Generative AI for *life sciences*

Getting the fundamentals right

Capgemini

Generative AI (GenAI) is poised to deliver a dose of adrenalin that will revolutionize the life sciences industry. But just as companies must design clinical trials to ensure accuracy, legitimacy, and efficacy, they must also carefully manage the deployment of GenAI throughout the enterprise.

Now is the time for organizations to plan their GenAI strategy and explore carefully selected use cases in a controlled environment, so they're ready to reap this technology's significant benefits while not exposing themselves to unnecessary risk.

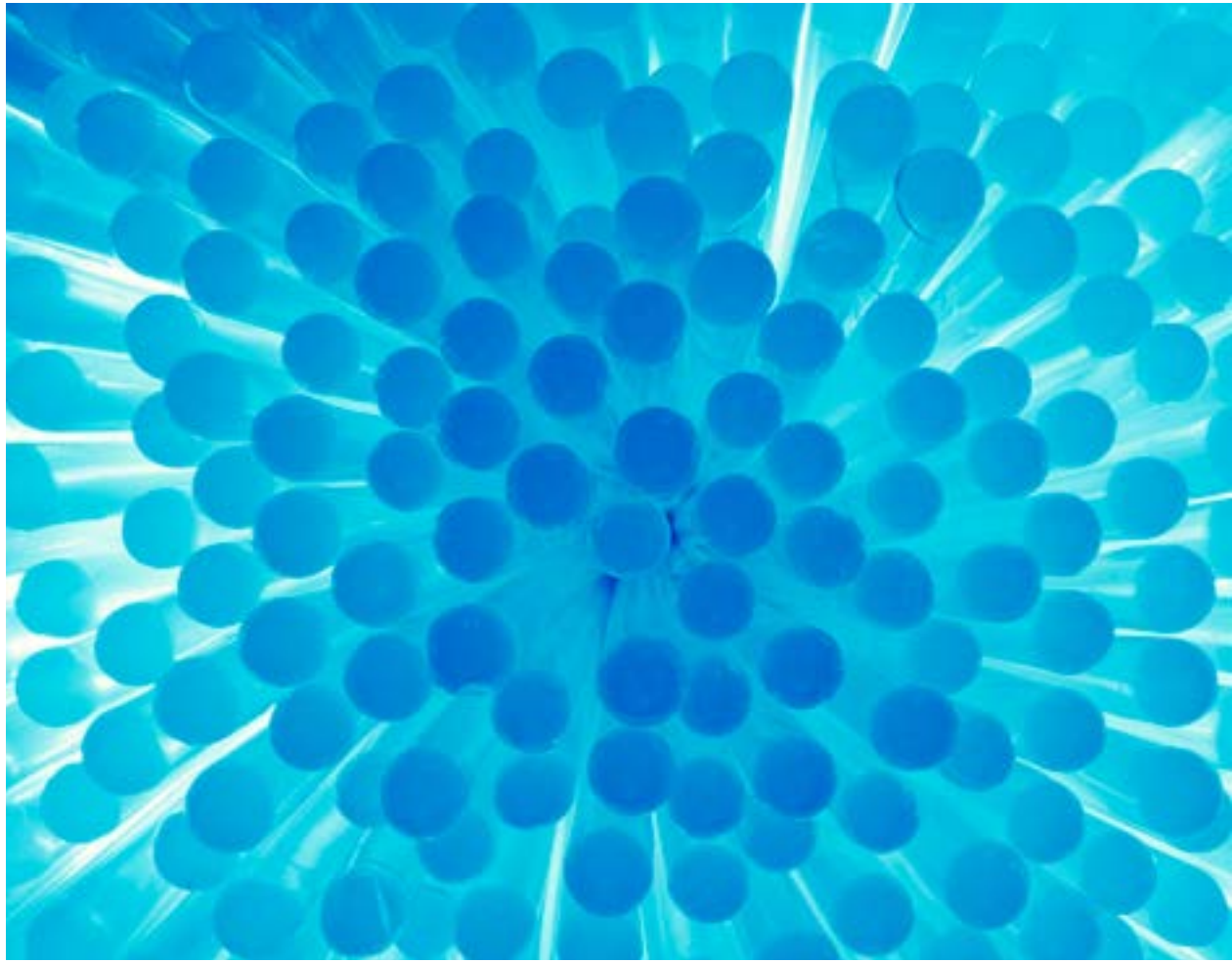
Three stages of GenAI evolution

Capgemini expects GenAI to evolve rapidly over the next few years and has identified three phases of this evolution.

The first, the exploration phase, is already underway and will continue through 2024. This involves identifying use cases and applying GenAI to demonstrate proof of concept and proof of value. The technology's summarization and language capabilities will unlock insights from huge amounts of data in ways that could not previously be done. Life sciences companies, in partnership with third parties, will define and implement the new operating models necessary to leverage GenAI to drive impact across all areas, including governance, processes, data, platforms, and people.

