



Automation, Surgery Support and Intuitive 3D visualization
to optimize workflow in image guided therapy Systems

DELIVERABLE D7.2

Public summary report



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ITEA Roadmap challenge:
Smart Health

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HISTORY

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1 Public summary of project

Nowadays Image-guided therapy plays into the quality of care for patients and the personalization of healthcare. During diagnosis and treatment procedures the physician performs minimally invasive patient treatment using multiple imaging modalities for diagnosis and treatment guidance. Due the complex nature of 3D anatomy visualization, the overload of data and the combination of multiple data sources, image interpretation is difficult, it requires expert knowledge and often leads to fatigue and cognitive overload. Current software applications to assist the physician still require significant manual user interaction, while all attention should go to the patient instead. AI-based tools exist and have the potential to relieve the clinician's burden, however, currently are primarily used in experimental settings so not yet fully deployed in clinical practice.

The ASSIST project will develop technologies and solutions to get the physician back in control of the clinical procedure, by assisting or automating partly the physician's tasks during image guided therapy procedures. To address the abovementioned end user needs the ASSIST project will develop novel technologies and introduce novel solutions to optimize and simplify the workflow in image guided therapy procedures, with the main goal of streamlining physicians' work, optimizing imaging systems, improving patient outcomes, reducing human error, and lowering costs. The clinical solutions will be based on innovations in: (1) precision diagnosis & personalized treatment planning, (2) robotic assisted surgery and (3) advanced 3D navigation and visualization. The development of applications in these three innovation areas will be fuelled by (4) Artificial Intelligence and by Deep Learning as powerful method to offer transformative potential. It introduces an even richer layer to medical technology solutions!

The project will address four healthcare market segments: Healthcare AI, Interventional Radiology, Medical Robotics and AR/VR and 3D visualization. Each of these segments either already has a sizeable market or shows substantial growth rates.

The ASSIST consortium brings together multiple industrial partners to commercialize the project's results and to benefit from the collaboration with knowledge institutes. The partners provide a balanced mix of research-oriented partners, technology suppliers and industrial system suppliers. Additionally, clinical experts in the project will ensure that end user needs are sufficiently addressed leading towards new products, features and services! Apart from collaboration between two or more partners on specific technology topics, also output oriented collaboration will be organized towards clinical use cases that exemplify use of the solutions in clinical practice. The use cases include minimally invasive surgery for liver, brain and lung disease, intracranial hemorrhage and benign prostatic hyperplasia (BPH).