial Intelligence, Decision-Making.

1. Introduction

Artificial intelligence (AI) has completely changed how businesses gather, analyse, and use data by offering crucial insights that inform choices. By utilising datasets with AI, organisations are able to make judgements that are more swiftly, precisely, and consistently. Business teams can better concentrate on work that is relevant to their sector because AI can analyse vast datasets without making mistakes. Even in modest, subtle ways, AI can have a significant impact on decision-making, and it has many uses. Despite these difficulties, many businesses have successfully adopted AI for decision-making, reaping the rewards in terms of increased productivity, cost savings, and improved customer experiences. Traditional decision-making processes are about to undergo a significant transition as a result of artificial intelligence (AI), which also offers a new research context for challenging widely held beliefs in decision science. Artificial intelligence (AI) can have an impact on decision-making by reducing human error and swiftly and continuously analysing enormous volumes of diverse data, providing businesses with a comprehensive spectrum of information and offering organised answers to emerging problems.

Here are a few real-world instances of how AI is being used in decision-making:

- Business operations decisions
- Customer service choices
- Making choices in marketing
- Financial judgements
- Human resource decisions

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023
DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621

Organisations must have an advanced information infrastructure, engage expert personnel, involve users in the creation and execution process, and ultimately involve all employees if they are to fully utilise AI's potential for decision-making. Organisations should stay up to date on the most recent advances and investigate new use cases for the technology as the usage of AI for decision-making continues to expand and mature. Researchers want to have a greater knowledge of forthcoming possibilities and threats in corporate decision management facilitated by AI by expanding on these recent research trends.

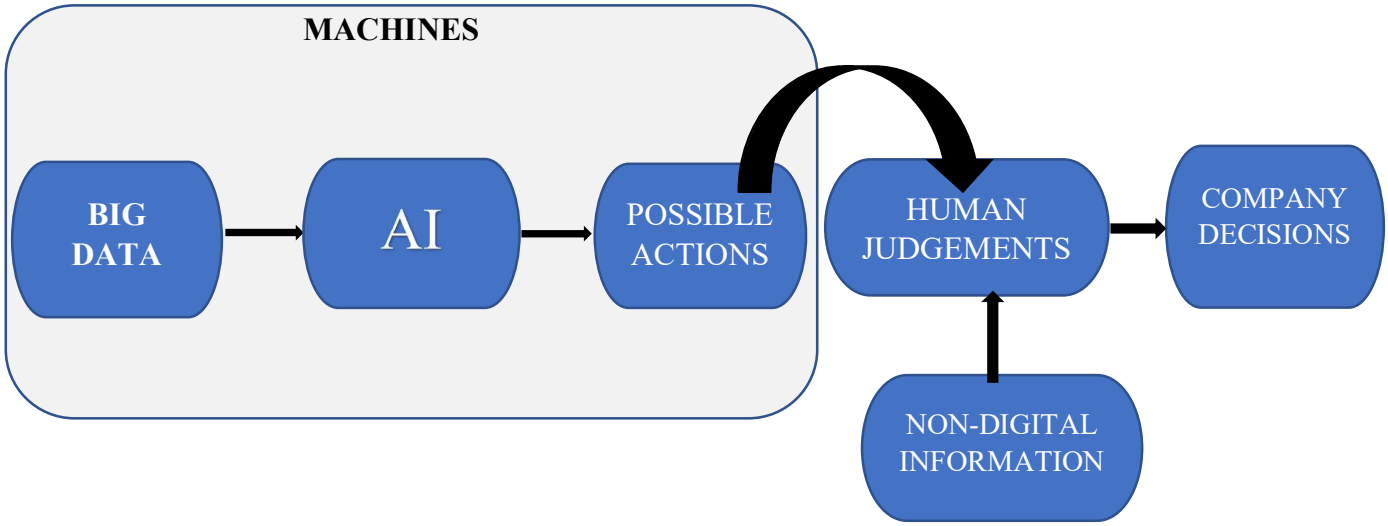


Fig 1: A Model for Decision-Making that integrates the competence of AI and Human Judgement

2. Ethical Concerns of AI in Decision-Making

In various sectors, notably banking, healthcare, retail, and manufacturing, artificial intelligence (AI) is being employed increasingly in decision-making processes. Though there are several ethical issues that need to be resolved when using AI for decision-making. The following are only a few of the moral dilemmas with AI decision-making:

