

MedScan3D

Established in 2015 and operating from Galway, Ireland, MedScan 3D is a leading provider in 3D printing technology.

MedScan3D specialises in producing highly precise, patient-specific 3D anatomical models from computed tomography (CT), Magnetic resonance imaging (MRI), and dental cone beam CT (CBCT) scans.

MedScan3D focuses on 3 categories:

1. Surgical Planning
2. Medical Device Testing
3. Education.

MedScan3D's primary market includes medical device companies and healthcare professionals such as cardiologists, oncologists, and surgeons.



Jacqui O'Connor
Founder / Managing Director

About Health Innovation Hub Ireland

Health Innovation Hub Ireland (HIHI) was established by the Department of Business, Enterprise and Innovation and the Department of Health and is supported by Enterprise Ireland (EI) and the Health Service Executive (HSE) to drive collaboration between the health service and enterprise. We offer companies the opportunity for pilot and clinical evaluation studies and we provide the health service access to innovative products, services and devices that they may not otherwise be exposed to.

HIHI is built on the recognition that collaboration with enterprise can benefit patient care, patient pathways

and outcomes. We assess all concepts for healthcare innovation from those on the frontline – from clinician to porter. We encourage healthcare professionals to get in touch with HIHI if they have an idea or solution to how something in your job might work better.



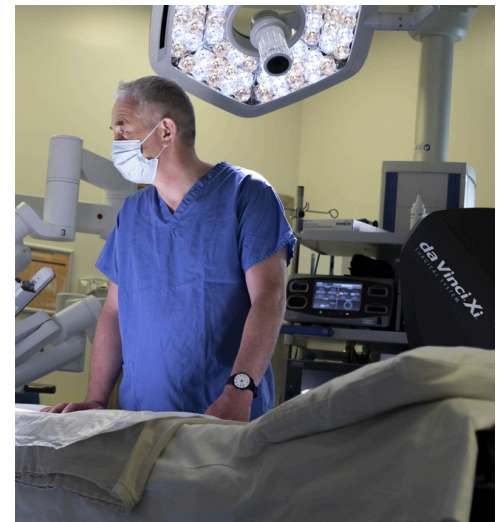
The Healthcare Challenge

As every individual is unique, every surgery presents unique challenges as a result. This is of particular importance in complex surgery, where extensive preparations can be required.

Visualisation of the surgery site can be difficult depending on location. 3D modelling is one method used to improve visualisation and surgery planning.

This technology has been effectively utilised in surgical planning and navigation, as well as in surgical training and patient education across various surgical specialties. It has also found use in medical manufacturing by increasing efficiency and reducing lead times.

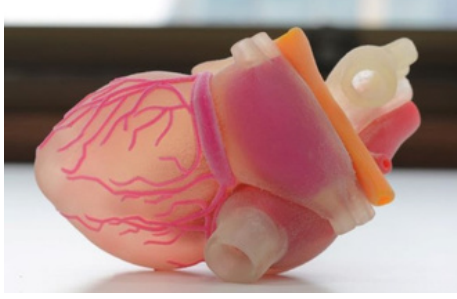
However, this technology has its own challenges, including printing quality, speed, and automation.



MedScan3D's focus with HIHI was to explore the value of printing patient-specific models and beyond this in various healthcare fields, such as:

- Orthopaedics
- Paediatrics
- Cardiology
- Dentistry

The Healthcare Solution



Three-dimensional (3D) modelling technology converts patient-specific anatomical details obtained from two-dimensional radiological images into virtual or physical 3D models that more accurately represent the complex conditions encountered during surgery.

The MedScan3D service includes converting medical scans into STL files that can be adapted using CAD for port merging, 3D printed prototype models, and customisable silicone casted test models. These medical models can be made in a variety of materials for multiple purposes.

HIHI Role

The focus of the MedScan3D evaluation was to identify new areas where 3D printing technology can add benefit within the healthcare system. The company wanted to explore fresh opportunities of benefit in the system and connect with key people to champion 3D printing technology. HIHI advised engagement with clinical engineers and radiotherapists to explore service need, application and adoption of a bespoke 3D printing offer.

The HIHI national network was used to identify and connect with key experts in clinical engineering across the country and radiotherapy. HIHI arranged, facilitated, and chaired each evaluation sessions.



3D Printing in a Healthcare Setting

Wednesday 11 AM - 2 PM
July 10th Tallaght Hospital

Have you ever wondered how you could use 3D printing in your profession? MedScan3D are delighted to host an open day on medical 3D printing for all Tallaght hospital staff.

Outcome Report

As 3D printing continues to evolve, it holds the promise of not only improving the quality of healthcare but also making advanced treatments more accessible and affordable. While the benefits are clear, there are considerations regarding the widespread adoption of 3D printing technology in clinical settings. The integration of these models requires a clear understanding of each clinical area and the patients' and clinicians' journeys through them. Where and how a 3D model can be requested, created, and delivered may differ depending on clinical need and journey. The pricing model will also have an impact on adoption.

A shift in mindset of the clinicians and the simplification and ease of access to the models will be crucial to adoption. The implementation of 3D printing technology could revolutionise surgical planning and other areas of healthcare, ultimately being a tool that is as ubiquitous, accessible and considered as blood tests, X-rays and scans, leading to more precise and personalised patient care.

Challenges Identified

- **Awareness Deficit:** There is a noticeable lack of awareness among hospital staff about the potential and benefits of 3D printing technology. This gap in knowledge poses a significant barrier to its wider adoption.
- **Regulatory Scepticism:** Concerns regarding the compliance of 3D printing with CE requirements persist among healthcare professionals. This is possibly based on a lack of understanding of requirements. This scepticism needs to be addressed to facilitate smoother integration of the technology.

Key Recommendations

- Assess the feasibility of establishing a shared off-site 3D printing hub to serve multiple hospitals, enhancing resource efficiency and access.
- Develop a clear service model with defined pricing and turnaround time metrics to streamline the integration of 3D printing services.

Testimonials

"HIHI facilitated our connection with experts to gain fresh insights into our service offerings. The feedback from this evaluation has helped identify market value points and initiated a HIHI pilot study at one of the clinical locations involved in the evaluation."

-MedScan3D