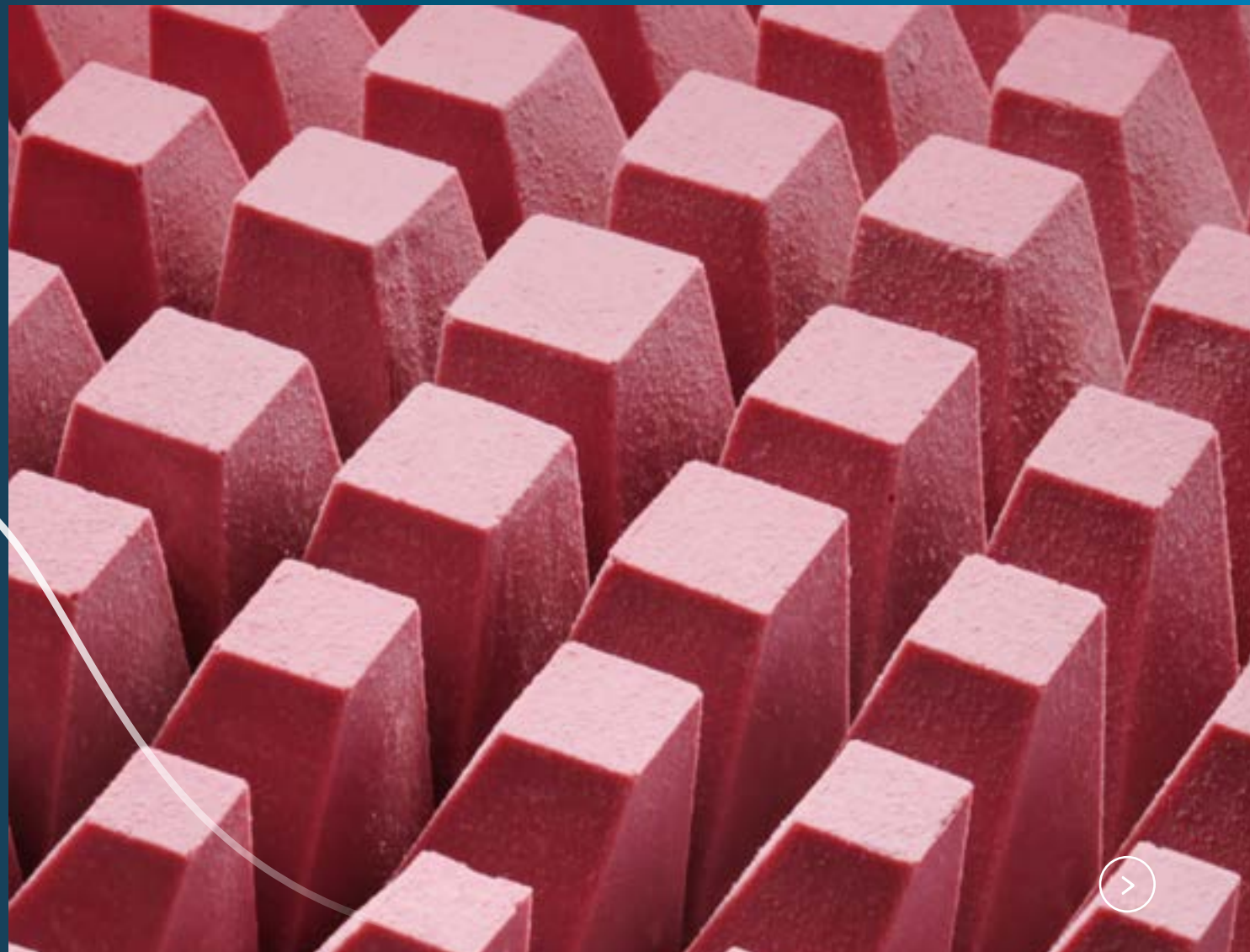
Enhancing life sciences research with *GenAI*



Capgemini

Use cases are emerging that apply generative AI (GenAI) to augment research – accelerating time to market, reducing costs, and improving patient outcomes.