- **Accountability and Transparency**: It's critical to provide accountability for judgement made by AI systems when those decisions have substantial ramifications. In high-stakes fields like law enforcement, healthcare, or finance, it's crucial to be transparent about how AI made a particular choice.
- **Bias and Equality**: Artificial intelligence (AI) systems have the potential to reinforce biases found in the data they are instructed on, producing unfair or discriminatory results. Equality in decision-making is crucial to preventing AI from reinforcing current disparities and promoting equality of opportunity for everyone.
- **Explain ability and Interpretability**: Artificial Intelligence (AI) algorithms, especially those built on deep learning and neural network architectures, can be extremely complex and difficult to understand. People may find it difficult to comprehend, contest, or dispute AI systems' conclusions if they are not explicable.
- **Obtaining Consent and Privacy**: Artificial Intelligence (AI) machines frequently use significant quantities of individual data to make conclusions. When a person's privacy is invaded and their data is gathered, utilised, or shared without that person's knowledge or consent, ethical issues are raised. Important factors to take into account include preserving individuals' right to privacy and ensuring data handling is transparent.
- **Job Replacement and Economic Impact**: Using AI to automate decision-making processes can have substantial societal and economic repercussions. Particularly for

DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621

employees in sectors that primarily rely on decision-making duties, it may result in job displacement and inequality. An essential ethical question is how to deal with the effects on employment and how to adequately help those who are affected.
These moral concerns underline the necessity of strict standards, laws, and ethical procedures to guarantee that AI systems are created and implemented in a way that preserves moral principles, respects human beliefs, and protects society's well-being.

3. Advantages of AI in Decision-Making

- **Speed and Efficiency**: Artificial intelligence (AI) systems can process enormous volumes of data and make choices considerably more quickly than people. This makes decision-making more effective and enables speedier response times.
- **Data-Driven Insights**: AI systems are capable of analysing vast amounts of data to spot trends, connections, and patterns that may be difficult for people to pick up on. Making decisions based on data can result in better-informed and more precise decisions.
- **Reliability and Objectivity**: artificial intelligence (AI) systems can remove human prejudices and emotional effects, resulting in more reliable and unbiased decision-making. They are made to adhere to predetermined guidelines and procedures, ensuring that selection criteria are applied consistently.
- **Scalability**: AI systems are easily scalable to manage massive amounts of data and concurrent decision-making processes. Organisations are able to effectively handle increased workloads and complicated decision-making issues thanks to this scalability.
- **Risk reduction**: Using historical data and statistical analysis, AI systems can evaluate risks and possible outcomes. Decision-makers can improve risk management by foreseeing future risks and taking proactive steps to mitigate them.

4. Disadvantages of AI in Decision-Making

- **Lack of Human Intuition and Judgement**: Artificial intelligence (AI) systems lack human attributes such as intuition, creativity, and judgement, and instead function according to algorithms and established rules. Human judgement can occasionally be more useful in difficult and ambiguous situations.
- **Limited Spatial Understanding**: AI algorithms focus mainly on the data that is readily available, therefore they may have trouble comprehending the larger context or underlying intricacies of a scenario. In situations requiring a detailed understanding, this constraint may cause less-than-ideal choices to be made.
- **Problems with Data Bias and Quality**: The accuracy and bias-free property of input data is crucial for AI systems. Biased or erroneous decision-making may result from biased or poor-quality data that is used to create AI models, which would perpetuate social prejudices already in place.
- **Lack of Explain-ability**: Artificially intelligent neural networks, for instance, are some AI algorithms that can be difficult to understand or explain. It can be difficult to make decisions when there is a lack of openness, especially when understanding and responsibility are essential.
- **Reliance on Technical Infrastructure**: The development, upkeep, and interpretation of AI systems require strong technical infrastructure and qualified personnel. To achieve successful AI adoption, businesses must invest in the necessary resources.

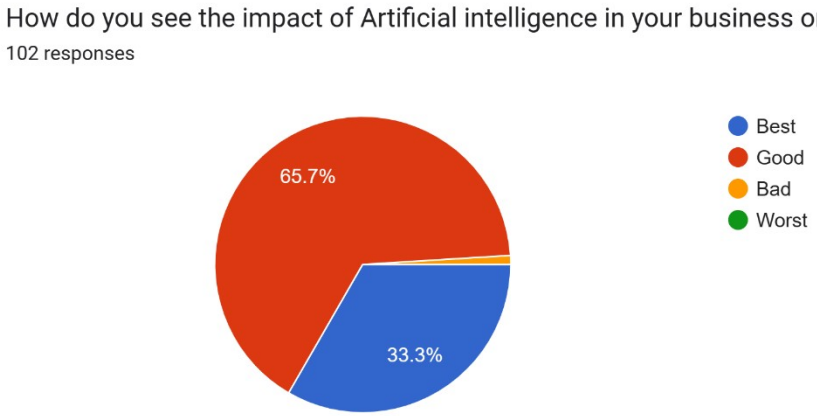
In conclusion, AI-driven decision-making offers benefits and drawbacks. AI encounters limitations and may be biased if the information that it is based on is biased, even though it can offer useful insights and enhance decision-making processes. Because of this, it's crucial to carefully weigh the advantages and disadvantages of artificial intelligence-powered decision-making before introducing it into any organisation.

