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Digital Health Innovation Challenge

Join the Challenge to develop real-world AI, IT, and robotics solutions for healthcare alongside industry experts and peers!

Application Deadline 13.09.2025

Sign up now!

https://www.entrepreneurship.zhaw.ch/en/courses/digital-health-innovation-challenge

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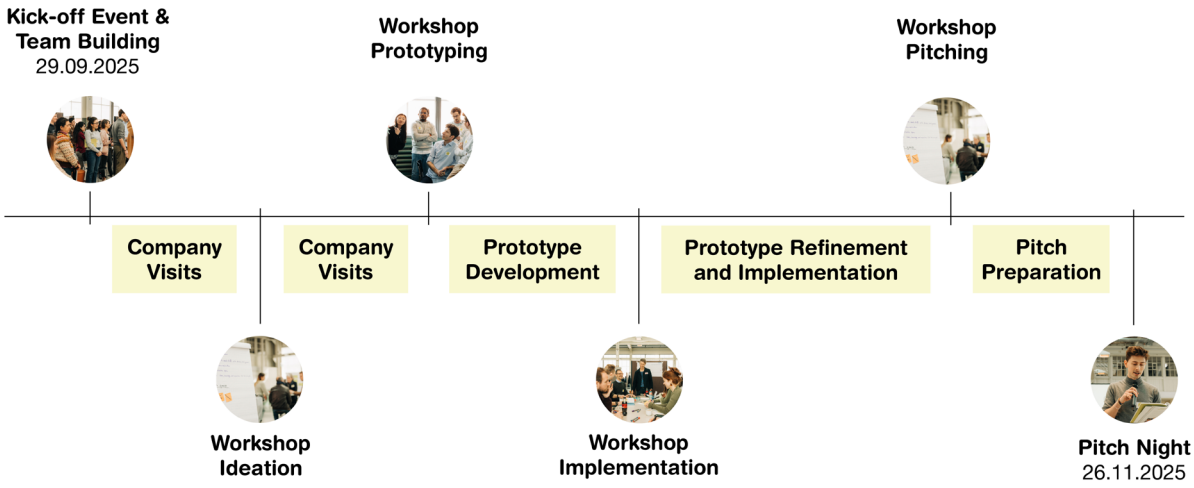
ZHAW Digital Health Innovation Challenge

The ZHAW Digital Health Innovation Challenge invites students and early-career professionals with a passion for artificial intelligence, IT, or robotics in healthcare to take part in a dynamic, hands-on innovation experience. Over the course of two months, participants work in interdisciplinary teams to develop creative solutions and prototypes addressing real-world challenges submitted by industry partners – all supported by ZHAW experts and mentors from the field.

In collaboration with companies from the healthcare sector, participants explore pressing issues and co-create meaningful responses. Beyond building technical skills, the programme fosters interdisciplinary teamwork, encouraging diverse perspectives and mutual learning across fields.

Programme Highlights:

- Challenge Definition: Partner companies present real-life challenges from the digital healthcare landscape.
- Team Engagement: Interdisciplinary teams collaborate to design and prototype customised solutions under expert guidance.
- Mentorship & Workshops: Participants benefit from one-to-one mentoring with industry specialists and skill-building workshops.
- Final Pitch Night: Teams present their innovations to an expert jury and industry leaders, receiving constructive feedback.



Upon completing the programme, participants will have:

- Developed innovative digital health solutions in response to actual industry needs.
- Enhanced their teamwork and communication skills through collaboration with peers from various disciplines.
- Expanded their professional networks, connecting with companies, start-ups, and researchers in the digital health space.
- Gained valuable hands-on experience by engaging directly with healthcare partners on impactful projects.

Entry Requirements:

The programme is open to BSc, MSc and PhD students, as well as postdocs, researchers and start-ups interested in health and technology from all faculties – both within and outside ZHAW.

Clinical Data Extraction from PDF Reports

Automate Intelligent Extraction of Clinical Data from Cataract Surgery Reports

Challenge Description
Develop an end-to-end system that uses Large Language Models (LLMs) to extract critical clinical information from unstructured PDF reports of cataract surgeries. The system should identify key data such as patient details, complications, and classifications and convert it into a structured format for use in ongoing quality control.

Further Details about the Challenge
The project is embedded in an existing surgical quality assessment initiative where clinical metrics from cataract surgery reports are currently being curated manually. The aim is to automate this process and accelerate data availability.