Companies in the life sciences sector invest huge amounts (of both money and time) into the research, development, and clinical trials needed to bring new products to market. As competition increases, organizations are even more dependent upon innovation to create value. Now, GenAI is ready to undergo 'clinical trials' of its own, the outcomes of which promise to revolutionize how enterprises conduct research. Return on investment into technology has seen mixed returns for life sciences organizations and GenAI is set to change this trend as it fundamentally impacts the economics of the entire value chain.

Injecting GenAI **into life sciences**

GenAI is characterized by its ability to ingest incomprehensible volumes of information, extract value from this, and use it to augment human intelligence in ways never before imagined. The technology has captured the imagination of consumers, and this has translated into action at the corporate level. In Harnessing the value of GenAI, the Capgemini Research Institute notes that 98% of the life sciences executives it interviewed say the technology is on their boardroom agenda.

Technology companies are responding with enterprise-class solutions for life sciences organizations. These support use cases specific to the sector while providing the security, governance, and scalability enterprises require.

Capgemini has identified several compelling use cases that life sciences companies should consider. Here are a few, addressing challenges related to the creation, testing, and approval of new products, as well as ongoing engagements with healthcare professionals (HCPs) about their use.

Creating a *virtual lab assistant*

Research activities generate vast amounts of valuable data – but it's not all easily accessible. Research labs may be distributed globally, and the data they rely upon often exists in silos, generated by different instruments, captured in discrete electronic lab notebook systems, governed by unique databases of standard operating procedures, and housed in a variety of laboratory information-management systems.

Data types and formats are often highly variable, making it difficult for a company to aggregate and unlock the value of its own knowledge. This is where GenAI can enhance the process.

The technology's ability to interact through natural-language interfaces represents an opportunity to create GenAI-powered lab assistants. With access to all the company's data, this assistant can provide possible answers to key scientific queries for the researcher to consider. Potential benefits include unlocking hidden insights to power innovation, improved knowledge and technology transfer, higher rates of experimentation per laboratory, and more efficient use of instruments, raw materials, and other resources.

