Interreg CENTRAL EUROPE

Co-funded by the European Union

Health Labs4Value

Action plan of territorial Health Labs4Value – Germany

István Hegedűs, CTRIA

1. Executive summary

This action plan outlines a strategic approach from the German project partner University Hospital Carl Gustav Carus at the TU Dresden AöR (UKD) and its 100% subsidiary Carus Consilium Sachsen GmbH (CCS) to align with the Health Labs4Value initiative, addressing critical challenges in the healthcare system of Saxony. Over the next three years, the plan will focus on expanding digital infrastructure, improving recruitment strategies, and enhancing training initiatives to ensure the accessibility and efficiency of healthcare services, particularly in underserved rural areas.

The main objectives of this action plan include:

- Expanding digital infrastructure by upgrading diagnostic tools and integrating telemedicine services to improve healthcare access, especially in rural areas.
- Upscaling recruitment strategies to address the shortage of healthcare professionals in underserved regions through targeted campaigns and incentives.
- Enhancing training programs at UKD, with a focus on equipping healthcare staff to meet the challenges of rural healthcare and digital transformation.
- Implementing precision medicine by utilizing advanced technologies and personalised treatments to improve care, especially for chronic diseases.
- The action plan includes key actions such as scaling up telemedicine platforms, upgrading diagnostic infrastructure at the Institute of Pathology, developing recruitment and retention strategies, and expanding training programs through the Carus Academy. These initiatives will be supported by investments in technology, personnel, and financial resources.

The human resources required for the plan include not only project managers, IT and medical specialists, recruitment professionals and training coordinators. Financial resources will cover infrastructure upgrades, training programs, recruitment campaigns, and staff incentives. Technological resources include digital hardware and software or websites.

The timeline spans three years and will unfold in several phases. The first phase will focus on assessing current workflows, identifying gaps, and planning strategies. In the implementation phase, UKD and CCS will launch the expanded infrastructure, upgrade systems, and begin the rollout of enhanced strategies. Training programs will be implemented as well, focusing on both existing staff and future medical professionals. The final phase will focus on monitoring the effectiveness of implemented actions, with continuous adjustments to align with the evolving healthcare needs of the region.

This action plan represents a focused effort to tackle Saxony's healthcare challenges, leveraging digital transformation and strategic workforce development to improve care and access for all.

2. Introduction

2.1. Brief overview of Health Labs4Value initiative

"Not required for the draft version. A common short overview will be prepared for each action plan, which will be the same for all action plans." (statement by WP leader)

2.2. Purpose and scope of the action plan

This action plan outlines a specific path for the utilisation and improvement of the German Living Lab as part of the Health Labs4Value initiative. This will further refine the way it operates, expand its impact, and ensure its long-term sustainability while addressing key regional health challenges. Building on the German Living Lab as a central component, the action plan will describe in detail how the local priorities, which were derived from Germany's regional health needs, are to be implemented. The focus is on optimising care processes, promoting health solutions, increasing patient satisfaction and improving international cooperation and knowledge sharing. In doing so, particular use will be made of the expertise and infrastructure of the UKD and CCS. These established institutions play a crucial role in the development, implementation and evaluation of innovative approaches to sustainably improve the quality and efficiency of healthcare.

3. Local context analysis

3.1. Current healthcare landscape

In 2025, the German healthcare system is undergoing a phase of comprehensive reforms. The aim is to make hospital structures more efficient, ensure sustainable financing, advance digitalisation and compensate for supply bottlenecks. The following core aspects are particularly in focus:

Structural reforms

- Krankenhausversorgungsverbesserungsgesetz (KHVVG, eng.: Hospital Care Improvement Act): The introduction of service groups and specialisation criteria is intended to make hospitals work more efficiently and focus on specific areas of expertise.
- Reduction in the number of hospital locations: The number of clinics is to be reduced from the current 1,900 to between 600 and 800 by 2029 throughout Germany. The aim is to achieve better specialisation and resource utilisation, but this centralisation poses challenges for accessibility in rural areas.
- Transformation fund: A funding volume of €50 billion will be provided to modernise hospitals, expand digital structures and adapt infrastructure to new care models.

Financial conditions

- Rising healthcare spending: Healthcare costs as a share of GDP are predicted to rise to 13.2% in 2025, but there will still be structural underfunding.
- New reimbursement system until 2027: Hospitals will receive fixed base budgets supplemented by performance-based surcharges in comparison to DRG-System (Diagnosis Related Groups), which has been mandatory since 2004. This is intended to reduce economic pressure and ensure high-quality care.
- Long-term care insurance contributions will rise: For example, the contribution for childless individuals will be increased to 4.2% in order to stabilise financing in the long term.

