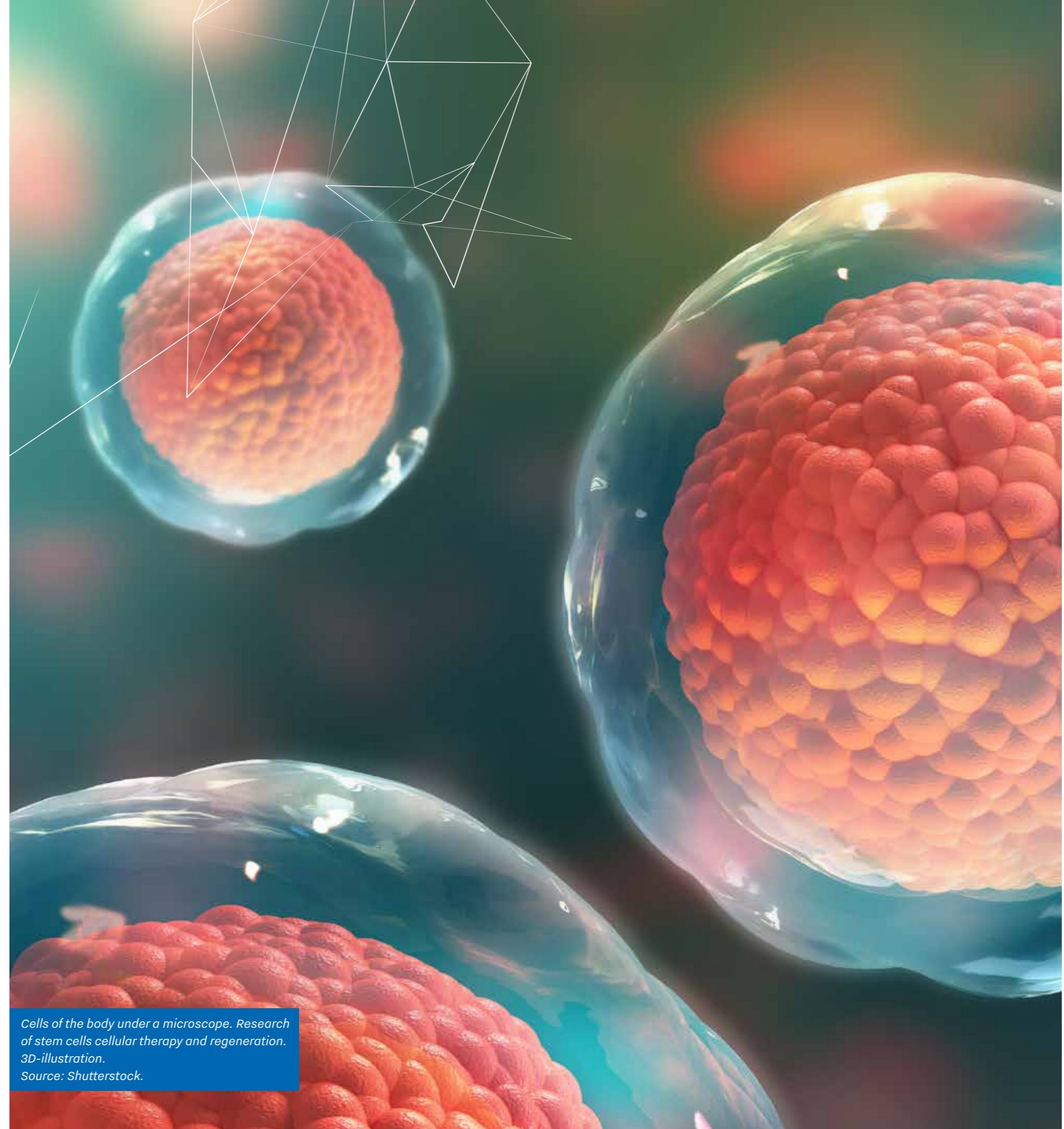


Potential of AI being recognized and pursued across sectors

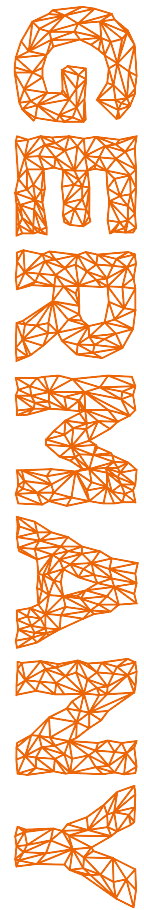
Comprising 8.4% (€131 billion) of Germany's total exports, the healthcare sector makes a major contribution to the country's strong economic position. And AI is widely seen as one of the most promising technologies for making healthcare more personalized, efficient and affordable.

Government catalyst

Germany was the EU's largest healthcare spender in 2019 and with costs rising, the government is well-aware of the need to continuously invest in innovation within the sector. The country's approach to AI in healthcare is characterized by clusters or ecosystems that evolve around government programs, research institutes and/or businesses.



Cells of the body under a microscope. Research of stem cells cellular therapy and regeneration. 3D-illustration. Source: Shutterstock.



Within government, the Ministries of Research, Economic Affairs and Healthcare are the main public drivers investing in and promoting AI in healthcare. The National AI strategy, launched in 2018, invests €5 billion in AI research – fundamental research at Max Planck Institutes and applied research at Fraunhofer Institutes. In addition, the government strengthens ecosystems through ‘calls’ supporting, for example, *Reallabore*.

Data-sharing and developing the EU’s GAIA-X cloud system are a central contribution of Germany to future EU AI developments being put into practice. While use cases of data-driven healthcare research are mapped out in the [Medizininformatik Initiative](#).

Geographical concentration

Ecosystems around knowledge institutes are heavily concentrated in southern Germany, where 45 of the 99 government-funded research projects are based. Examples include Cyber Valley Tübingen, that works on AI applications in clinical brain studies, and the Technical University Munich and German Heart Association

collaborating to use AI methods to understand highly complex biological cell processes and nanoscale treatment. Other regions focus on specialized research areas, such as Lower Saxony, where in Göttingen a €9.6 million BMBF-funded research project is investigating AI applications for cancer treatment.

Company-led research

World-renowned German companies are creating their own AI/healthcare clusters. Carl Zeiss in Oberkochen has developed highly sensitive cameras in combination with deeplearning algorithms. Siemens Healthineers in Erlangen uses algorithms in their CT and MRI systems to place patients correctly in the scanner and analyze images. Dutch MedTech company Sioux has also entered the German ecosystem with the acquisition of software firm 4Plus.

Berlin is home to many AI/healthcare startups sparking interest from international venture capitalists. ADA Health, for example, is a health self-assessment app that received a €40 million investment in 2017. To bring together Dutch and German startups, investors and

companies, the NBSO Stuttgart and NIN Germany organized four Dutch Digital Health Nights in parallel with Germany’s largest e-health conference, DMEA in Berlin.

Broader questions

While AI applications in healthcare continue to multiply rapidly across the country, the German Academy of Natural Sciences stresses that many fundamental questions around the use of AI in healthcare need further investigation. Issues such as privacy, skills development and creating data that remains usable even when technology systems change. Many of these ethical, legal and social aspects are being studied in the BMBF-funded ELSA Research Framework, with the aim of ensuring the future shape of AI in healthcare takes account of all society’s needs.

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World-renowned German companies are also creating their own AI/healthcare clusters