Relevance of the Challenge for the Organization
Manual data extraction is time-consuming and inefficient. Automating this process with LLMs would improve accuracy, speed up workflows, and enhance the usability of clinical outcome data.

What is the Objective of the Challenge?
Develop a tool that automates information extraction from PDF reports using LLMs and presents the extracted data in a structured and usable format.

Possible Starting Points for the Challenge
- PDF parsing and normalization
- Prompt-engineered extraction via LLMs
- Tabular formatting of output
- GUI development
- Optional use of GitHub ARGUS (Azure + GPT)

Out of Scope for the Project
Data analysis beyond structured extraction; focus is on automation of reporting, not downstream analytics.

Special Requirements or Framework Conditions
Requires access to anonymized reports and possibly cloud resources (e.g. GPT-4o or Azure APIs).

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The Future of Orthopedic Care

Enhance orthopedic outcomes with PROM-based insights

Challenge Description
Create a digital, FHIR-native application for collecting Patient-Reported Outcome Measures (PROMs) in orthopedic settings, with a focus on modularity, usability, and integration into existing hospital IT systems.

Further Details about the Challenge
Currently, PROMs are collected using external or paper-based methods. These systems do not support real-time data use and lack integration into clinical workflows, reducing their potential for improving care.

Relevance of the Challenge for the Organization
An internal solution would allow real-time, actionable use of PROMs and reduce reliance on fragmented third-party tools—supporting value-based, data-driven healthcare.

What is the Objective of the Challenge?
Develop a secure, user-friendly web app for collecting PROMs via FHIR questionnaires, with features for both patients and clinicians.

Possible Starting Points for the Challenge
- Start with one pilot procedure (e.g. joint replacement)
- Use FHIR form builder
- Web-based UI for patients and clinicians
- Secure data architecture

Out of Scope for the Project
Data analytics on top of collected data.

Special Requirements or Framework Conditions
Compliance with data privacy laws; modular design; integration into existing portals and EHRs.

AI for Conflict Detection in Hospital Construction

Prevent Predictive Conflict Detection in Hospital Construction Projects

Challenge Description
Create a prototype that uses AI to predict resource bottlenecks during the execution phase of hospital construction projects by analyzing BIM and scheduling data before the issues manifest on-site.

Further Details about the Challenge
Hospital builds are high-risk and time-sensitive. Many projects suffer from logistical mismatches—like unavailable cranes or limited storage—due to overly optimistic planning.

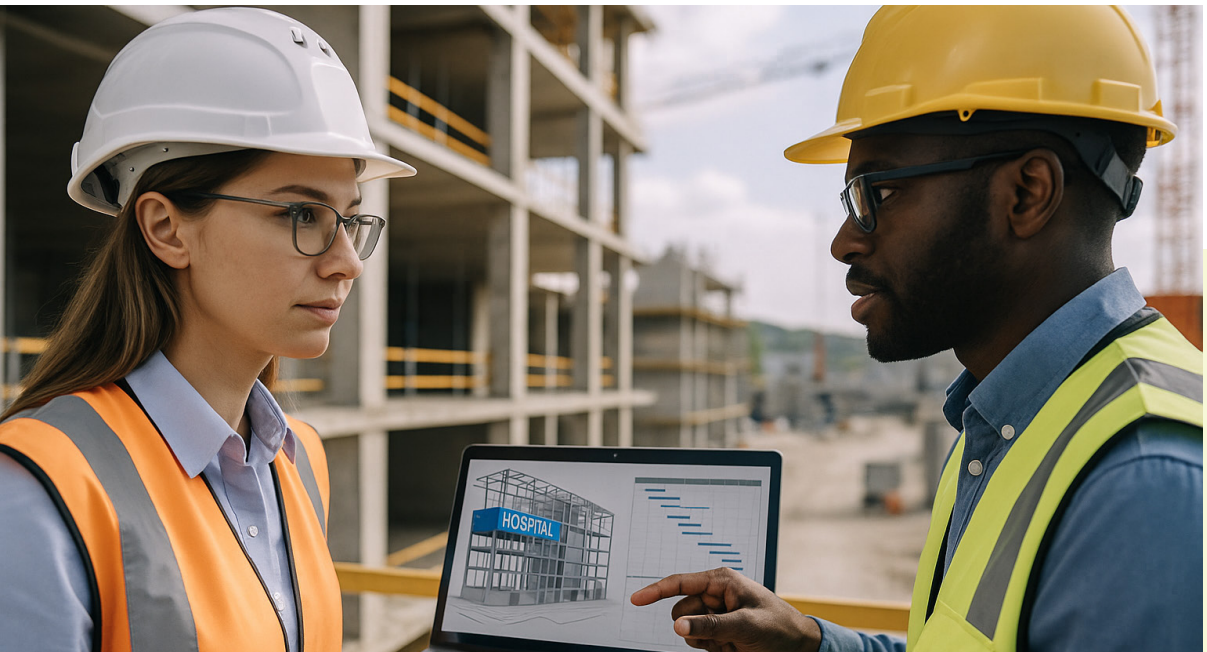
Relevance of the Challenge for the Organization
Drees & Sommer faces increasing complexity and risk in healthcare construction. A proactive, data-driven tool would improve execution control and reduce disruptions.