Digitisation

- Electronic patient records (ePA): Since January 2025, the electronic patient file has been set up automatically for all those with statutory health insurance. Patients can actively object (opt-out model). The aim is to improve networking between doctors, hospitals and pharmacies.
- Telemedicine and AI-supported treatment approaches: The expansion of telemedical consulting services and AI-supported diagnostic and therapeutic procedures are intended to relieve the burden on medical personnel and improve the quality of treatment.
- Facilitated approval of digital health applications (DiGA): The BSI[1] certification procedure is intended to accelerate the market launch of new digital health solutions.

Staff shortages

- Skills shortage: Germany currently needs 150,000 additional nursing staff and 5,000 general practitioners to ensure comprehensive care, with drastically rising numbers in the next decade.
- Nursing Staff Strengthening Act: mandatory minimum staffing levels are designed to ensure a minimum quality of care, but pose challenges for some hospitals.
- Funding of dual study programs: Programs such as the medical informatics program at the TU Dresden are designed to attract new specialists to the healthcare sector.

Regional disparities

- Underprovision in rural areas: Around 37% of rural areas have not enough general practitioners, which makes it more difficult to provide medical care close to home.
- In Saxony, targeted measures are being implemented to improve primary care, in particular through the use of telemedicine and the development of innovative care

[1] Bundesamt für Sicherheit in der Informationstechnik [Federal Office for Information Security]

models. These initiatives aim to address the challenges of an ageing population and low physician density in rural areas.

- "Health.Connected.New" structural fund: Designed specifically for eastern Germany, this fund is intended to promote innovative care models and better regional health care.

Care integration

- Overcoming sectoral divisions: The fragmentation between outpatient, inpatient and rehabilitative care makes it difficult to provide comprehensive patient care.
- Pilot projects for integrated care centres: medical care centres are emerging in urban areas that enable interdisciplinary treatment from a single source.
- Introduction of level 1i facilities[2]: These new facilities are designed to facilitate the transition between outpatient and inpatient treatment and to shorten hospital stays.

The current healthcare reforms are necessary to ensure quality, efficiency and financial viability over the long term. However, the measures also present challenges, particularly with regard to providing comprehensive healthcare and financing.

Dresden University Hospital is playing a pioneering role here, particularly through its involvement in the medical informatics initiative and the development of proton therapy centres for modern cancer treatment.

3.2. Key challenges and opportunities

Germany's healthcare system is undergoing significant changes to meet new challenges and take advantage of new opportunities. The recent Hospital Care Improvement Act and digitisation efforts aim to improve the quality, accessibility and sustainability of healthcare services. As the system navigates these changes, it faces challenges such as workforce shortages and opportunities, f.e. advances in digital health that will shape its future.

Challenges:

Demographic shift and aging population
Germany faces an aging population, increasing demand for healthcare services while the working-age population shrinks. This trend is particularly pronounced in regions like Saxony.

[2] The term "level 1i facilities" refers to a new category of hospitals that were introduced as part of the German hospital reform. These facilities are cross-sector care facilities that combine inpatient and outpatient services to ensure seamless treatment continuity.

Shortage of healthcare professionals
Many regions in Germany face a severe shortage of medical professionals. By 2035, Germany is projected to lack around 11,000 general practitioners.

Rural-urban healthcare disparity
Rural areas in Germany are disproportionately affected by healthcare access issues compared to urban centres. In Saxony, some regions have less than 70% of the required medical coverage.

Digital transformation hurdles
While digital health solutions are being implemented, challenges remain in fully integrating these technologies into the healthcare system, particularly in rural areas.

Financial pressures due to healthcare system reforms
The restructuring of hospitals and introduction of new financing models are creating short-term disruptions. Many smaller hospitals face closures or service reductions.

Opportunities:

Digital health expansion
Germany is advancing digital health research and implementation, with initiatives like the electronic patient records (ePA) and telemedicine platforms. The University Hospital Dresden is a leader in this field.

Integration of telemedicine services
Telemedicine offers a significant opportunity to bridge the gap between rural and urban healthcare access across Germany. Carus Consilium Saxony already offers a telemedicine service currently limited to the University Hospital Dresden, which offers options for expansion for extern users.

AI and data-driven healthcare advancements
With the rollout of electronic patient records, there is potential to leverage AI for predictive analytics, personalised care, and improved treatment outcomes.