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023
DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621

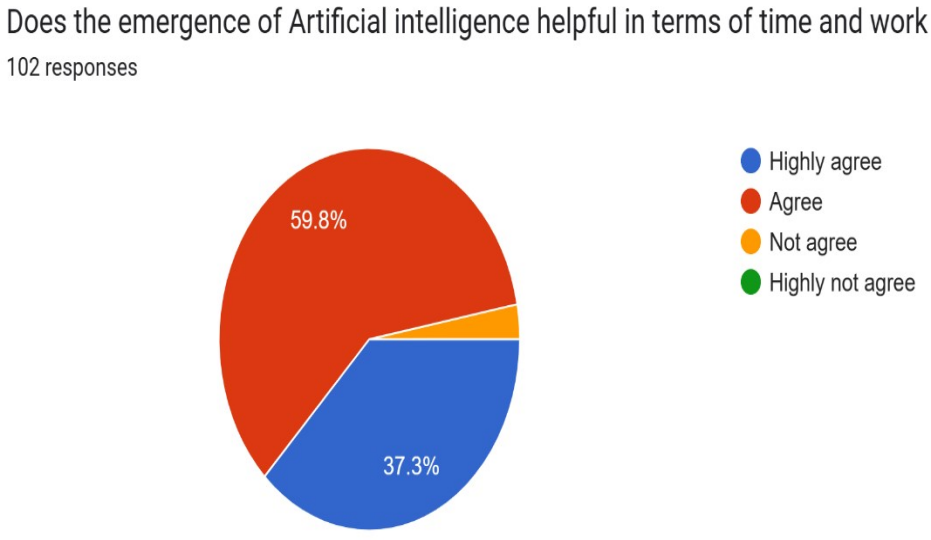
5. Research Methodology

The study is statistical and involved around 100 employees from various industries. The research was carried out during the month of July 2023. The simple sampling technique was used to choose the sample respondents. Using an online survey (Google form), it was possible to get an understanding of how respondents perceived AI's place in the industry. The respondents include Software engineers, Developers, Programmers, Buyer leads in IT fields, etc. The questionnaire prepared for the survey was formal and minimal which focused on how the respondents felt about the AI's impact on their work in terms of time management and decision-making.

5.1 Result and Analysis

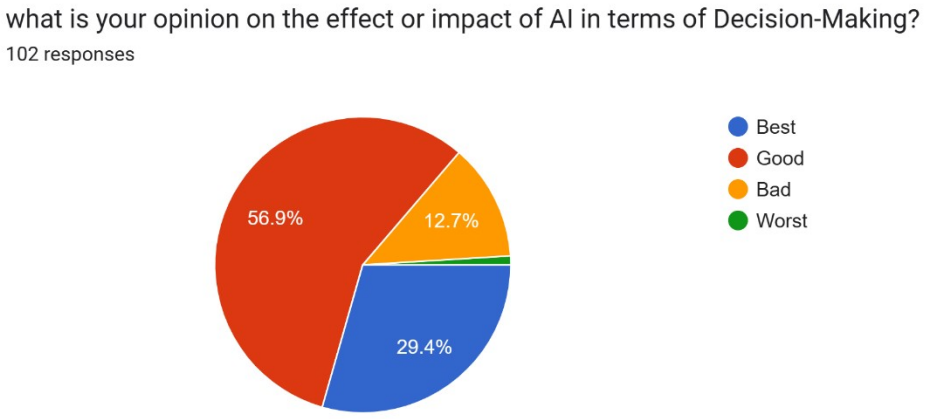


• From the responses received, 65.7% of respondents feel good about the impact of Artificial Intelligence in their respective work life while 33.3% of the respondents feel best about the emergence of AI in their fields. But there is still a 1% who felt bad about AI's performance in their fields.



• 37.3% of the respondents highly agree to the fact that the emergence of artificial intelligence has been helpful in terms of managing work and time efficiently and 59.8% agree to the same, while 2.9% don't agree.

International Journal of Engineering Technology and Management Sciences
Website: ijetms.in Issue: 4 Volume No.7 July - August – 2023
DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621



- From all the responses received 86.3% (56.9%+29.4%) of respondents find AI helpful in making decisions in industries while 13.7% find it not useful or helpful in making decisions.

