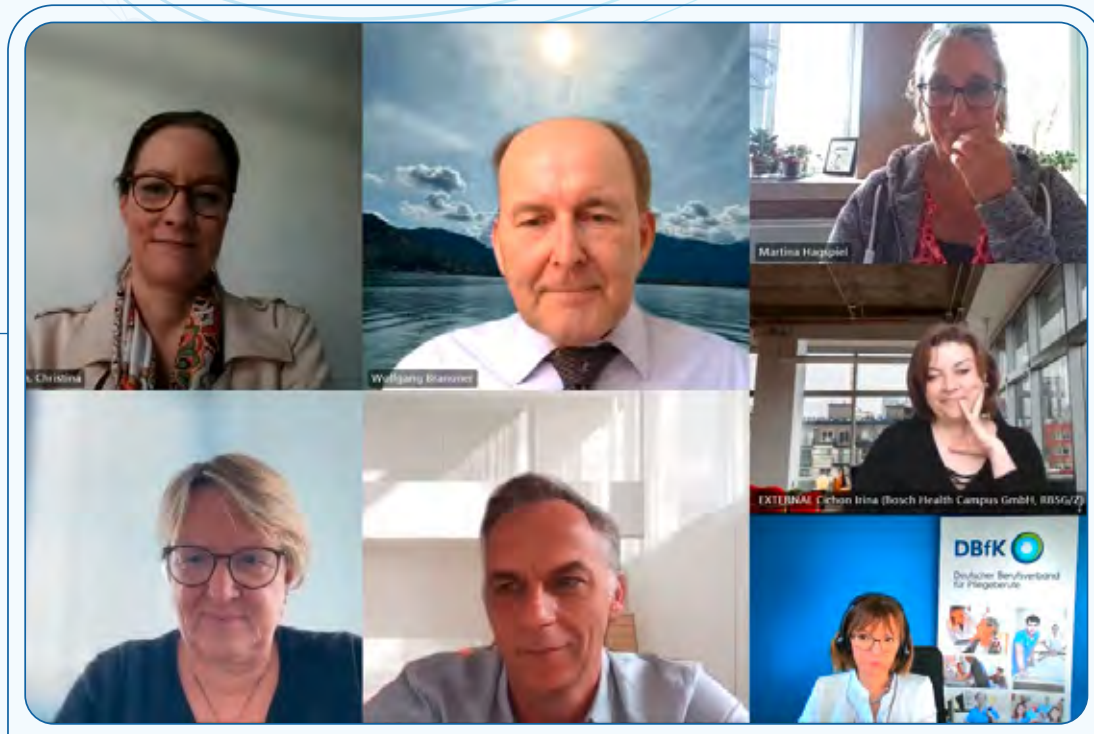
Artificial Intelligence – what's in it for me?

INSIGHTS FROM EXPERTS IN THE HEALTHCARE SECTOR

Digital discussion round

As part of a digital panel discussion on the topic of "Artificial intelligence - what's in it for me?" on March 5, 2024, Wolfgang Branoner (*SNPC* GmbH) invited experts from the healthcare sector to discuss the use of artificial intelligence and highlight the potential for the future.

In a keynote speech, **Prof. Dr. Sylvia Thun** gave a current overview of the applications of artificial intelligence in the medical field. Prof. Thun, **Christina Claussen**, **Irina Cichon**, **Dr. Bernadette Klapper**, **Martina Hagspiel** and **Bernd Rosenbichler** then discussed the perspectives of the various areas of the healthcare system under the moderation of Wolfgang Branoner.


Martina Hagspiel
DBfK
Deutscher Berufsverband für Pflegeberufe

I am convinced that we will all love digitalization and AI.

Prof. Dr. Sylvia Thun

Artificial intelligence – what's in it for me?

Making decisions about diagnosis and therapy, is one of the most complex tasks in medicine. AI can support people with experience and expertise here and facilitate complex processes. Its use will therefore be unavoidable in the long term.

The amount of data that is available in medicine and needs to be processed already comprises 500,000 new publications per year and 110,000 different substances and will continue to increase in the future. The structured processing of this data is of great relevance for the healthcare sector. Without artificial intelligence this will no longer be possible. Even today hardly any radiology department works without the use of AI, for example in image recognition.

In addition, there are further diverse opportunities for the healthcare sector in Germany. AI provides guidance for increasingly complex therapy algorithms, enables the reorganisation of the the study landscape and increases Germany's appeal as an attractive location for industry and research. By increasing efficiency, AI can contribute to reducing costs in the healthcare sector and reduce bureaucracy. The support of patients in their everyday lives is improved, prevention and education are made easier, and more accurate diagnoses and treatments.

A fundamental prerequisite for realising the numerous potentials: the quality of the data. An AI can only be as good as the data we use. This data should therefore be collected using international IT standards and terminologies.