Innovative medical clusters
Regions like Dresden-Radeberg in Saxony are becoming hubs for medical innovation, offering cutting-edge diagnostic and therapeutic options.

Cross-sector collaboration
Initiatives across Germany exemplify how partnerships between research institutions, industry, and healthcare providers can drive innovation and improve patient care.

Precision Medicine
The University Hospital Carl Gustav Carus Dresden implements precision medicine in various areas. In radiotherapy, highly precise forms of treatment such as proton therapy and MR-LINAC are used for targeted irradiation of tumours. In the DigiPhenoMS project, the Multiple Sclerosis Centre is developing an AI-based system for personalised MS therapy. The Division of Translational Medical Oncology is

conducting research into the molecular mechanisms of carcinogenesis and developing personalised therapeutic approaches. In addition, an innovative, digitally supported aftercare concept for patients after cell therapies has been introduced with SPIZ. These initiatives aim to personalise treatments and optimise patient care.

3.3. SWOT analysis

Strengths:

- Close connection to academic institutions via combination of University Clinic Dresden and Technical University Dresden
- Well-developed healthcare system (overall modern facilities & high standard) foster possibilities for implementing and up-scaling solutions

Weaknesses:

- Healthcare workforce shortage leads to longer waiting times for appointments/special treatments and partially reduction of health care providers
    - Possible negative effects on individual health journey
    - Highest demand in elderly care facilities
- Slow development pace of digital solutions based on slow implementation processes
    - Followed by currently inadequate digital connection between healthcare providers, insurances and government
- Decreasing number of specialists and healthcare centres in rural areas
- Limited cross-sector collaboration and data integration hinders collaborative work

Opportunities:

- Strong healthcare insurance system as basic human right, which entitles everyone to good healthcare
- Expansion of telemedicine services to bridge gap between underserved rural and urban areas
- Stronger cross-border healthcare collaboration with neighbouring regions or countries to facilitate knowledge exchange, resource sharing and collaborative research
- Medicine and healthcare as highly researched area compared to other research activities conducted in Saxony

Threats:

- Aging society leads to a higher demand for healthcare and elderly care services, therefore adjustments in resource allocation and care models

- Budgeting limitations might cut funding and hinder research and implementation of new programs and technologies
- Stricter laws and bureaucratic hurdles (data security, reformations of hospital and healthcare systems etc.) might hinder certain necessary developments, whilst aiming to allow improvement in general
- The decline in the number of medical specialists in primary care and geriatric care is resulting in a deficit in patient care, particularly in rural regions.

4. Pilot experience

4.1. Brief summary of the pilot activity

The German pilot activities aimed to test the ActiveTEP app, which is a digital tool designed to support patients before and after hip replacement surgery. Led by Carus Consilium Sachsen (CCS) and the University Hospital Carl Gustav Carus Dresden (UKD), the pilot received technical support and app ownership from the start-up DORA GmbH, as well as research input from TU Dresden.

The app provides four key functions: short, well-structured knowledge modules to help patients understand the treatment process; a daily exercise programme developed in collaboration with a rehabilitation centre; a pain and activity diary with tracking and feedback features; and personalised reminders to improve compliance.

The pilot activities were designed to assess the tool's usability, acceptance and added value from the patient's perspective. Participants were patients undergoing hip replacement surgery who tested the app during several workshops at different stages of its development. Evaluation tools included Patient-Reported Outcome and Experience Measures (PROMs and PREMs), along with specific usability surveys and feedback loops. These data were anonymised and processed to provide valuable insights.

The pilot provided important information on patients' needs and preferences and enabled real-time improvements to the app during testing. These results were fed directly into the further development of ActiveTEP, helping to define the app's final released version.

4.2. Experience gained from the pilot activity

The ActiveTEP pilot provided valuable insights into user needs and design considerations for digital health tools. Patients valued simplicity and usability; 100% of participants in the pre-test stressed the importance of an easy installation process, and over 89% of users in the post-test confirmed that the app was intuitive and accessible. These findings guided improvements, such as simplifying the layout, during the pilot.

Tailored content was another critical success factor. Participants appreciated that exercises were offered at different levels of difficulty. Motivational tools such as reminders and goal setting proved helpful, though some participants recommended reward-based systems to boost long-term engagement.

Feedback confirmed that users saw real value in the app: 94% rated it as useful for preoperative preparation and 96% for rehabilitation. Participants felt more informed and empowered, with many highlighting a sense of autonomy and confidence during recovery.

However, challenges also emerged. While clinical staff acknowledged the potential of using app-generated data to personalise care, they also expressed the need for interfaces to streamline access and for training.

