

Impact Of AI Based Learning And Development In Corporate And Other Industrial Sectors -SLR

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Abstract

Aim/Purpose: The article is aimed at exploring the various impact that AI-based L&D can have on the corporate sector and certain industries

Background: AI-based learning and development (L&D) has become quite important for all industries irrespective of their size and sector in order to survive in the long run. It is something that has the potential to improve and optimise all business functions in a particular industry.

Methodology: A “systematic literature review (SLR)” has been conducted in the study to explore the mentioned prospects and gather the required insights.

Contribution: The paper helps in understanding the importance of AI for L&D in an organization for better competitive advantage

Findings: It has been found that AI has the potential to impact every aspect of business operations and improve them in a significant manner. From pharmaceutical to food, every industry can significantly benefit from the implementation of AI-based approaches in their business functions.

Recommendations for Practitioners: Investments in the corporate sector and other industries related to AI need to be increased to gain a competitive advantage in the market. This generally needs to be done because of the numerous possibilities that AI can create for the growth and development of the business in the market.

Recommendations for Researchers: Researchers can further explore the topic by conducting primary study involving methods surveys and interviews

Impact on Society: N/A

Future Research: The impact of AI on other business functions like recruitment & selection along with employee retention can be explored

Keywords: AI, learning & development, industry, operations, efficiency

Introduction

The learning and development (L&D) environment is undergoing a massive transformation because of AI and companies need to stay on top of these transformations for better results. L&D is something that is considered to be quite valuable for all successful organisations since it helps in developing, engaging and retaining their most talented employees. The opportunities to learn and grow in an organisation play a significant role in the workplace culture. AI has a lot to offer to the L&D practitioners in an organisation and this is one of the primary reasons behind the growing popularity of the tool in the corporate world (Leung, Braun & Cuzzocrea, 2019). The total corporate investment in AI has witnessed significant growth in the past few years reaching 94 billion in 2021 from 12.75 billion in 2015 (Thormundsson, 2023). This number is further expected to rise in the future with the rising interest and market size of AI due to its immense possibilities in the business environment. The AI market was valued at 100 billion in 2021 and is expected to grow twentyfold and reach 2 trillion by 2030 (Thormundsson, 2023).

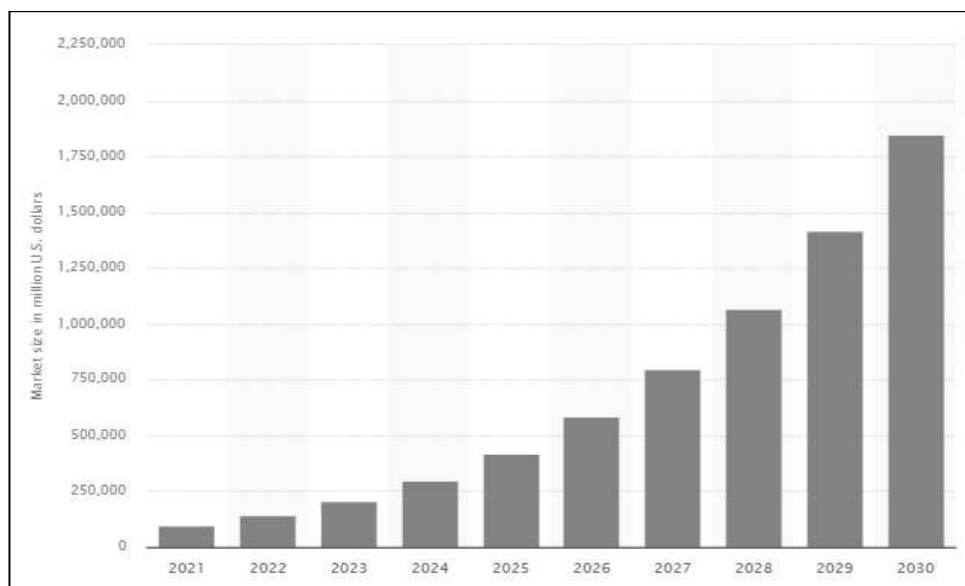


Figure 1: Market size of AI (2021-2030)

(Source: Thormundsson, 2023)

The launch of ChatGPT 3.0 in 2022 create a whole new space in the field and gave rise to various possibilities (Thormundsson, 2023). The AI market is something that covers vast industries and can be applied in almost every business function in order to perform tasks in an effective manner. L&D professionals have to act according to

these advancements for making expected improvements in the productivity and performance of their businesses. L&D is an important business function which helps the organisation stay ahead of the trends and address the challenges in an effective manner (Odor, 2018). With the amount of data that is available to an organisation, AI can be used for a more personalised experience to meet the learning and development needs of the business. Hence, the purpose of this article is to explore the impact that AI-based learning and development can have on the corporate and industrial sectors.

