

Why innovative medical technology is struggling and what we can do about it

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Germany has lost innovative strength in the field of medical technology

What is the current state of the medical technology sector in Germany?

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Findings in particular:

- A poorly designed, overly complicated regulatory system for medical devices that slows down innovation
- Too much regulation and bureaucracy with a corresponding impact on SMEs in particular
- Fragmented and non-digitalised healthcare system
- Rising costs at the expense of competitiveness, especially for SMEs

Other hindering factors:

- The term medical technology is very broad and not consistently associated with innovation.
- Other technologies and topics compete with medical technology for attention and resources.
- Medical technologies are often decoupled from the user and the added value is sometimes difficult to communicate.
- The digitalisation megatrend is changing the significance and perception of hardware innovation.

The German Healthcare System:

- The structure of the healthcare system needs reform.
 - The financial incentivisation of the healthcare needs reform.
 - Regulation and compliance requirements hinder innovation
- How will the financing of the healthcare system develop?
- How will (public) innovation funding develop?

In Short...



- Medical technology does not have an appropriate connotation in the (professional) public perception and has lost its attractiveness.

- But this does not reflect the real importance of the technology for both, healthcare and the business location.

What is to be done?



- 1) Identifying promising medical technology topics & trends
- 2) Identify significance for healthcare, industry and society
- 3) Communicating topics to the ('professional') public
- 4) Submit offers to stakeholders (authorities, funding bodies, regulators)

Digitalisation

Digitalisation - including (generative) AI - influences all developments and is the mega trend

Virtualisation

Personalisation

Networking

Automation

Trends: Virtualisation



- virtual assistants to support or train medical staff
- virtual assistants to support patients
- virtual patient models for medical training and simulation
- AI-supported generation of medical image data
- AI-supported generation of 3D models for preoperative planning and simulation of operations
- digital twins for medical care and training as well as for therapy development
- mixed reality (e.g. surgical planning, surgical navigation, neuro-rehab, pain therapy)
- virtual hospital
- (...)

Trends: Personalisation



- companion diagnostics
- personalised drug development based on molecular biological information
- individual, 3D-printed models for the preoperative planning of operations
- AI-supported analysis of individual medical data to predict disease progression
- AI-supported generation of personalised treatment plans or health recommendations
- personalised rehabilitation technologies for individual therapy
- customised implants and prostheses
- (...)

Trends: Networking

- information systems and digital patient records
- data integration and analysis for pattern recognition and medical research
- networked medical devices, e.g. in operating theatres, intensive care and emergency medicine
- IoMT to optimise logistics and processes in hospitals
- 5G and 6G connectivity, campus networks
- remote monitoring of patients with chronic diseases
- remote monitoring of medication intake
- vital parameter monitoring
- tele-consultation and tele-intervention
- medical and fitness apps
- sensoric devices, wearables and biowearables

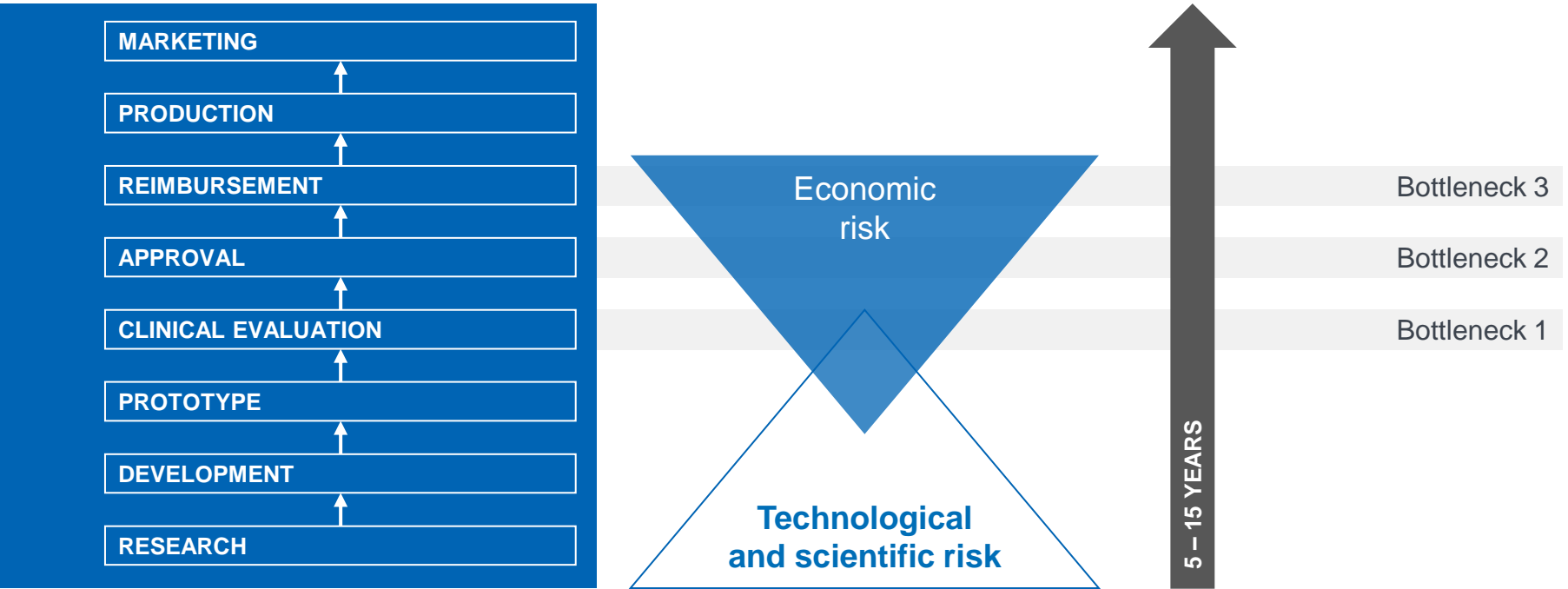
- operating theatre robots and telemanipulators
- assistance systems in healthcare and rehabilitation
- exoskeletons
- AI-based generation of medical texts, such as doctor's letters or medical reports
- AI-based voice assistants for medical documentation
- AI-based medical chatbots
- AI-based data analysis for diagnosis
- (...)