The pilot benefited from transdisciplinary collaboration between CCS, UKD, start-ups and researchers. Regular exchange within the transnational HL4V network enabled comparative learning. However, questions remain open regarding long-term funding, certification (e.g. DiGA status) and institutional embedding, particularly in the face of regulatory and financial barriers.

Overall, the pilot confirmed the value and limitations of digital health solutions in a real-world setting.

4.3. Impact of the pilot activity on the action plan

The ActiveTEP pilot activity had a strong influence on the design and direction of the German territorial action plan. It demonstrated that digital support tools can significantly improve the perioperative patient experience when tailored to user needs, and are well accepted. Based on these insights, the action plan now includes concrete measures for scaling up ActiveTEP, supporting its DiGA certification and exploring its adaptation for other uses (e.g. knee replacement surgery).

However, the pilot also revealed barriers to implementation, particularly with regard to data security, software integration, and regulatory constraints. These have shaped the action plan's priorities around IT infrastructure, digital documentation systems, and AI-based solutions for administrative support. Activities such as improving digital diagnostics and workflow automation build directly on the learnings from the pilot.

Another key finding was the importance of digital literacy and motivation. While the pilot group was largely tech-savvy, broader deployment will require support mechanisms. Consequently, the action plan now includes training programmes through the Carus Akademie, onboarding tools, and patient engagement strategies to ensure equitable adoption.

The pilot also influenced the plan’s risk management strategy. Concerns regarding low uptake, delays in legal approval and data were identified early on and are now being

addressed through mitigation plans, including regulatory engagement, stakeholder communication and diversified funding.

Finally, the pilot confirmed that successful innovation requires robust cross-sector partnerships. The collaboration between healthcare providers, technology developers, researchers and patients that took place during the pilot has now been formalised in the action plan through the Living Lab structure. This enables continuous real-world testing, iterative development and regional scaling of healthcare innovations.

In summary, the pilot demonstrated the feasibility of digital co-creation in healthcare and has the potential to inspire coming impactful projects. It has helped to prioritise measures that are both realistic and highly relevant to the region.

5. Strategic objectives and priorities

5.1. Localised priorities based on regional needs

1. **Expansion of digital infrastructure**
    - F.e. electronic patient records (ePA) and digital health platforms, to enhance patient care and data integration
    - Enhancing digital interoperability between healthcare providers, care systems, insurances and government
    - Bridging gap of underserved rural areas and better situated urban areas
2. **Overcoming healthcare workforce shortages & aging society**
    - Shortage of specialists and care providers, especially in rural areas
    - Negative development due to many healthcare providers age (going into retirement in coming years) and simultaneously aging society aka patients
3. **Handling funding and bureaucratic constrains**
    - Lack and possible reduction of overall funding for research and healthcare systems in general
    - Complex German regulatory landscape brings long approval processes, a highly segmented system and extremely detailed laws (f.e. data security, authorisation of medical products)
4. **Precision and personalised medicine**
    - Use of advanced diagnostic methods for individualised treatment plans, with focus on chronic diseases in the context of an aging society
    - Upscaling of the healthcare services regarding individual patient and treatment needs (VBHC)

- Incorporating AI and big data to develop innovative treatment approaches

5.2. Alignment with Health Labs4Value strategic objectives

1. **Expansion of digital infrastructure**
   - Enhancing digital infrastructure via *Living Labs* allows more personalised & effective treatments through data integration & accessibility
   - A shift towards *VBHC* allows focusing on maximizing patient outcomes (enhances patient care & upscaled service in rural areas)
2. **Overcoming healthcare workforce shortages & aging society**
   - Enhancing the efficiency of workforce by implementing *patient-centred care* models
   - *Open innovation & technology transfer* nationwide and internationally allows better healthcare services and strategies
3. **Handling funding and bureaucratic constrains**
   - Developing cooperative Living Labs and fostering transnational collaboration enables the development of *sustainable structures* which allows better funding solutions and streamlined regulatory processes
4. **Precision and personalised medicine**
   - Integrating advanced diagnostics to *improve clinical decision-making* and personalise treatments to *enhance patient outcomes*

6. Proposed activities and interventions

6.1. Activities to support the implementation of Priority 1 "Expansion of digital infrastructure"

6.1.1. Activity 1: Expansion of digital infrastructure in diagnostics and treatment planning

Description

In order to successfully ensure fast and effective treatment of patients despite staff shortages, the UKD must continuously expand its digital infrastructure. As a pilot project, CCS and the UKD are updating the processes of the digital diagnostic infrastructure of the Institute of Pathology, which analyses samples from all surgical and non-surgical disciplines at the UKD, as well as numerous external senders, to AI-based workflows.