CONCLUSION

AI has the potential to revolutionise conventional decision-making procedures in businesses, giving them a competitive edge, spurring innovation, and enhancing productivity, cost-effectiveness, and customer experiences. Through the automation of some processes, AI is able to make choices more rapidly and correctly than humans. But AI also has difficulties, such as worries about transparency, moral data use, and potential biases. Organisations must be open about how they use AI, make sure that data is gathered and utilised responsibly and ethically, and put strict testing and monitoring procedures in place to find and fix any biases that may develop. Organisations must have a cutting-edge data infrastructure, employ specialised personnel, involve stakeholders, and have a deeper grasp of the new opportunities and hazards in the business decision management that AI has facilitated.

To sum up, AI has the power to fundamentally alter how businesses make decisions, but careful planning and management are needed to make sure it is applied in an ethical and responsible manner. Businesses may fully utilise their data and obtain a competitive edge in the market by utilising the power of AI.

References

1. Chatterjee, S.; Ghosh, S.K.; Chaudhuri, R. Knowledge Management in Improving Business Process: An Interpretative Framework for Successful Implementation of AI–CRM–KM System in Organizations. Bus. Process Manag. J. 2020, 26, 1261–1281.
2. Berente, N.; Gu, B.; Recker, J.; Santhanam, R. Managing artificial intelligence. MIS Q. 2021, 45, 1433–1450.
3. Borges, A.F.S.; Laurindo, F.J.B.; Spínola, M.M.; Gonçalves, R.F.; Mattos, C.A. The Strategic Use of Artificial Intelligence in the Digital Era: Systematic Literature Review and Future Research Directions. Int. J. Inf. Manag. 2021, 57, 102225.
4. Chowdhury, S.; Dey, P.; Joel-Edgar, S.; Bhattacharya, S.; Rodriguez-Espindola, O.; Abadie, A.; Truong, L. Unlocking the Value of Artificial Intelligence in Human Resource Management through AI Capability Framework. Hum. Resour. Manag. Rev. 2022, 33, 100899.
5. Davenport, T.H. From Analytics to Artificial Intelligence. J. Bus. Anal. 2018, 1, 73–80.

DOI:10.46647/ijetms.2023.v07i04.060 ISSN: 2581-4621

6. Mikalef, P.; Gupta, M. Artificial Intelligence Capability: Conceptualization, Measurement Calibration, and Empirical Study on Its Impact on Organizational Creativity and Firm Performance. Inf. Manag. 2021, 58, 103434.
7. Haefner, N.; Wincent, J.; Parida, V.; Gassmann, O. Artificial Intelligence and Innovation Management: A Review, Framework, and Research Agenda☆ . Technol. Forecast. Soc. Chang. 2021, 162, 120392.
8. Jarrahi, M.H. Artificial Intelligence and the Future of Work: Human-AI Symbiosis in Organizational Decision Making. Bus. Horiz. 2018, 61, 577–586.
9. Kar, S.; Kar, A.K.; Gupta, M.P. Modeling Drivers and Barriers of Artificial Intelligence Adoption: Insights from a Strategic Management Perspective. Intell. Syst. Account. Finance. Manag. 2021, 28, 217–238. [Google Scholar] [CrossRef]
10. Keding, C. Understanding the Interplay of Artificial Intelligence and Strategic Management: Four Decades of Research in Review. Manag. Rev. Q. 2021, 71, 91–134.
11. Majhi, S.G.; Mukherjee, A.; Anand, A. Business Value of Cognitive Analytics Technology: A Dynamic Capabilities Perspective. VINE J. Inf. Knowl. Manag. Syst. 2021, 1–19.
12. Ransbotham, S.; Khodabandeh, S.; Fehling, R.; Lafountain, B.; Kiron, D. Winning with Ai. In Technical Report; MIT Sloan Management Review and Boston Consulting Group: Boston, MA, USA, 2019.
13. Al-Surmi, A.; Bashiri, M.; Koliousis, I. AI Based Decision Making: Combining Strategies to Improve Operational Performance. Int. J. Prod. Res. 2022, 60, 4464–4486.
14. Benbya, H.; Pachidi, S.; Jarvenpaa, S. Special Issue Editorial: Artificial Intelligence in Organizations: Implications for Information Systems Research. J. Assoc. Inf. Syst. 2021, 22,281–303.
15. Gupta, S., Dwivedi, Y.K., Mäntymäki, M., Pappas, I.O., Eds.; Lecture Notes in Computer Science; Springer International Publishing: Cham, Switzerland, 2022; Volume 13454, pp. 25–37. ISBN 978-3-031-15341-9.