Methodology

A systematic literature review (SLR) has been done in this article which is a replicable, transparent and scientific process. There are various advantages associated with the adoption of SLR compared to traditional reviews processes. SLR facilitates a higher-quality review process while minimising the errors and bias involved with the work (Xiao & Watson, 2019). The validity of the entire process is also increased due to the possibility to replicate the entire process. The SLR in this article has been divided into two distinct steps where the first step involves identification, reading and presentation the findings of various research and the second step is providing a concise discussion of the insights gained from the first step. The first step further has various sub-steps that are focused on gathering the necessary information on the topic and they are- (1) identification (2) selection (3) eligibility and (4) inclusion. The identification of the article was done with a manual search on Google Scholar to identify the relevant articles from high-quality journals. The selection was done based on the time of their publication and the availability of full-text pdfs for the review. The eligibility was measured on the presence of keywords like AI, business performance, impact and development. Finally, the inclusion of the article was done based on their ability to address the purpose and highlight the impact of AI-based L&D on corporate and industrial sectors. After this, a brief discussion of the findings of all the articles to address the purpose of the research was provided. The discussion helped in identifying the various impacts that AI-based L&D has had on organisations in the market from the findings of various researchers. However, there were certain assumptions made in the selection of the 8 articles for the review. Since there were articles that explored the impact of AI-based L&D on businesses, it has been assumed that the impact of AI and AI-based L&D would be the same on the industry. Hence, recent articles related to the impact of AI on various sectors have been selected for completing the review in an effective manner.

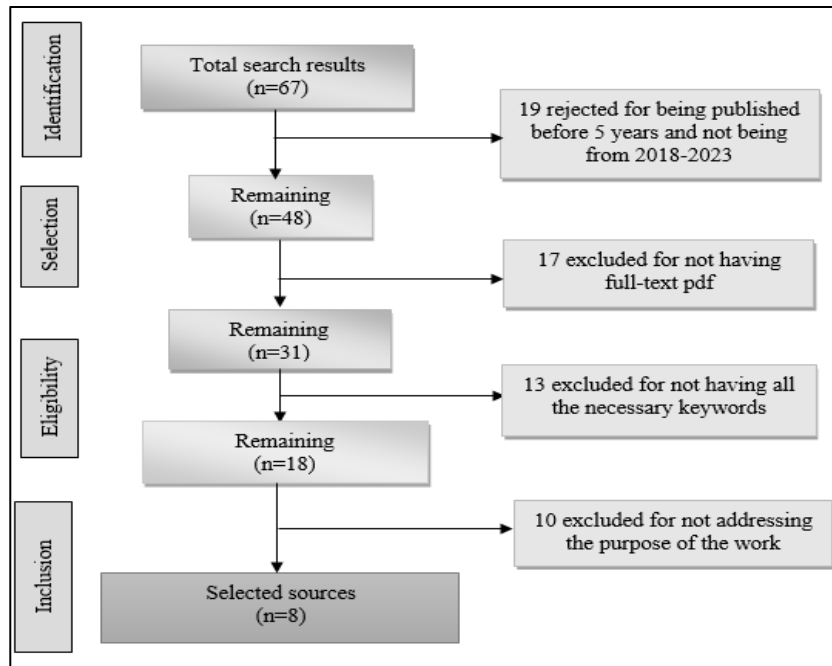


Figure 2: Summary of the research process

(Source: Self-developed)

3. Findings and Results

Table 1: Systematic review

Author (s) and publication year	Aim of the article	Methodology	Findings
"Lee, D., & Yoon, S. N. (2021)"	The article has conducted a thorough review of the impact that AI-based technologies can have on the healthcare sector with the help of real-world examples.	Qualitative- A thorough literature review has been adopted in the study to complete the work and provide the required insights.	AI-based technologies have improved disease treatment while reducing errors within the industry. Patient engagement and participation have improved due to the technology along with a reduction in medical costs. Overall, the service quality has significantly improved with the help of AI-based technologies. There were also various challenges identified in the process like the accountability and cyber-attacks involved with the application of this technology.