Timeline and milestones

Months 1-9:	Analysing the current process flow
	Procurement and installation of hardware and software
	→ Completion of assessment & resource procurement
Months 10-16:	Establishment of the digital workflow using new hardware and software (selected departments)
	Testing of new workflow
	→ Finalisation of implementation by testing
Months 17-24:	Integration of the new digital workflow into the institute's daily routine diagnostics (institute wide)
	Constant monitoring to adapt workflow where necessary
	→ Final integration and ongoing monitoring

Resource requirements (human, financial, technological)

Human Resources: Project manager (CCS ad Institute), Pathologists and Laboratory Technicians, IT-specialists, training coordinators, Compliance officers, Communication manager

Financial Resources: hardware & software, training coordination, testing & quality assurance, marketing & communication → Funding through state programmes possible

Technological Resources: Several digital workstations (hardware), a whole-slide scanner, purchase of additional data servers, various software for sample analysis and workflow

Expected outcomes and impact

- Enhanced Diagnostic Accuracy: Digital pathology facilitates the use of computational algorithms, potentially improving diagnostic precision
- Increased Efficiency: Streamlined workflows can lead to faster slide processing and reduced turnaround times
- Remote Collaboration: Digital platforms enable pathologists to consult and collaborate remotely, enhancing diagnostic services
- Educational Advancements: Digital slides serve as valuable resources for training and educational purposes
- Research Opportunities: Large digital image datasets support research initiatives and the development of AI-driven diagnostic tools

Key performance indicators (KPIs)

- Turnaround time reduction by 20%
- Secured system uptime percentage of 99%
- Increase of completed pathological analysations increased (by 25% within first 6 months of implementation)

6.1.2. Activity 2: Upscaling of telemedicine

Description

CCS provides a web-based telemedicine tool that has been in use at UKD since 2023. The tool currently allows access to one-on-one and group sessions for a small number of physicians at the clinic. The aim is to expand the functionality and user base to provide a highly functional, yet simply designed tool for use across the UKD and across regions.

Timeline and milestones

Months 1-3:	Analysing the current use status, problems, needs and up-scaling possibilities
	Develop detailed project plan based on feedback gained by stakeholders
	→ Completion of the assessment report and project plan
Months 4-9:	Enhancing tool based on collected feedback in development sprints
	Conducting further internal testing based on development sprints
	→ Technical up-scaling of telemedicine tool
Months 10-18:	Roll out of final up-scaled tool at UKD
	Expansion of service for providers outside the UKD
	Planning and providing training sessions
	Implement constant performance based optimisation plan
	→ Full deployment and operational optimisation

Resource requirements (human, financial, technological)

Human Resources: Project Managers (CCS), Software development and IT-support team (UKD internal and by software provider), Training coordinators and 1st level support, Compliance Officers, Communications Manager

Financial Resources: development Costs, training coordination & 1st level support (1-2 positions), testing & quality assurance, marketing & communication

Technological Resources: compliance with current IT-systems, sufficient equipment for users

Expected outcomes and impact

- Enhanced Accessibility: Provide patients with convenient access to healthcare services, reducing the need for in-person visits
- Improved Efficiency: Streamline healthcare delivery processes, leading to reduced wait times and optimised resource utilisation amongst personnel
- Patient Satisfaction: Offer flexible consultation options, increasing overall patient satisfaction
- Clinical Collaboration: Facilitate interdisciplinary collaboration through virtual platforms, enhancing care coordination across regions
- Data-Driven Decisions: Enable data collection for continuous improvement and informed decision-making

Key performance indicators (KPIs)

- Satisfaction rate (f.e. user friendliness) of 80% and higher after roll-out
- Healthcare provider adoption rate outside of UKD (goal: 10 providers within first 6 months after roll-out)
- Reduction of tool based problems by 50% within first 6 months after roll-out

6.2. Activities to support the implementation of Priority 2 "Overcoming healthcare workforce shortages & aging society"

6.2.1. Activity 1: Upscaling of recruitment strategies and training figures

Description

The UKD is actively involved in the training of medical staff at the level of medical education (nursing, surgical assistants, physiotherapists) and university education (human medicine, dentistry, midwifery, public health and medical radiation sciences). The in-house Carus Academy and the close cooperation with the Medical Faculty of the Technical University of Dresden are indispensable resources for the ongoing recruitment of staff.