Further important topics



- **Security**
→ health security, including cyber security and data security,
- **Regulation**
→ in particular European regulations and implementations as well as their German implementing legislation
- **Sustainability**
→ energy consumption, recycling, reparability, production, (digitalisation)
- **Skilled labour**
→ availability and qualification profiles
- **Translation**
→ the path from idea to product is getting longer and longer

Translation: from research to medical device



What is to be done **by whom?**



- 1) Identifying promising medical technology topics & trends
- 2) Identify significance for healthcare, business location and society
- 3) Communicating topics to the ('professional') public
- 4) Submit offers to stakeholders (science, healthcare, industry, funding bodies, regulators)



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... is the **technical and scientific** specialist society for biomedical engineering.

... was founded in Frankfurt am Main in **1961** and has been part of VDE since **2001**.



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Key activities



22 expert committees	Annual conference BMT and various specialist events	Podcast “Signals for Live” and Event “Night of Biosignals”	Statements, positions, recommendations	Journals BME
BMshE – woman in (bio)medical engineering	Klee Award	Award for innovation in medical technology	Award for patient safety in medical engineering	Student contest



VDE DGBMT as a
network

What is to be done by whom **with you?**



- 1) Identifying promising medical technology topics & trends (→ VDE DGBMT Publication)
- 2) Identify significance for healthcare, industry and society (→ VDE DGBMT Publication)
- 3) Communicating topics to the ('professional') public (→ VDE DGBMT Annual Conference and other events)
- 4) Submit offers to stakeholders (authorities, funding bodies, regulators) (→ VDE DGBMT committees and recommendation)

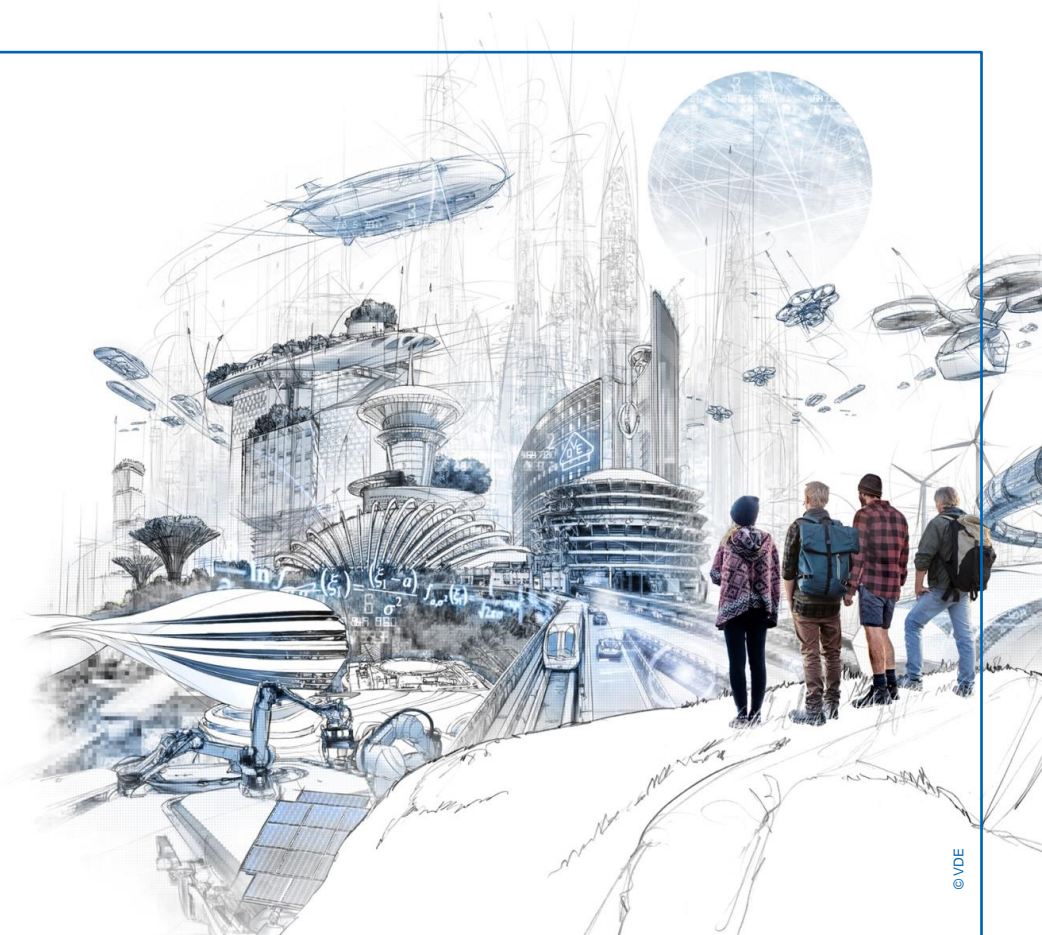
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