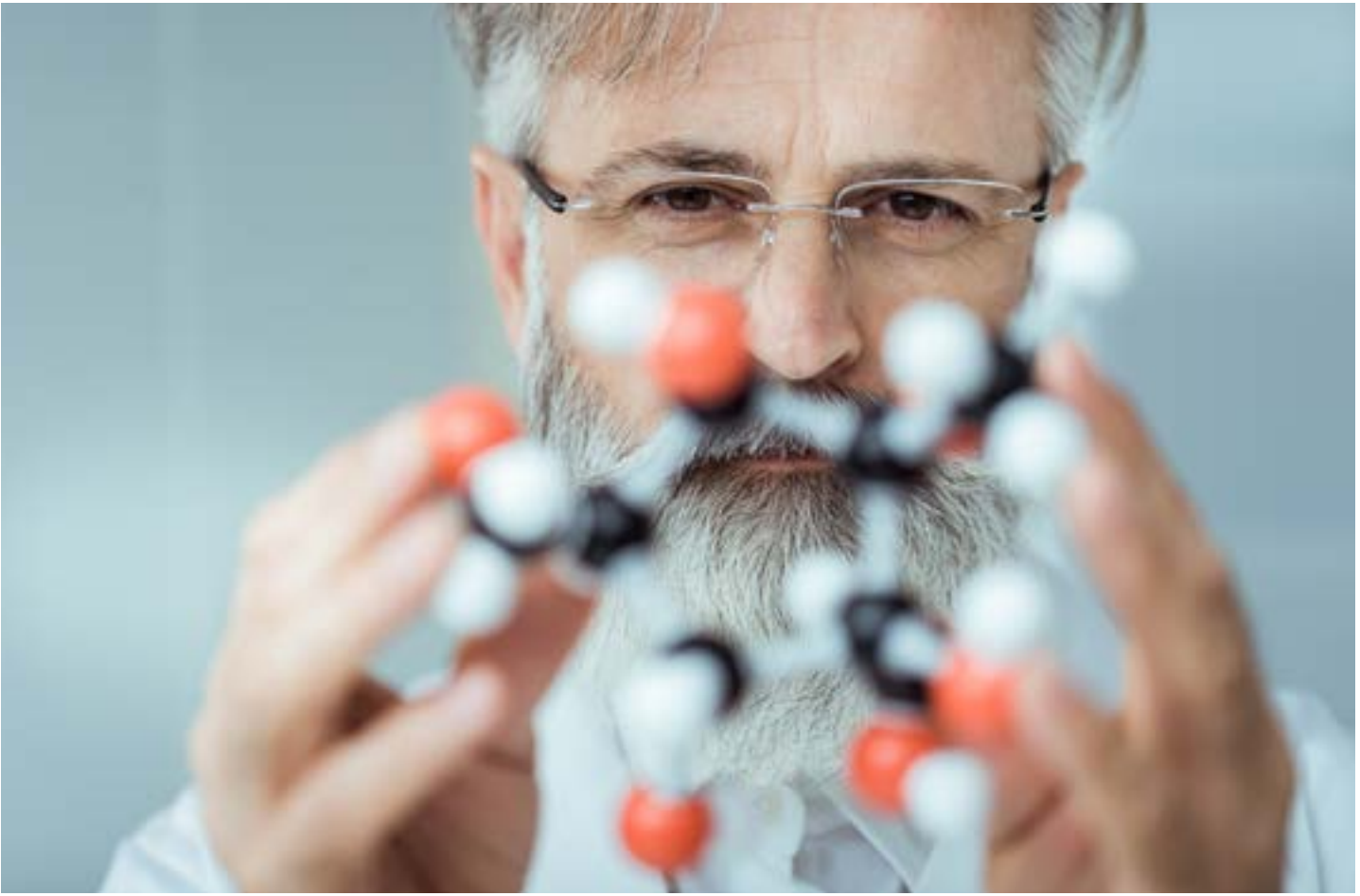
Creating better *clinical study reports*

A clinical trial is a complex, ongoing process that generates large amounts of data, often in a variety of types and formats. Scientists could make more effective and efficient decisions if they were able to interpret this data in a dynamic and timely fashion. However, such a rapidly changing environment can be at odds with the strict regulatory requirements that govern active clinical trials.

One of these requirements is clinical study reports. These must be generated at many stages during a trial and are essential before decisions can be taken and trials can proceed. Creating these documents requires researchers to collect and aggregate data, which involves considerable time and effort.

GenAI can automate the creation of these documents from controlled template banks. It can also streamline the submission process by imposing formatting and wording to comply with regulatory requirements.

This can minimize the time required to prepare documents and reduce the risk of introducing human error during the input and review of the data. The benefits include better regulatory compliance, which can result in faster approvals.



Engaging HCPs with personalized content

HCPs are busy people who must process a lot of information on a daily basis. Ensuring HCPs receive the right information about a product in a timely manner is a constant challenge for life sciences enterprises. The requirement that every communication be in compliance with applicable medical, regulatory, and legal rules makes managing these engagements even more complex.

Hyper-personalized messages, delivered at the right time and in the right format, can improve the effectiveness of these communications – and GenAI makes this possible.

Without the technology's ability to rapidly produce huge volumes of tailored content, such hyper-personalization would be essentially impossible.

GenAI can be trained to draw upon modular assets to create content adapted to various HCP profiles and markets. It can also ensure the content complies with all rules governing such communications. The result is faster generation of materials that more effectively communicate important product information to doctors, nurses, and others.

Augmenting talent – not replacing it

Those who lead life sciences companies are keen to leverage the power of GenAI. That said, because it is still a nascent, evolving technology and because of the high-risk/high-reward nature of life sciences research, Capgemini encourages enterprises to adopt a measured approach to deploying it.