“Kakani, V., Nguyen, V. H., Kumar, B. P., Kim, H., & Pasupuleti, V. R. (2020)”	The article aims at reviewing the impact of AI-based learning methods for assisting farmers in food processing and the agriculture industry for the overall improvement of the food industry.	The secondary sources of information have been used in the study where the researchers have referred to a wide range of articles to present their discussion on the entire topic.	The article has highlighted various examples of which AI can be used to improve agriculture and food processing within the industry. From finding pests to crop yielding and portfolio diversification, AI can be used to improve production and quality in the industry. Further, the various aspects of food processing can further be improved with the help of these technologies like harvesting, picking and quality control. There are various case examples that have been used in the article to support the entire discussion of the impact that AI-based learning can have on the food industry.
“Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020)”	The article has reviewed the application of AI in the creation of sustainable business models for all businesses in today’s market. The study has focused on understanding whether AI can influence consumption and production patterns for achieving the SDGs outlined by the United Nations	A quantitative overview has been provided in the study pertaining to the literature available regarding the field	It has been found that AI has the answers to most of the presenting challenges that are being faced by humanity in the present world. Apart from that, the article has also highlighted the role of AI in helping workers to engage in high-profile tasks with exploring the full potential of AI-based technologies. However, the significant contribution of AI in achieving the SDGs has been clearly highlighted with the key focus on SDG #12 while helping in the creation of “sustainable business models” in the process. The growing focus on sustainability is something that makes the entire results and findings of the study important for all sectors
“Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020)”	The influence that transformation of projects due to AI have on the performance of an organisation has been analysed in	A case study design has been implemented in the study which involved conducting reviews of 500	AI is being increasingly adopted by organisations for a wide range of functions but most prominently it allows individuals to have a proper knowledge and idea of the ecosystem and take actions accordingly. The adoption of AI

	this article while building on the business value of such projects.	case studies from AWS, IBM, Cloudera, Nvidia, Conversica and others.	technologies is generally done by organisations to disrupt their ecosystem by the development and optimisation of their strategic and competitive advantages. All of the existing processes within the organisation are optimised with the help of AI while improving the automation prospects of the business. Hence, building on AI can help the organisation improve their business value
"Paul, D., Sanap, G., Shenoy, S., Kalyane, D., Kalia, K. & Tekade, R.K., (2021)"	The use of AI in various sectors of pharma industry has been highlighted in the study	The secondary sources of information in line with the qualitative design has been used in the article to address the mentioned aim	The AI-tools and advancements can be used for various purposes within the industry but in all it can help in reducing all the challenges that is being faced by the industry. The biggest challenge is the rising costs of drugs and therapies which require significant attention from all the stakeholders. With the use of AI, precision medicines can be used according to the patient's needs while speeding up the time needed for products to come to the market. AI-based approaches can make valuable contributions to the future growth and development of the industry.
"Burström, T., Parida, V., Lahti, T., & Wincent, J. (2021)"	The article focused on understanding the way in which market leaders have become successful in facilitating business model innovations with the help of AI in their industrial ecosystems	A qualitative study involving 30 semi-structured in-depths interviews with strategic key personnel has been done in the study to understand the way in which they were able to become successful with the implementation	Market leaders have tried to balance the exploration and exploitation of AI in various business areas. Forecasting and controlling are aspects that are being exploited while optimization and automation are being explored by industry leaders. The full potential of AI has yet to be explored and it is important for the leaders to gain a proper idea of the complexity involved with the process. Incumbent players are using AI for small-scale innovation or using it as improving or enabling technology. AI is still unable to provide the incumbent with the required edge in the