Opportunities

- *» Ever better algorithms structure ever more complex tasks*
- *» Reorganization of the study landscape*
- *» Expansion of a modern, attractive research and industrial location*
- *» Cost reduction in the healthcare sector*
- *» Reducing bureaucracy*
- *» Support for patients*
- *» Simplify prevention and education*
- *» Better, more precise diagnostics and treatment*

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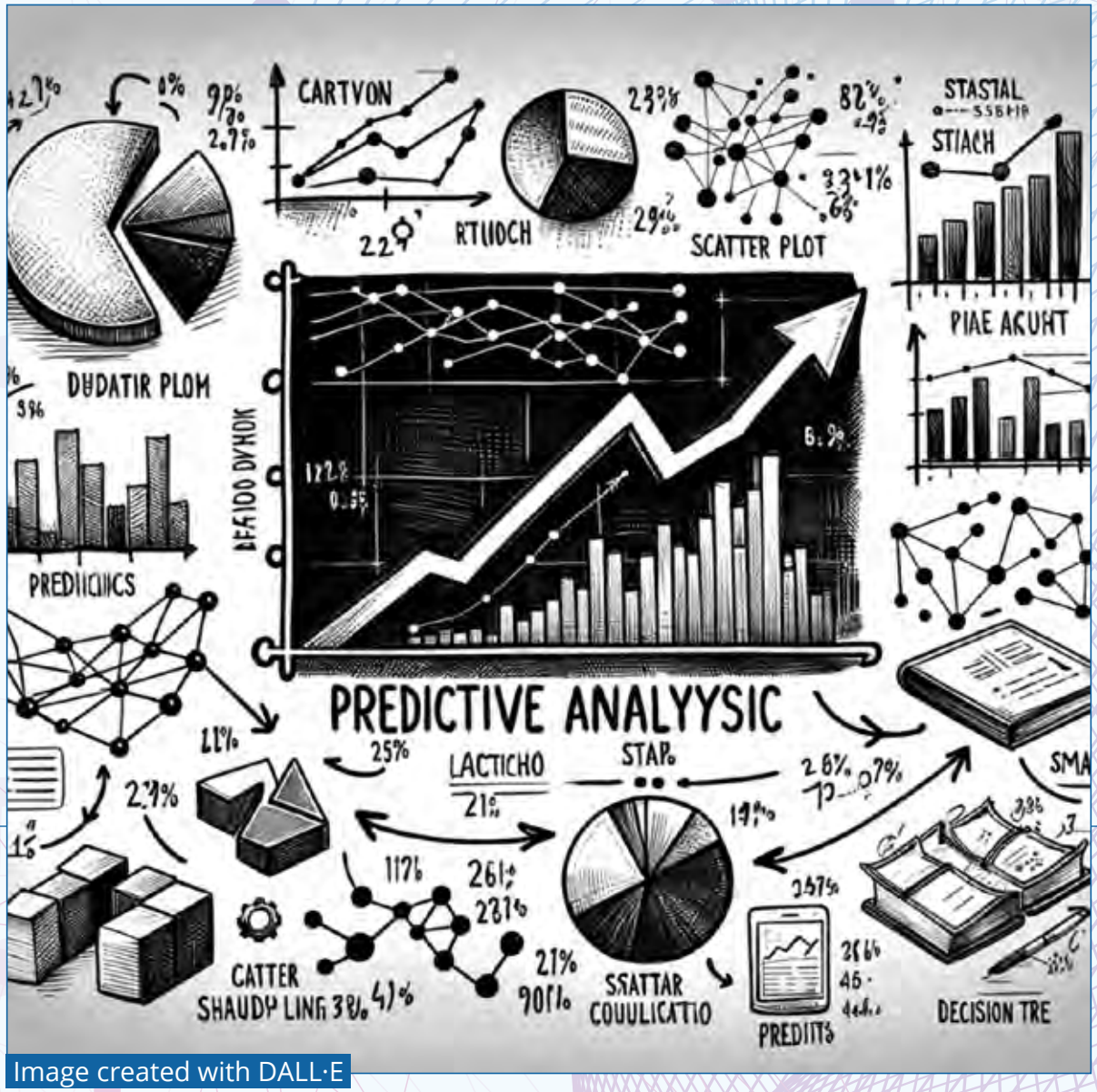
Predictive analytics – a use case

Predictive analytics in medicine makes it possible to create precise forecasts from a variety of data sources. This contributes significantly to the early detection of diseases. By using machine learning, prognostic models can be developed from blood tests, for example, which enable the diagnosis and prediction of disease progression. The analysis of genetic mutations supports individualised therapy adaptation. The findings from predictive analytics help doctors to intervene in good time and customise treatment plans, thereby improving medical care.

A current example from practice is the detection of colon cancer. Here, AI can evaluate diagnostic data, recognise patterns and distinguish the tumour from healthy colon mucosa. This supports early diagnosis and treatment and increases the chance of recovery.