What is the Objective of the Challenge?
Automated identification of execution risks based on combined analysis of BIM models and resource schedules.

Possible Starting Points for the Challenge
- BIM/schedule parsing
- Resource risk algorithms
- Scenario simulations
- Visual dashboards
- Integration into project steering tools

Out of Scope for the Project
Legal evaluation of data or BIM model redesign.

Special Requirements or Framework Conditions
Project-specific data will be provided; strict confidentiality required.



Modernizing Asbestos Safety Information

Create Innovative, Digital Solutions for the Suva Prevention Campaign on Asbestos

Challenge Description
Transform Suva's 70+ technical publications on asbestos into an interactive, modern digital solution tailored to target groups like craftsmen, planners, and employers.

Further Details about the Challenge
Existing resources are only available in PDF or print format. In a context of increasing renovation activities, more intuitive and accessible formats are needed.

Relevance of the Challenge for the Organization
Asbestos remains the top occupational killer in Switzerland. Improving how information is shared and understood is key to prevention.

What is the Objective of the Challenge?
Develop a digital solution that presents critical asbestos knowledge in a usable, engaging and audience-appropriate way.

Possible Starting Points for the Challenge
- Reuse existing PDFs
- Create interactive navigation or scenario tools
- Customize content by role/industry
- Design for mobile use

Out of Scope for the Project
Expansion to other prevention topics beyond asbestos.

Special Requirements or Framework Conditions
Solution should be embeddable into suva.ch; open to various implementation formats.

Smart Safety Challenge

Develop an AI-Supported, Data-Based Construction Site Control System

Challenge Description
Develop a data-driven tool that helps Suva identify asbestos-relevant construction projects based on predictive criteria and integrated datasets.

Further Details about the Challenge
Currently, inspectors manually research potential sites using fragmented sources. Legal restrictions prevent automated data sharing with cantonal authorities.

Relevance of the Challenge for the Organization
Improved targeting of inspections can prevent exposure, save lives, and optimize internal resources.

What is the Objective of the Challenge?
Create an AI-supported application that flags projects likely to involve asbestos based on multiple data inputs.

Possible Starting Points for the Challenge

- Use of public data (GWR, building year, renovation type)
- Access to tools like Infomanager, Smartconext
- Integration of structured asbestos indicators (EKAS 6503)

Out of Scope for the Project
Expansion to other topics or hazards outside of asbestos.

Special Requirements or Framework Conditions
Must comply with BGÖ; limited automation possible across authority systems.

Smart Inventory Management in Healthcare

Optimize Smart Supply Chain Solutions for Healthcare Institutions

Challenge Description
Develop a prototype for a lean, smart logistics system in healthcare institutions that ensures availability without overstocking—powered by real-time data and automation.

Further Details about the Challenge
Current systems are manual, fragmented, and outdated, relying heavily on staff capacity and lacking transparency across the supply chain.

Relevance of the Challenge for the Organization
Weita AG wants to move from product delivery to solution leadership in healthcare logistics. With rising cost pressures and labor shortages, new systems are urgently needed.

What is the Objective of the Challenge?
Design a modular system that leverages data for demand forecasting, inventory transparency, and automation across processes.

Possible Starting Points for the Challenge
- BLE-based low-cost tracking (< CHF 0.10)
- Process modeling with Odoo
- AI for supply/demand forecasting
- Integration with the WeCare platform

Out of Scope for the Project
None explicitly defined.

Special Requirements or Framework Conditions
Open to all technologies; scalability and compatibility with existing products desired.