		of AI-based innovation.	market and is now just a competitive requirement for the incumbents in the market
"Pallathadka, H., Ramirez-Asis, E. H., Loli-Poma, T. P., Kaliyaperumal, K., Ventayen, R. J. M., & Naved, M. (2023)"	The impact and influence of AI in e-commerce and finance industry has been explored in the paper	Secondary information published in peer-reviewed journals and articles have been used in the study to gain the required insights.	It has been found that both the industries have used AI for improving the customer experience and development of an efficient supply chain. A standard and reliable product quality control measure has also been developed in the industries with the help of AI while improving the operational efficiency of the business. AI has also provided new ways of reaching or serving customers in a cost-effective manner to the businesses.
"Grover, P., Kar, A. K., & Dwivedi, Y. K. (2022)"	The feasibility of AI utilisation within an industry based on various elements of operations management has been explored in the study	Two methods have been followed in the study. The first method is the systematic review of analyses of the academic literature on the topic. The second is the use of social media analytics to extract and analyse data from Twitter to evaluate the opinions of experts on the subject matter.	It has been found that the use of AI in OM can help in enhancing product quality while helping with large-scale production for the business. AI can further be used for inspection in the bid to reduce cost and time for the industry. Experts involved in social media discussions have suggested the use of AI-powered drones for the inspection of steel structures and wind turbines. AI can further be implemented with ERP by MNCs to minimise resources and improve productivity. AI can further improve the entire prospect of customer relationship management while reducing procurement costs within the supply chain.

Discussion

The above review has been able to highlight the various impact that AI-based L&D can have on various industries and sectors in the market. Although the articles in the review have not directly explored the impacts of AI-based L&D on

the various industries, all the articles have highlighted the impact that AI can have on business. The overall impact of AI or AI-based learning and development can be assumed as the same things since the application of both these aspects would be the same on the business. The systematic review was able to identify 8 prominent articles that have explored the impact of AI on various sectors from pharmaceutical to food and manufacturing. It has been found that AI can have a positive impact on all the elements of the business operations like supply chain management, customer experience and quality controls. The pharmaceutical can significantly improve the production and identification of drugs and therapies using AI while reducing the costs of treatment in the process. The service delivery process within the industry can significantly improve with the help of AI and better patient outcomes can be achieved with the implementation the various AI-based approach.

AI also has the potential to completely disrupt the industry with the development of tools and processes that can solve a problem or create a new market (Howard, 2019). AI can help businesses understand the market in a more appropriate manner and provide them with ways to function effectively in various market conditions. The food industry is something that can effectively use AI-based tools for better products and processes. AI-based learning can help farmers with pest control and crop yield while improving the quality of the final product. AI also has an important role to play in the achievement of sustainable development goals that have been developed by the United Nations for 2030. In regards to the SDGs, AI can help all the stakeholders to engage with high-profile tasks that are needed to meet the goals set by the UN for the development of a sustainable society. On the other hand, corporate businesses and other industries are looking to adopt AI for securing a competitive advantage in the market. Organisations are yet to understand and implement the full potential of AI but are working tirelessly in the process to emerge at the top of the industry (Cockburn, Henderson & Stern, 2018).

AI-based applications can be used by organisations to reduce all the challenges being faced by them in the market especially the ones that are being faced by the pharmaceutical sector in the market. Operational efficiency and productivity are enhanced with the use of AI in the market while providing the business with an edge over the competitors. AI can further help in reducing the errors being made by businesses and helping them understand the needs of the customers in a more appropriate manner. Market

leaders are all looking to either explore or exploit the potential of AI for the betterment of their business in the market. AI can help in improving the quality of products by facilitating better quality control measures and inspections. Major manufacturing industries can effectively use AI-based drones for the inspection of various structures like steel structures and wind turbines. On the other hand, the biggest impact that AI can have on the operation of a business is the development of its supply chain. The supply chain is one of the biggest challenges for any industry in the present scenario due to various factors. AI is something that can help address this particular challenge by helping in the development of a resilient supply chain that is able to meet the needs of the market in an appropriate manner.

