

What happens when AI disrupts pharma R&D?

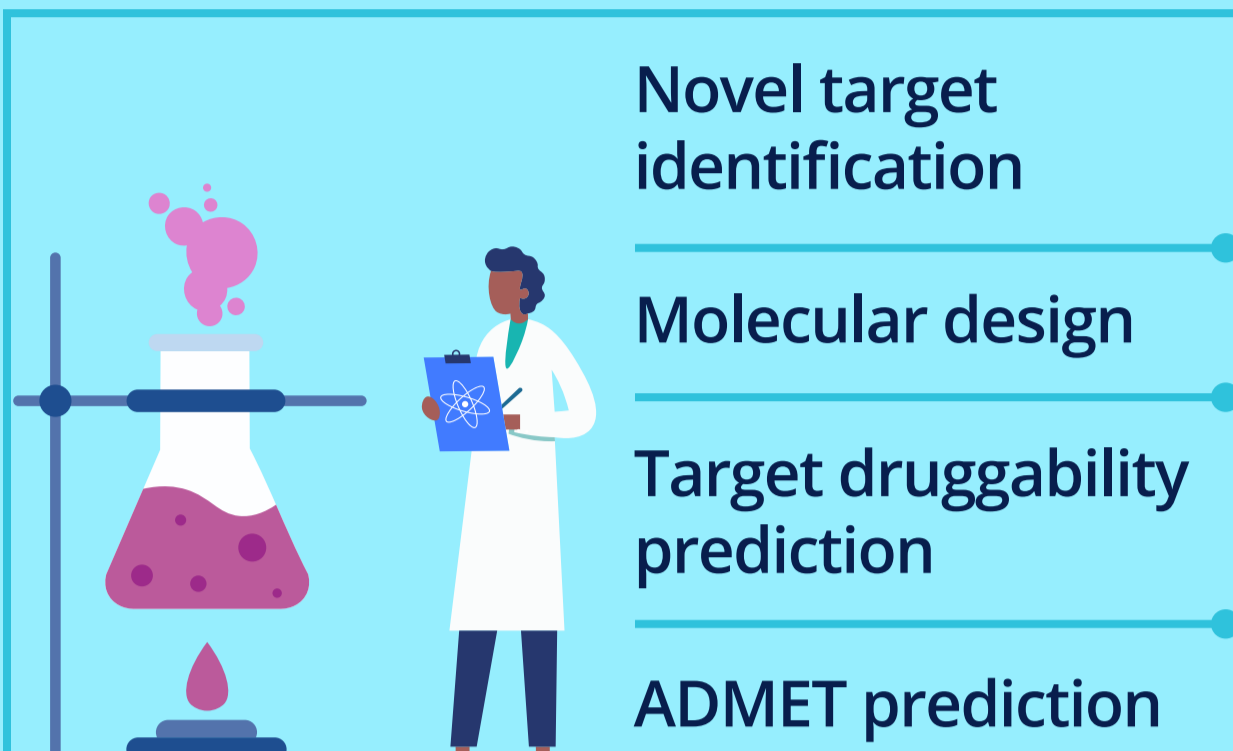
Artificial intelligence (AI) investment in drug discovery saw a **450% year-over-year** (YoY) increase from 2019 to 2020¹ and hiring for AI and machine learning (ML) positions at biopharma companies worldwide increased **155% YoY** from April 2020 to May 2021². The industry's embrace of AI/ML and cloud technologies reflects a desire to improve organizational productivity and increase the impact of scientific research.

Since the emergence of COVID-19, biopharma companies have redoubled efforts to transform processes across all stages of the drug development lifecycle. Developing and manufacturing COVID-19 vaccines in record time necessitated the embrace of new digital technologies and procedures, including remote work and cloud technologies.