Exploration will transition into the augmentation phase sometime in 2024. In this stage, companies will combine GenAI with conversational AI and predictive AI and use the resulting solutions to deploy co-pilots and AI assistants across the value chain. These will be powered by custom multimodal GenAI, enabling companies to re-engineer key processes and realize major efficiency gains. Among other advances, GenAI will accelerate and expand molecule design to scale and enable dynamically optimized manufacturing processes.

By 2027, augmentation will evolve into the re-invention phase. By this point, GenAI will permeate all areas of the company and fundamentally enhance roles and daily tasks. Meanwhile, combining GenAI with spatial computing will create completely new interfaces for interacting with technology. GenAI assistants will be ubiquitous, fully context-aware, and aligned with the physical world. They will capture knowledge automatically and collaborate with people on a wide range of tasks. GenAI will also enable extensively automated labs, factories, supply nodes, and customer ecosystems.



Act now, or wait and watch?

GenAI has evolved rapidly and will continue to do so. Technology companies and platform providers are already developing enterprise-class solutions that support use cases specific to life sciences organizations while providing the security, governance, and scalability that companies require.

In Harnessing the value of generative AI, the Capgemini Research Institute notes 98% of life sciences executives it interviewed have put the technology on their boardroom agendas, while 80% of executives polled expect the benefits of GenAI to outweigh any potential risks. Interestingly, the report also found that while 58% of life sciences executives are strong advocates for GenAI, another 39% have subscribed to a "wait-and-watch" approach. Capgemini's recommended strategy blends the best of these attitudes.

Most promising GenAI value:

- Accelerate discovery and development
- Improve the outcomes of clinical trials
- Streamline supply-chain and manufacturing operations
- Enhance sales and marketing
- Bolster regulatory and compliance activities

Six things companies can start doing now

Enterprises must recognize GenAI will transform the sector – and embrace that change. It's important that organizations start preparing today. Capgemini has identified six key elements companies must address to ensure they're ready.

People and talent: Make sure the right team is in place including technology and business-transformation partners.

Vision and strategy: GenAI can't be approached in an ad-hoc manner. Establish a solid strategy and roadmap with an eye to scalability.

Governance: Implement governance bodies, processes, and technology to ensure GenAI applications are responsible and ethical while also enabling them to scale across the enterprise and its partners.

Data and platforms: To work effectively, GenAI must ingest massive amounts of data from across the company's ecosystem. Put the right technology in place to enable secure and reliable solutions that protect data privacy and comply with all applicable regulations.

Change management: Develop the communications and training tools necessary to ensure staff embrace and adopt GenAI in a responsible way.

Use cases: Identify specific use cases across the value chain as well as the criteria required to prioritize them.

Why the choice of use case matters

It's tempting to start with a big win – for example, applying GenAI to research and discovery. These types of activities are time-consuming and costly: collectively, life sciences companies invest hundreds of billions of dollars into them each year. Any improved outcomes or realized efficiencies due to GenAI will pay significant returns.

However, companies in this sector should build expertise and experience with GenAI before applying it to core activities. Capgemini advises caution as organizations deploy GenAI use cases in which being correct and impartial is important, or in which the consumer of the information is not expert enough in the topic to properly assess it.

Capgemini encourages clients to start with use cases in what it refers to as the "safe zone" – those in which being incorrect has minor, manageable consequences, or in which the GenAI system is supplementing and augmenting a human expert who can then filter, validate, and interpret the outputs.

There are many such use cases, including:

- **Automated literature searches to generate summaries and suggest additional relevant papers**
- **Analyzing, summarizing, and reporting on medical conferences**
- **Supplier evaluations, including using historical data and current trends to predict potential risks.**

Such use cases are quick to set up and easy to scale. They can demonstrate the value of GenAI while providing technical teams and business users first-hand experience with the technology. And for company leaders, insights from such use cases will help identify any shortcomings in their GenAI preparations that must be addressed. With the experience gained, companies will be well positioned to tackle use cases with high stakes and larger rewards – including use cases in research and discovery, clinical trials, and manufacturing.

Elevating the *possible*

– by ensuring it's done right

To help companies succeed, Capgemini has established a global network of technology partners and developed a holistic framework to build strategies and solutions that are secure, reliable, scalable, and tailored to the unique needs of life sciences enterprises.

This framework includes the data platforms GenAI runs on, the large foundation models and enterprise-specific knowledge models that GenAI leverages, and the guardrails that protect data and govern its use.

To learn more about our life sciences use cases or to understand how we've helped your peers in the industry.

Please contact : **CHRISTIAN GALLIGHER**
Data and AI Group
christian.galligher@capgemini.com

Authored by

PARVIN MOYASSARI

Global I&D Lead in Life Sciences
parvin.moyassari@capgemini.com

About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

Get the future you want | www.capgemini.com

Capgemini