Initiatives in this area need to be supported and expanded in order to ensure the transfer of specialists to rural regions that are underserved today and will be in the future.

Timeline and milestones

Months 1-6: Analysing current recruitment and training processes, identifying needs in rural areas and reasons for unattractiveness of those for young professionals

	Developing a strategic plan to increase recruitment numbers for open positions and training, increasing attractiveness of positions in rural areas and assessing new (digital) strategies to compensate workforce shortage
	→ Completion of the assessment report and strategic plan
Months 7-24:	Launch of targeted recruitment campaigns
	Establish partnerships with stakeholders in rural areas
	Developing and upscaling incentives (f.e. signing bonuses, loan repayment assistance, housing support etc.) based on previous analysis
	Expansion of trainings programs (upscaling of capacities, strengthen cooperations, specialisation on needs of rural areas, implementing new training programs & networks
	→ Increasing attractiveness to utilise short-term available workforces
	→ Updating and expanding training programs for long-term mitigation
Months 12-36:	Ongoing evaluation and adoption of objectives, actions and needs
	→ Comprehensive evaluation report and strategy refinement

Resource requirements (human, financial, technological)

Human Resources: project managers, recruitment specialists, communication managers, training coordinators, educational institutions, healthcare providers in rural areas, policy makers

Financial Resources: recruitment budget (healthcare providers), training budget (Academy and University), development budget (new training programs, digital expansions etc.)

Technological Resources: learning management systems, social media work & campaigning, data management systems

Expected outcomes and impact

- Increased Rural Healthcare Staffing: Enhanced recruitment efforts are expected to increase the number of healthcare professionals serving in rural areas, addressing current shortages
- Improved Healthcare Access: A more robust rural workforce will lead to better access to medical services for underserved populations
- Strengthened Community Health: Targeted training programs will equip healthcare providers with skills tailored to the unique challenges of rural healthcare delivery

- Enhanced Professional Development: Expanded training opportunities will foster continuous professional growth among medical staff, leading to higher job satisfaction and retention

Key performance indicators (KPIs)

- Rural recruitment rate increased by 15% within first year of strategy implementation
- Increase of training program enrolments by 10%
- Retention rate of rural healthcare professionals of 80% after 3 years
- Increase of alternative digital solutions (f.e. telemedicine) by 25% within 1st year

6.3. Activities to support the implementation of Priority 3 "Handling funding and bureaucratic constrains"

6.3.1. Activity 1: AI-based reorganisation of administrative tasks

Description

To reduce bureaucratic barriers within the UKD organisation, it is planned to implement AI-driven systems like LOTTE (Learning-Oriented Text Transformation Engine) to automate and streamline administrative processes, particularly in documentation and information extraction from medical reports, but also workflow practices. At the same time a more comprehensive ticketing systems for IT and HR departments will be implemented to improve efficiency, track issues, and provide better support to staff and patients.

Timeline and Milestones

Months 1-6:	Analysing current administrative processes, workflow inefficiencies and existing IT/HR systems Identify areas with biggest problems as pilot departments → Completion of assessment report and strategic piloting plan
Months 7-24:	Procurement & launch of AI systems Implementation of piloting ticketing system → Implementation of new systems in pilot departments → Ongoing evaluation and refinement
Months 25-32:	Achieving hospital-wide implementation of new processes and ticketing systems Establish long-term maintenance & improvement cycles → Full integration in all departments and ongoing refinement

Resource Requirements

Human Resources: AI implementation specialists (Department of AI Integration), IT support team, training coordinators, clinical staff, HR and IT responsibles, data analysts, external consultants/service providers where necessary

Financial Resources: IT infrastructure investment, AI software development and licensing, ongoing maintenance and support

Technological Resources: Modern IT systems and medical equipment, additional work stations

Expected Outcomes

- Reduction of administrative workload allowing more time for direct patient care
- Improved accuracy and speed in documentation and medical report extraction
- Enhanced IT and HR support with a streamlined ticketing system, resulting in quicker issue resolution

Key Performance Indicators (KPIs)

- Reduction of administrative workload by 30%
- Increased AI automation in processing and reporting
- Increased staff satisfaction

6.4. Activities to support the implementation of Priority 4 "Precision and personalised medicine"

6.4.1. Activity 1: Upscaling precision medicine projects

Description

The UKD is increasingly focusing on the implementation of precision and personalised medicine, particularly in oncology and other specialised fields. This includes the integration of genomic data, advanced diagnostics and targeted therapeutic approaches for the tailored treatment of patients.