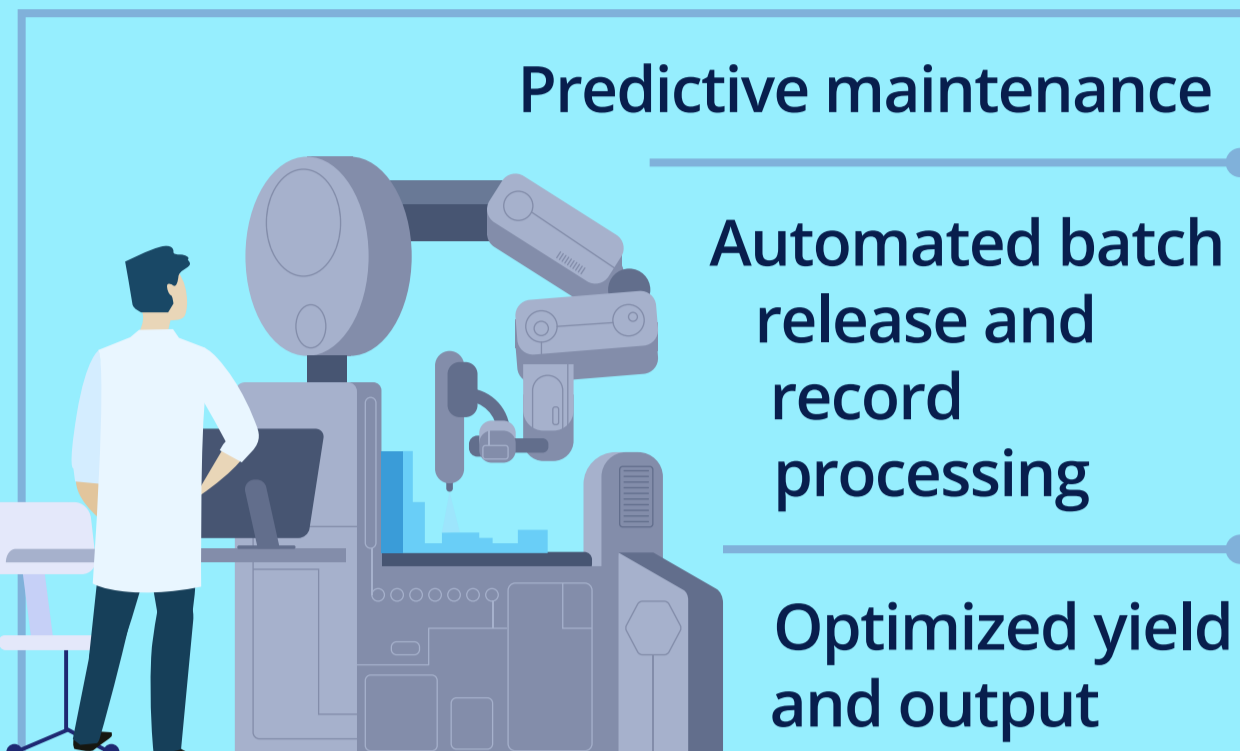
The following trends highlight how AI/ML and engineered solutions for scientific data will define the future of biopharma.

