

Artificial Intelligence in Drug Development: Opportunities, Challenges, and Considerations for Successful Adoption

Yash Garg

LLOYD Institute of Management and Technology, Greater Noida, India

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Artificial intelligence (AI) has the potential to transform the drug development process, enabling faster, more efficient, and more targeted drug discovery and development. AI used in combination with human expertise, particularly in the areas of pharmacology, toxicology, and clinical trials.

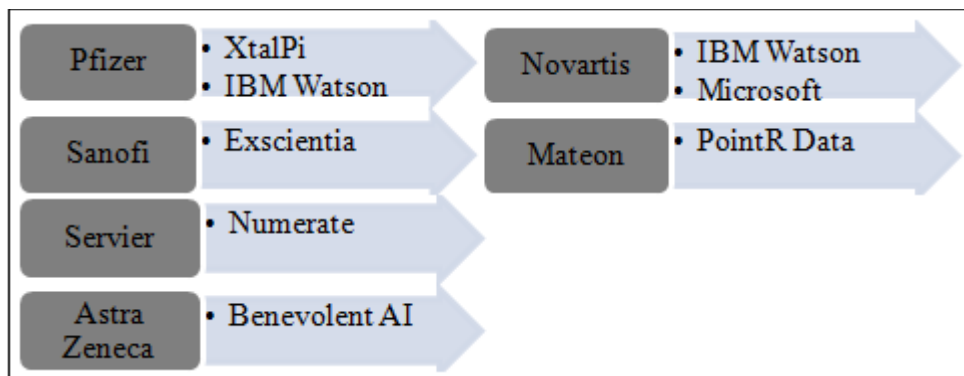
This abstract explores the pathways for successful AI adoption in drug development, including the importance of collaboration between AI and domain experts, data quality and transparency in AI algorithms, and regulatory frameworks. Collaboration between AI and domain experts can ensure that AI algorithms are tailored to the specific needs of drug development and applied appropriately.

AI algorithms depend on high - quality data to generate accurate insights. In drug development, data quality is particularly important because the consequences of inaccurate data can be severe. So, data should be carefully validated, and AI algorithms should be transparent.

Regulatory frameworks play a crucial role in ensuring that drugs are safe and effective for patients. As AI is increasingly used in drug development, regulatory frameworks must adapt to ensure that AI - generated insights are adequately tested and validated.

AI can significantly accelerate the drug discovery and development process, enabling the identification of new drug targets, the optimization of drug candidates, and the prediction of potential safety and efficacy issues. AI can be used to identify patient subpopulations that are more likely to benefit from a particular drug.

AI is not without its challenges, including the need for human oversight in AI algorithms. AI - generated insights are only as good as the data that feeds them, so data quality remains a critical factor in the success of AI in drug development. Leading pharmaceutical companies and their association with Artificial Intelligence (AI) organizations that are working in fields including oncology, cardiovascular diseases, and central nervous system disorders:



Ultimately, Successful adoption of AI in drug development requires a collaborative and transparent approach that prioritizes patient safety and effective drug development. AI is a powerful tool, but it is not a substitute for human expertise and judgment. By working together, domain experts and AI can revolutionize the drug development process and bring new and effective treatments to patients faster than ever before.

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