Opportunities

- *The integration of multiple data sources leads to a higher prediction quality*
- *Early detection*
- *Minimally invasive techniques*
- *Liquid biopsies (blood test): Machine learning models facilitate the diagnosis of the type of cancer*
- *Prognosis of outcomes, survival rates and disease progression*
- *Personalised treatment plans*
- *Clinical decision support for treatment and care*



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Realising the potential of AI in the healthcare sector – What matters now

Bernd Rosenbichler

AI is an enabler for patient rights and a lever for patient empowerment because it enables patients to be allies in the healthcare system.

Dr. Bernadette Klapper

AI can help us to recognise the big picture and think beyond individual fates.

Irina Cichon

AI helps to make medical progress and social innovations in healthcare accessible to everyone and improve communication.

Martina Hagspiel

AI brings transparency to healthcare. Medical knowledge is becoming ubiquitous.

Christina Claussen

AI means medical progress for patients, relatives and everyone who works in the healthcare system.

AI in the healthcare sector – Utilising opportunities for the benefit of patients

IMPROVING THE ROLE OF PATIENTS THROUGH AI

Promoting patient autonomy:

AI technologies can strengthen the autonomy, self-efficacy and empowerment of patients. Through access to personalised data and analyses, patients are empowered to make more informed decisions about their health and play a more active role in shaping their treatment.

Strengthening patient rights:

AI is an enabler for patient rights as it empowers patients to be more involved in shaping their own healthcare. Intelligent systems give patients better access to information and resources, which leads to more patient empowerment.

SUPPORTING PATIENT-CENTRED TREATMENT THROUGH AI

Patient Reported Outcomes:

The application of AI in the analysis of big data, especially in Patient Reported Outcomes, enables deeper insights into the effectiveness of treatments and the quality of life of patients. This contributes to significant advances in medical research and can accelerate the development of new, effective therapies.

Support along the patient pathway:

AI opens up new possibilities at every stage of the patient pathway - from the initial diagnosis to the selection and use of health apps to monitoring and analysing disease symptoms. These technologies enable personalised and dynamic healthcare, that adapts to individual needs and circumstances.

PROMOTING NEW TREATMENT OPTIONS THROUGH AI

Accelerating medical research:

AI technologies enable the rapid analysis of large amounts of data generated in clinical studies or through real-world data. This enables researchers to recognise patterns and correlations, which accelerates the development of new therapies and treatment approaches. The use of AI can significantly shorten the time from research to the market launch of new drugs.

Improving diagnostics:

One example of the benefits of AI in patient care is mammography. AI systems can help to precisely analyse images taken during breast cancer screenings. The technology helps to identify anomalies and improve the accuracy of the diagnosis. This can lead to earlier detection and better treatment outcomes.

New treatments for rare diseases:

Artificial intelligence offers the opportunity to improve and speed up diagnoses for rare diseases. By using AI, doctors and researchers can recognise patterns and understand correlations more quickly, which is particularly important for complex or lesser-known diseases.

IMPROVING THE STRUCTURE AND QUALITY OF CARE THROUGH AI

Improving the quality of care:
AI-driven applications make it easier to analyse data and reduce the need for care. AI also supports care planning and documentation, thereby optimising work processes and improving the quality of care.

Potential to reduce staff workload:
By automating routine tasks in documentation and information recording, AI can make a significant contribution to reducing the workload of medical and nursing staff. This allows professionals to focus more on direct patient care, which improves the quality of healthcare.

Improving care in rural areas:
AI has the potential to significantly improve medical care in rural and underserved areas. Through telemedicine and AI-supported diagnostic tools, patients in remote regions can also gain access to high-quality medical advice and treatment.

FACILITATING THE AVAILABILITY OF KNOWLEDGE AND INFORMATION THROUGH AI

Provide validated information in a targeted manner:
Through the use of advanced algorithms and machine learning, AI can extract relevant information from large amounts of data and make it available to professionals and patients exactly when it is needed.

Importance of transformation people:
Experts support and train both medical staff and patients in the use of AI-supported systems. This promotes the effective and correct use of AI in practice.

Conclusion

Across different perspectives and backgrounds, the experts agreed that AI offers great opportunities for improvements in numerous areas of the healthcare system - in particular research, prevention, early detection, treatment, care, health literacy and patient information. The first successful practical applications are already available, so it is only a matter of time before AI becomes established in the healthcare sector.

In order for AI to bring about a positive change in the healthcare system, it is important to involve patients in new solutions. In addition, the opportunities offered by digitalization and the associated use of AI should be used to design a patient-centred system.

One major challenge is to ensure that AI technologies are suitable for everyday use. Although many people are surrounded by digital technology on a daily basis, they are not sufficiently informed or empowered to access validated and secure health information, for example. Low-threshold and easy access to this information is therefore crucial.

With a view to the federal elections in late summer 2025, all stakeholders should do more to highlight the benefits of AI in healthcare in the public debate and promote it in the healthcare policy arena.

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