Where biopharma companies are applying AI/ML and cloud technologies^{3,4}

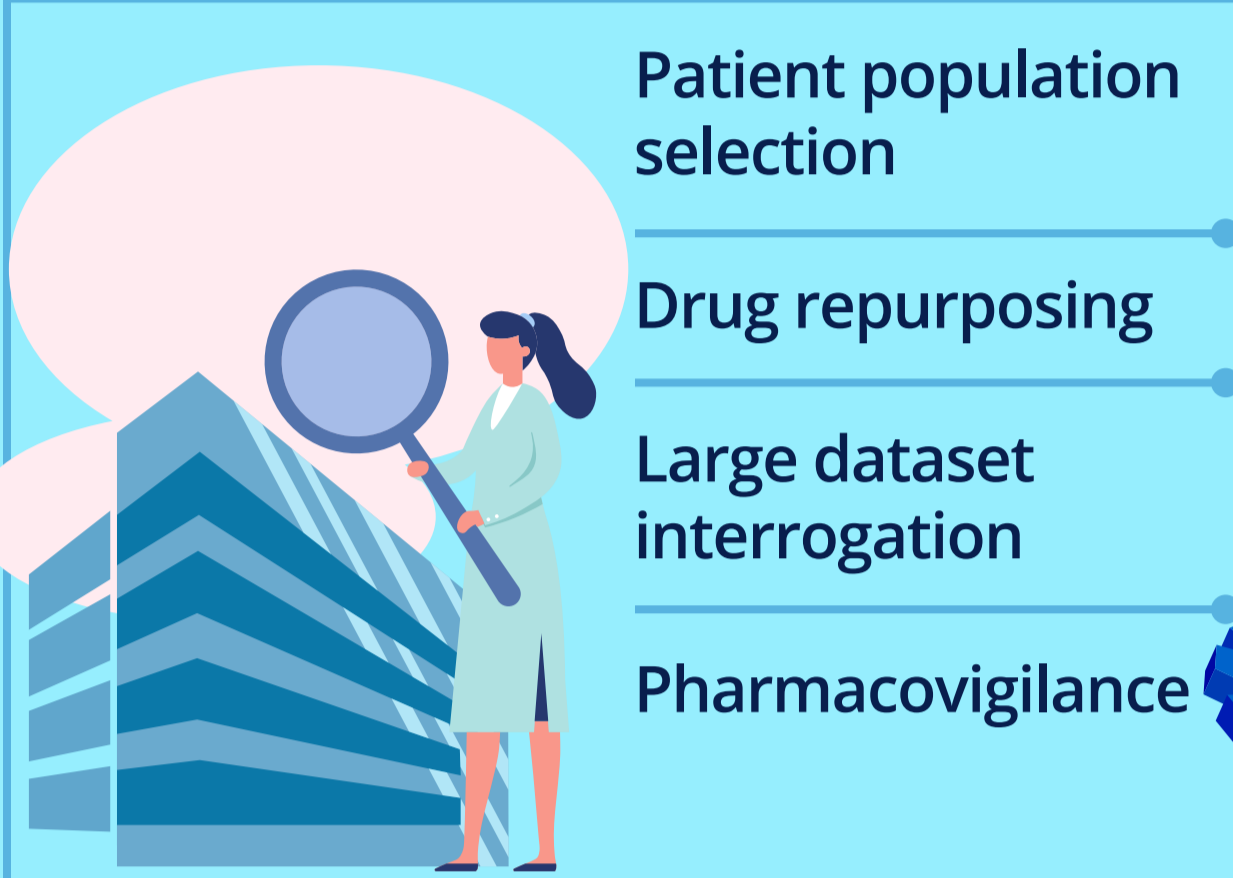
1 Discovery and Development



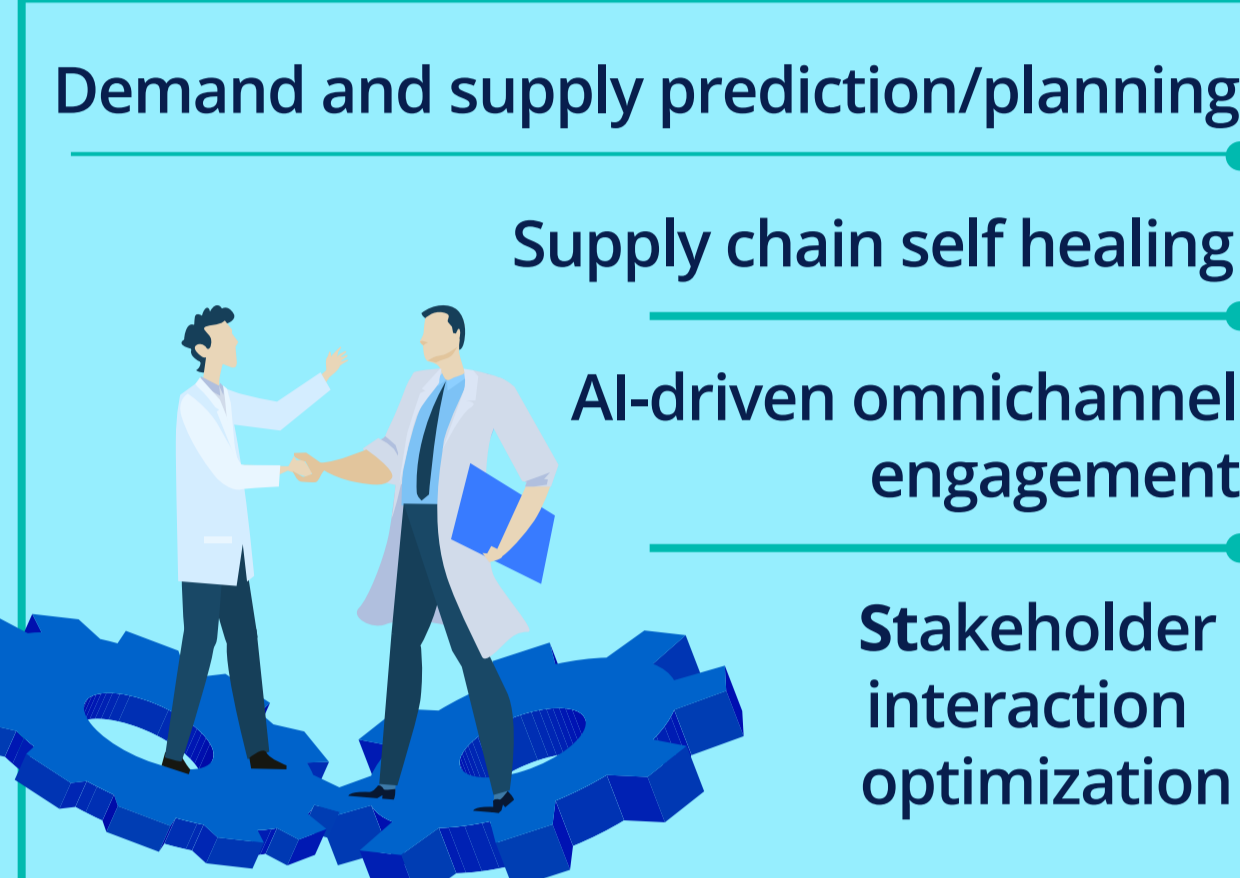
2 Manufacturing



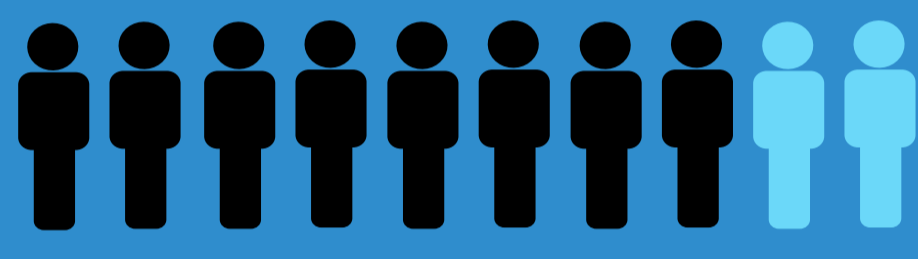
3 Clinical Trials



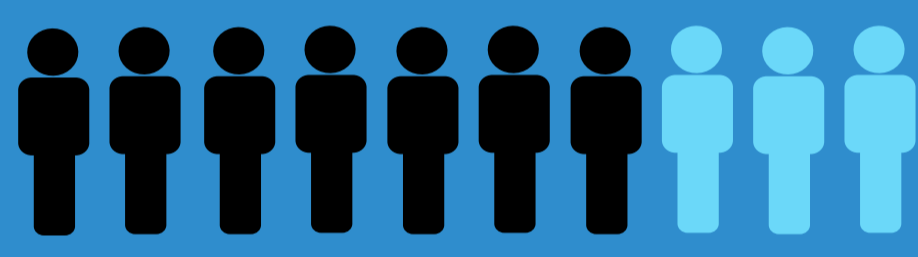
4 Supply Chain & Commercial



150 executives from multiple functions at large biopharma companies (>\$1bn in revenue) were asked about their plans to adopt digital innovation technologies over the next five years³:



