

IWISH

A means to optimise complex clinical procedures

Clinical procedures in operating rooms (OR) or image-guided therapy (IGT) labs face multidisciplinary time and resource constraints that reduce the efficiency of patient care. The AI Call 2021 project IWISH (Intelligent Workflow optimisation and Intuitive System interaction in Healthcare) will therefore develop solutions to optimise complex clinical procedures and integrate these into new or existing products.

Addressing the challenge

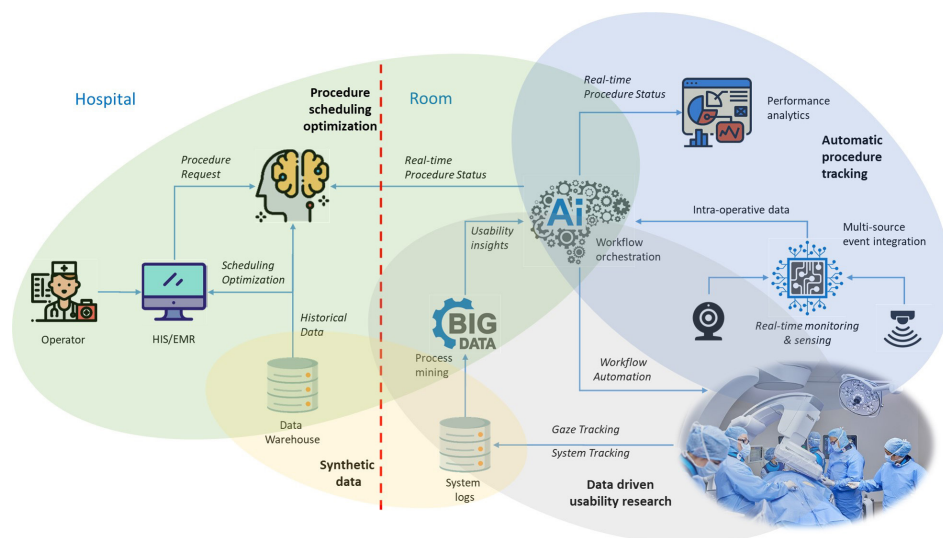
When diagnosing and treating patients, many departments and employees need to collaborate and communicate effectively. However, the diversity of operations within hospitals and the complexity of symptoms and diseases typically lead to problems with a lack of availability of patient data, equipment and/or staff. This translates into less insights on user experience and an inability to deal with the unpredictability of clinical procedures. The resulting inefficiencies could be better addressed by making the right data available at the right place and time during an intervention and using this data for retrospective analysis and feedback.

Proposed solutions

In order to achieve this, the IWISH project will address challenges in automatic procedure tracking, procedure scheduling optimisation and data-driven usability research with three tangible outputs. Firstly, intelligent hospital planning software tools and dashboards will benefit from AI-enabled data analytics and real-time procedure end-time predictions. Secondly, data-driven user experience insights and video-based gaze tracking will lead to optimised designs or the tuning of user interactions with medical imaging equipment and medical displays. Finally, a synthetic data generation application will facilitate the development of data-hungry AI-applications with great potential for the emerging Data-Protection-as-a-

Service market. Ultimately, this will allow hospital-level workforce scheduling to incorporate real-time procedure status updates from ongoing clinical procedures, including delays and disturbances. These technical innovations will be demonstrated and evaluated in four

optimal patient flow can greatly improve hospital efficiency and control healthcare costs. IWISH aims to develop scalable solutions capable of 90% accurate detection of clinical workflow events and 20% improved procedure duration prediction, which will significantly improve hospital efficiency and control healthcare expenditure. Via exploitation of the project's results in new or existing products, IWISH also expects an impact in diverse market sectors, including healthcare information systems, healthcare AI & workflow optimisation services, data protection and medical



^ IWISH solution concept

use-cases covering a wide range of clinical procedures, including cardiology, gynaecology, liver oncology, glioblastoma, paediatric hydrocephalus and lung lobectomy.

Projected results and impact

Given that ORs account for ~60% of a hospital's revenue and one hour of use costs approximately EUR 1500-2000, reducing OR delays through efficient scheduling, fewer cancellations and

imaging systems & displays. Healthcare AI is particularly notable due to a predicted compound annual growth rate of close to 50% up to 2025, reaching a global value of USD 36.1 billion. In the longer term, AI has the potential to improve healthcare outcomes by 30-40% and reduce treatment costs up to 50% – in part thanks to the activities of projects like IWISH.

Project partners

IWISH
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Project start
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Project leader
Robert Hofsink, Philips

Project website
<https://itea4.org/project/iwish.html>

Project end
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