Note that while each use case described addresses a different challenge, none replace team members. Capgemini advises life sciences clients to start their GenAI journey with use cases in what it refers to as the "safe zone" – those in which GenAI is augmenting the abilities of human experts who can then filter, validate, and interpret the technology's outputs.

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 the sector.

This framework includes the data platforms GenAI runs on, the large foundation models and enterprise-specific knowledge models that GenAI leverages, the guardrails that protect data and govern its use, and the design and deployment of business use cases that are feasible and will deliver tangible outcomes.

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

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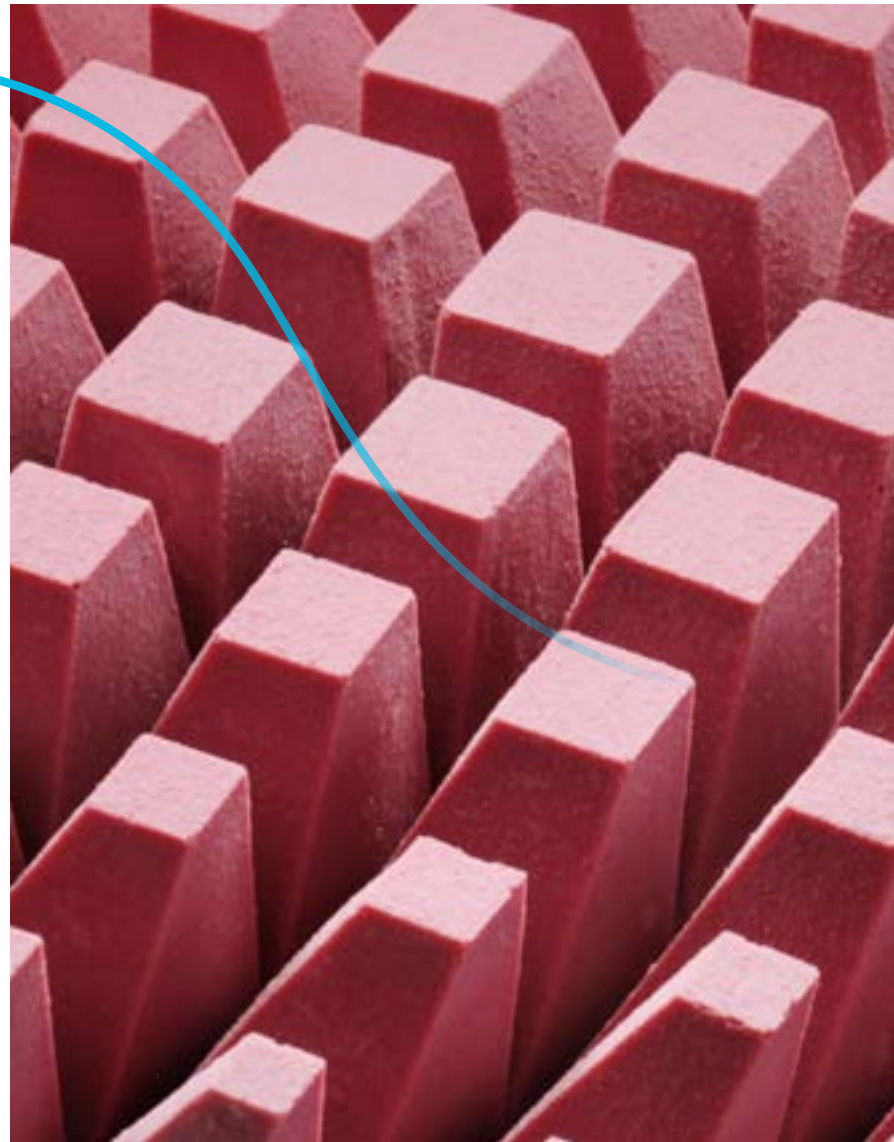

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Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and 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.

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