Timetable and milestones

Months 1-12: Analysing current status of personalised and precision medicine at UKD

Building and expanding capacities for genomic sequencing, particularly at the Centre for Personalised Medicine in Oncology (ZPMO)

→ Completion of assessment report and capacity building

Months 13-24: Integrating personalised and precision medicine into clinical practice, including interdisciplinary case conferences and digital decision support systems

→ Implementation of new practices & up-scaling

Months 25-31: Widespread application of personalised and precision treatment strategies in the standard care provided by the UKD

→ UKD-wide implementation and ongoing evaluation and adaption

Resource requirements

Human Resources: Specialists in genomics, bioinformatics, molecular medicine and clinical decision support, medical staff, training coordinators

Financial Resources: Sequencing technologies, digital infrastructure and interdisciplinary cooperation, enhanced staff-budget if necessary

Technological Resources: Modern sequencing equipment, powerful analysis platforms and secure data management and storage systems

Expected results

- Increased effectiveness of treatments and improved patient outcomes
- Reduction of adverse drug reactions through targeted therapies
- More efficient use of resources in the healthcare system through tailored interventions

Key performance indicators (KPIs)

- Increased number of patients receiving genomic testing (by 20%)
- Increased proportion of treatments guided by personalised medicine
- Savings in the healthcare system through targeted therapy approaches

6.4.2. Further development and upscaling of the pilot solution

Description

The ActiveTEP app was developed to support patients before and after hip replacement surgery. It is currently undergoing clinical testing at multiple clinics in Saxony and Germany. Based on positive feedback, the aim of this activity is to further develop the app, prepare for its broader implementation and expand its scope (e.g. to include knee TEP). While obtaining DiGA certification for ActiveTEP would be highly desirable, the financial barriers in Germany are to be considered. The app is highly beneficial for all patients, but in rural areas — where access to medical care is often limited — it could be a significant development.

Timetable and milestones

Months 1-9: Continued clinical testing across multiple sites, with improvements made based on user feedback and preparation for regulatory certification, ongoing data collection

→ Finalisation of app adjustments

Months 10-18: Undergoing regulatory approval and initial integration into hospital systems, while insurance reimbursement agreements are formalised

→ App embedded in clinical workflows

Months 19-36: Extension of app functionalities to additional indicators (f.e. knee, shoulder) and sites, ongoing monitoring and support

→ ActiveTEP is used across Germany with evidence-based routines for long-term deployment

Resource requirements

Human Resources: Coordination team, software developers, legal/regulatory experts, Health economists and payer relations officers, Medical professionals for ongoing content validation, Sales specialists

Financial Resources: Certification, development, procurement and sales, enhanced staff-budget if necessary

Technological Resources: Backend hosting infrastructure, mobile interfaces, tools for user monitoring and feedback collection

Expected results

- Evidence-based digital health tool integrated into routine orthopaedic care
- Enhanced patient adherence and functional recovery after surgery
- More efficient communication between patients and providers
- Strengthened regional innovation capacity for VBHC and digital care
- Foundation for app upscaling

Key performance indicators (KPIs)

- Increased number of patients user numbers (>1500) and clinic cooperations (>15)
- Increased user engagement rate over full perioperative cycle (>70%)
- Partial or full reimbursement contracts with clinics and/or insurances

7. Collaboration and partnerships

7.1. Identification of key stakeholders

- The Federal Ministry of Health
- The state health ministries
- The Federal Joint Committee
- Hospitals and healthcare providers
- Universities and research institutions
- Medical technology companies and start-ups
- Patient organisations and advocacy groups
- International partners

7.2. Roles and responsibilities

- **The Federal Ministry of Health** (BMG[3]) draws up the political guidelines and laws that govern the healthcare system. It also monitors whether these rules are being followed and whether the changes they make are actually implemented.
- **The state health ministries** ensure that everything runs smoothly in the individual federal states. They plan where new hospitals will be built and how the money for health care will be distributed at the regional level.
- **The Federal Joint Committee** (G-BA[4]) determines which treatments and technologies should be covered by health insurance. It ensures that the medicine we receive really helps and does not harm us.
- **Hospitals and healthcare providers** participate in pilot projects, implement innovative solutions, and provide feedback on their effectiveness.
- **Universities and research institutions** ensure that we are always at the cutting edge of medicine. They develop new technologies and treatment methods that can improve patients' lives.
- **Medical technology companies and start-ups** develop and provide technology that supports doctors and hospitals in their daily work. They also invest in research projects to drive innovation.

