

Digital Health Technology: From Precision Engineering to Precision Medicine

Dr. Paul Galvin,

Head of ICT for Health Strategic Programmes and Head of Life Sciences Interface Group, Tyndall National Institute, University College Cork, Cork, Ireland.

Tel: +353 21 2346030; E-mail: paul.galvin@tyndall.ie

Abstract

Breakthrough research in key enabling technologies including photonics, micro-nano- electronics, nanotechnology, biotechnology, advanced manufacturing and advanced materials is driving innovative solutions to healthcare. This digitisation of healthcare requires an “ABC ecosystem”, in which Academic, Business and Clinical stakeholders align and collaborate and leverage the natural synergies between academic research groups, global leaders and SMEs in medtech and pharma industries, and the relevant clinical expert. This approach ensures that research delivers maximum impact in terms of clinical utility and commercial opportunity.

ESTHER is an industry driven initiative initiated by the European Commission and the Medtech industry within the framework of H2020, bringing together key European stakeholders involved in Emerging and Strategic Technologies for Healthcare. ESTHER's key objective is to raise the competitiveness of European medical technology industries by developing and manufacturing innovative healthcare technologies, in a changing environment. ESTHER should support the transition of the EU medical technology industry from predominantly passive devices manufactured by precision engineering, into smart medical technologies with additional functionalities enabled by leveraging a multi KET (Key Enabling Technologies) development and manufacturing ecosystem. This includes the development, manufacture and translation of multi-KET enabled medical technologies and the development of the medical technologies ecosystem.

Tyndall National Institute in Cork Ireland is engaged in selected research and development activities, involving leading Medtech and Pharma companies, and several innovative SMEs through EU, national and direct contract research funded programmes, to advance next-generation healthcare technologies. Research capabilities at Tyndall allow concepts to be taken through the complete development cycle from defining the problems statements with clinical and medtech / pharma industry partners, through to design, device fabrication, prototype system integration, and right up to product development and validation, using state-of-the-art research infrastructure and working through collaborators such as industrial designer and contract manufacturers. Tyndall's ABC health partnership model, is a strategic innovation hub engaging with smart medtech stakeholders to ensure impact based on clinical utility and commercial opportunity for research outputs.