Conclusion

A systematic review of the impact that AI-based learning can have on the corporate and industrial sector have been explored in the study. A clear idea of the way in which AI can impact the industry has been gained with the help of SLR in the process. It can evidently be concluded that AI is something that can help in securing the required advantage in the market and the full potential of AI has yet to be explored by these sectors in the market. This research has focused on conducting a systematic review to gather insights and thus there still remains a scope to conduct further research on the topic. Interviews with industry leaders and top executives can help in understanding the impact that AI can have on business while also exploring the future that AI holds for various sectors. The opinions and views of people who are actively involved in the market can significantly add to the existing knowledge that is present in the market regarding the topic.

Bibliography

1. Burström, T., Parida, V., Lahti, T., & Wincent, J. (2021). AI-enabled business-model innovation and transformation in industrial ecosystems: A framework, model and outline for further research. *Journal of Business Research*, 127, 85-95. <https://doi.org/10.1016/j.jbusres.2021.01.016>
2. Cockburn, I. M., Henderson, R., & Stern, S. (2018). The impact of artificial intelligence on innovation: An exploratory analysis. In *The economics of artificial intelligence: An agenda* (pp. 115-146). University of Chicago Press. <https://www.nber.org/system/files/chapters/c14006/c14006.pdf>
3. Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020). Artificial intelligence and business models in the sustainable

- development goals perspective: A systematic literature review. *Journal of Business Research*, 121, 283-314. <https://doi.org/10.1016/j.jbusres.2020.08.019>
4. Grover, P., Kar, A. K., & Dwivedi, Y. K. (2022). Understanding artificial intelligence adoption in operations management: insights from the review of academic literature and social media discussions. *Annals of Operations Research*, 308(1-2), 177-213. <https://doi.org/10.1007/s10479-020-03683-9>
5. Howard, J. (2019). Artificial intelligence: Implications for the future of work. *American journal of industrial medicine*, 62(11), 917-926. <https://www.ishn.com/articles/111325-artificial-intelligence-implications-for-the-future-of-work>
6. Kakani, V., Nguyen, V. H., Kumar, B. P., Kim, H., & Pasupuleti, V. R. (2020). A critical review on computer vision and artificial intelligence in food industry. *Journal of Agriculture and Food Research*, 2, 100033. <https://doi.org/10.1016/j.jafr.2020.100033>
7. Lee, D., & Yoon, S. N. (2021). Application of artificial intelligence-based technologies in the healthcare industry: Opportunities and challenges. *International Journal of Environmental Research and Public Health*, 18(1), 271. <https://doi.org/10.3390/ijerph18010271>
8. Leung, C. K., Braun, P., & Cuzzocrea, A. (2019). AI-based sensor information fusion for supporting deep supervised learning. *Sensors*, 19(6), 1345. <https://www.mdpi.com/1424-8220/19/6/1345/pdf>
9. Odor, H. O. (2018). A literature review on organizational learning and learning organizations. *International Journal of Economics & Management Sciences*, 7(1), 1-6. <https://doi.org/10.4172/2162-6359.1000494>
10. Pallathadka, H., Ramirez-Asis, E. H., Loli-Poma, T. P., Kaliyaperumal, K., Ventayen, R. J. M., & Naved, M. (2023). Applications of artificial intelligence in business management, e-commerce and finance. *Materials Today: Proceedings*, 80, 2610-2613. <https://doi.org/10.1016/j.matpr.2021.06.419>
11. Paul, D., Sanap, G., Shenoy, S., Kalyane, D., Kalia, K. & Tekade, R.K., (2021). Artificial intelligence in drug discovery and development. *Drug discovery today*, 26(1), p.80. <https://doi.org/10.1016/j.drudis.2020.10.010>
12. Thormundsson, B., 2023. Artificial intelligence (AI) market size worldwide in 2021 with a forecast until 2030. Retrieved from: <https://www.statista.com/statistics/1365145/artificial-intelligence-market-size/>
13. Thormundsson, B., 2023. Global total corporate artificial intelligence (AI) investment from 2015 to 2021. Retrieved from: <https://www.statista.com/statistics/941137/ai-investment-and-funding-worldwide/>

14. Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Business Process Management Journal*, 26(7), 1893-1924. <https://doi.org/10.1108/BPMJ-10-2019-0411>
15. Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of planning education and research*, 39(1), 93-112. <https://journals.sagepub.com/doi/pdf/10.1177/0739456X17723971>