[3] Bundesministerium für Gesundheit (BMG) [The Federal Ministry of Health]
[4] Gemeinsamer Bundesausschuss (G-BA) [The Federal Joint Committee]

- **Patient organisations and advocacy groups** ensure that patients' needs and opinions are heard. They help develop health innovations and evaluate reforms in the healthcare system.
- **International partners**, such as the participants in the Health Labs4Value project, are helping to make the German healthcare system even better. They share their best practices, work with us on projects and provide resources to implement new ideas.

7.3. Mechanisms for collaboration

- Intersectoral Networks: Regional care networks and alliances to improve coordination between ambulatory and inpatient care
- Digital Solutions: Use of IT for data exchange and patient-centred communication platforms
- Financial Models: New reimbursement models for cross-sector services, such as integrated care contracts
- Structural Adjustments: Overcoming legal and financial barriers to facilitate collaboration
- International Cooperation: Participation in EU frameworks for cross-border healthcare services and international projects

8. Risk assessment and mitigation strategies

Risk	Probability of occurrence	Mitigation strategy
Resistance to digital transformation (f.e. telemedicine, AI-support, general digitalisation)	moderate	Engage early with stakeholders to gain buy-in for digital solutions. Provide continuous training and demonstrate the long-term benefits through pilot programs and success stories. Establish a clear communication plan to address concerns and resistance.
Insufficient stakeholder collaboration	moderate	Setting up cross-sectoral networks and collaboration mechanisms. Use of collaborative platforms for ongoing communication and feedback.
Lack of financial sustainability for long-term expansion	high	Secure diversified funding sources, including state programs, EU funding, and private investors. Establish a financial sustainability plan that ensures continuous funding after initial implementation, exploring long-term investment opportunities.
Incapability of fighting workforce reduction	moderate	Ongoing data based strategic acquisition of future and currently unused workforce (f.e outlined in "Vision 2030 - Saxony's hospital landscape in transition!"). Opening regulatory laws to promote immigration of professionals or reduce financial burdens on trainees.
Delays in policy and regulatory approvals	high	Maintain early and ongoing communication with relevant regulatory bodies. Develop an understanding of regulatory requirements early in the project and plan for any potential approval delays. Consider forming a legal advisory team to expedite compliance processes.

Data privacy and security issues	high	Ensure compliance with strict data protection regulations (e.g., GDPR) by integrating strong cybersecurity measures. Conduct regular data security audits, provide staff with training on data handling best practices, and establish a dedicated IT security team for continuous monitoring.
Impracticality (non-use) of LivingLab network	moderate	Advocating objectives and positive affects towards stakeholders. Upscaling recruitment efforts for new projects, technical solutions or general solutions for current problems, as well as ne partners.

9. Monitoring and evaluation framework

9.1. KPI tracking methodology

Type and classification	Objective	Examples
Data collection methods		
Quantitative data	Collection of numerical data	Project implementations, secured funding, patient outcomes, system usage logs
Qualitative data	Gathering stakeholder feedback	General satisfaction/challenges, lessons learned (through surveys, interviews, etc.)
Frequency of data collection		
Monthly	Engagement metrics	Participation rates, system usages, etc.
Quarterly	Performance trends & healthcare outcomes	Success rates, patient satisfaction etc.
Annually	Long-term impacts	Policy adoption, financial sustainability
Data analysis & reporting		
Analysis tools	Identify trends & areas of improvements	Statistical & analysation tools
Report types	Monthly Quarterly Annually	Ongoing activities & challenges Assessment of progress, trends & stakeholder feedback Review of project outcomes, sustainability & long-term outcomes
Accountability & overside		
Steering committee	Ensuring data quality, consistency & alignment with project goals	
Stakeholder	Receive regular reports, attend regular meetings	

9.2. Reporting mechanisms

	Internal reporting	External reporting
Purpose	Ensure real-time insights for project team & key stakeholders	Ensure transparency, accountability & communication with external stakeholders &interest groups
Frequency & Content	• Monthly: activities, milestones, challenges, short-term KPI performance, next steps • Quarterly: performance reports, improvement analysation, medium-term KPI performance • Ad-hoc reports: on-demand to resolve unexpected issues or risks	• Monthly: brief updates on KPI progress, activities & risk deviations • Quarterly: performance assessments, stakeholder engagement, report of corrective actions • Annual: project impact, financial summary, sustainability, policy influence
Audience	Internal project teams, steering committee	Funders, policy makers, regulatory bodies, collaborating institutions etc.
Communication Channels	Email, project management tools, regular meetings	Email, online portals, review meetings, conferences