81% report prioritizing investments in AI



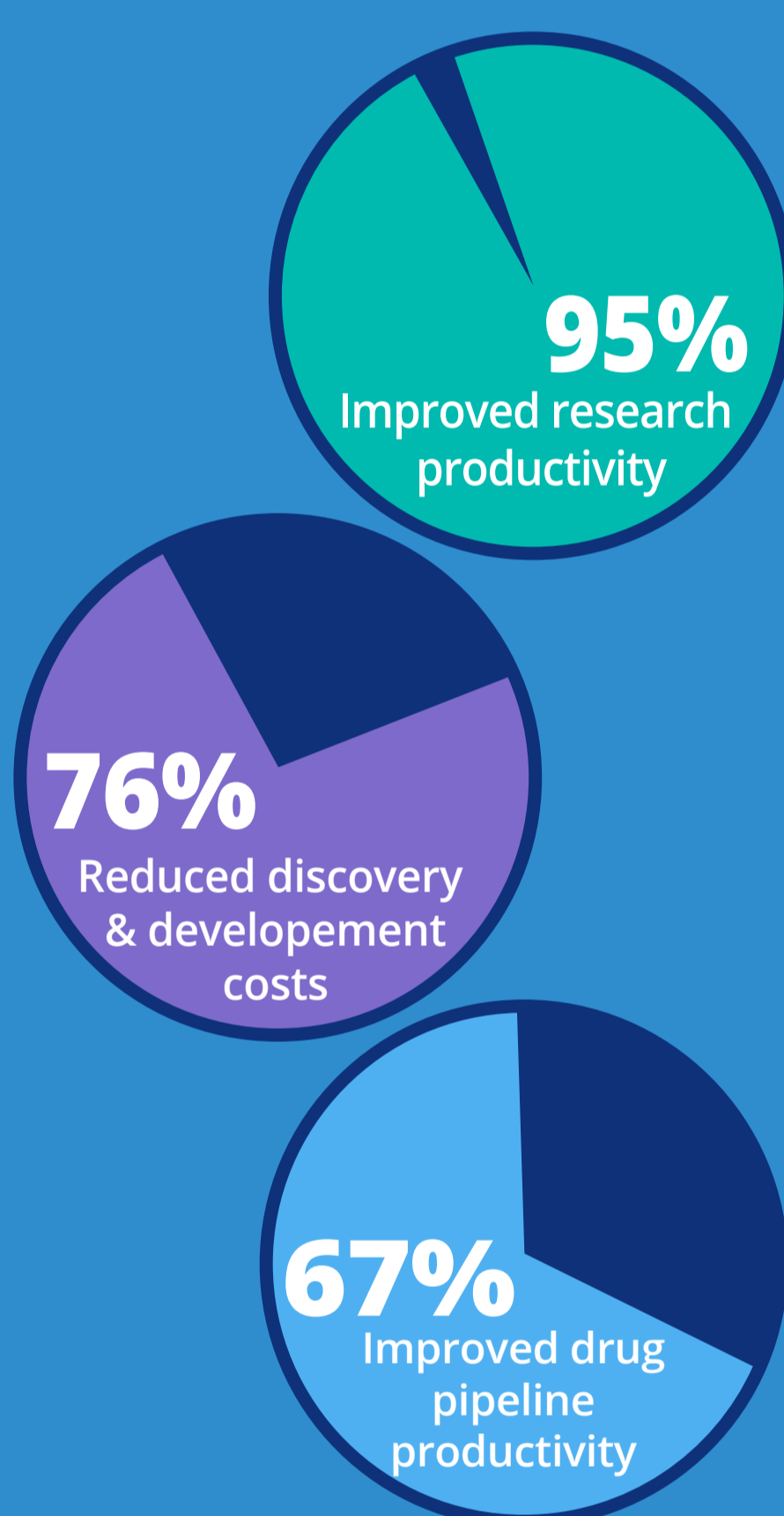
and 71% in cloud technologies.

However, only **38%** and **49%** currently use AI and cloud technology in day-to-day operations, respectively

These priorities are here to stay, as demonstrated

by **82%** of executives responding that digitalization of activities and operations will continue after the pandemic.

Respondents believe digital solutions — including AI, cloud technologies and automation — will deliver these high value outcomes:



Combining a cloud platform with AI/ML delivers valuable insights faster

Before utilizing AI/ML, companies must have access to data sets that have been curated and prepared for advanced analytics, such as machine learning. This presents an industry-wide challenge because most scientific data are locked in silos with innumerable vendor-specific file formats, leading scientists to **waste nearly 50% of their time**⁵ manually extracting, validating, and transforming data across a disconnected laboratory ecosystem. There is now, for the first time, a solution.

TetraScience provides the only open cloud data platform, the Tetra Data Platform, to help biopharma automate the ingestion of data from disparate sources, centralize them in the cloud for easier access, verify and enrich them, and harmonize them into a universally adoptable data model.

The result is **Tetra Data** — available across ELN/LIMS systems, instrument and control software, and prepared for advanced analytics, AI/ML, and visualization. By adopting the TetraScience R&D Data Cloud, biopharmaceutical companies can rapidly advance scientific outcomes across workflows and advanced analytics.



Tetra Partner Network

Tetra Data is complemented by another essential component of the TetraScience solution – the **Tetra Partner Network (TPN)**. TPN facilitates the use of Tetra Data by leading life sciences suppliers through partnership models. The TPN partnership with **Datagrok**, provider of a powerful solution that leverages AI/ML to provide deep data insights, will help biopharma customers accelerate their understanding of diseases by using TetraData to feed the advancement of AI/ML and data visualization.

References

- <https://aiindex.stanford.edu/report/>
- <https://www.pharmaceutical-technology.com/features/ai-in-healthcare-2021/>
- <https://www2.deloitte.com/us/en/insights/industry/life-sciences/biopharma-digital-transformation.html>
- <https://pubmed.ncbi.nlm.nih.gov/33965571/>
- https://www.pharma-iq.com/pre-clinical-discovery-and-development/reports/2022-state-of-digital-lab-transformation-in-biopharma?utm_source=Sponsor&utm_medium=

Learn more about how Tetra Data enables AI/ML at tetrascience.com