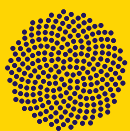


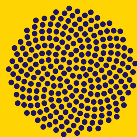
Ireland Where Digital Health Thrives



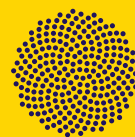
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Innovation through collaboration

Dr. Paul Galvin, Head of the ICT for Health Programmes and Head of the Life Sciences Interface Group at the Tyndall National Institute, speaks about how the institute is delivering novel digital healthtech solutions in medtech and pharma that puts patient needs first.



Tyndall, Ireland's largest Research and Technology Organisation (RTO), specialises in micro-nano-electronics, photonics and smart systems. Tyndall works with global leaders in medtech and pharma industries.

"We are one of Ireland's six national labs that carries out research in both fundamental and applied research," says Paul Galvin, who has been working with Tyndall National Institute for over 20 years. "We focus on four pillars around an 'ABCD ecosystem', that combines academic, business and clinical stakeholders, as well as experts in design thinking."

Tyndall works in collaboration with six of the world's top 15 medtech companies as well as three of the top 15 pharma companies, together with a host of highly innovative SMEs. Tyndall also hosts some 90 industrial researchers-in-residence, from 17 different companies that are made up of leading global players and indigenous SMEs representative of all related market segments.

From ideation to production

Paul says Tyndall develops what is referred to as digital health technology. Tyndall's ICT for Health programme is already working with Philips through several EU programmes, Boston Scientific through national and EU funded programmes, Abbvie through EU/National funded programmes as well as engaging several innovation Irish SMEs through the Disruptive Technology Innovation Fund and Interreg funded Calin programme between Wales and Ireland. Digital health technology represents a growing opportunity

to enable personalised, precision medicine through new/ next generations of smart medical devices. Smart Medical devices or digital healthtech sees hardware, software and AI coming together to solve unmet clinical needs.

With an annual combination of over 200 industry partners, Tyndall is home to over 600 engineers, scientists and support staff with 57 different nationalities. Tyndall is delivering new research innovations in diagnostics, connected health, minimally invasive devices, wearable patch technology, cardio/neuro bioelectronics, implantable devices, smart therapeutic devices, as well as sensors and systems for Industry 4.0.

Paul mentions NASA's Technology Readiness Levels (TRL). This nine-point measurement system is used to assess the maturity level of a particular technology where level one is fundamental research, and level nine is a fully realised product. Paul says Tyndall's ICT for Health research mainly operates at levels three to seven, where level seven represents clinical proof of concept studies.

"When it gets to level six/seven, Tyndall is usually collaborating with a MNC / SME medtech company, or a contract manufacturer who take responsibility for scaling up our solution. They will then put it into a production line, accredited in accordance with European Medical Device Regulations or US FDA requirements, depending on the product roadmap."

Changes to standard care empowers clinicians

"We need to ensure that medicines are delivered to the right patient, to the right tissue, at the right dose, and at the right time."

All of that can be managed with smart delivery systems and wearables. Paul says standard care is changing to paying for cure rather than for care. So, in order for care to be reimbursed, hospitals and care facilities have to demonstrate the efficacy and adherence of their procedure.

Paul says, "It is no longer sufficient for a clinician to show that they performed the relevant procedure. They must now demonstrate that they effectively delivered the therapy that was needed."

"So, in the case of orthopaedic procedures for example, these kinds of sensors will use data to not only inform the patient of their rehabilitation, but also to inform reimbursement. This smart data can also create a personalised health plan, rather than giving everybody the standard care package."

Irish digital healthtech has global ambition

Paul says Ireland is a great place to conduct this type of research and perform digital healthtech activities.

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"We have a very strong medtech industry in Ireland with 42,000 employees throughout the country," says Paul. "We are an English-speaking country in Europe, which is very attractive to companies who want to base themselves in Europe. We also have the necessary talent and ecosystem for creating these zero-defect products."

"We increasingly have a reputation for being able to bring new healthtech products through the maturity cycle and get them to the patient. This allows us to develop and look at opportunities in the rest of Europe and in the US as they have much larger markets."

Tyndall works closely with Government agencies like IDA Ireland, Enterprise Ireland, Science Foundation Ireland and various Government departments. Paul says that the Irish medtech ecosystem ensures everybody works together and it is continually tweaked and optimised to ensure patients, not just in Ireland, but around the globe benefit from existing and emerging healthtech solutions, leading to growth in jobs and exports.

With the medtech industry in Ireland getting bigger and health technology innovations increasing, Paul says Tyndall is continuously evolving and exploring opportunities with Irish-based industry partners.

"We always want to ensure that we have the globally leading research capabilities and expertise to deliver solutions needed, to support the ecosystem, and our industry partners. This ensures that we can attract investments for next generation digital healthtech research and innovation and support new product development."

Paul adds, "We will continue to be a core part of the medtech ecosystem in Ireland. We ensure that when a solution is required, we can not only create it, but also bring together all the different parts of the Irish value chain including leading academic R&D providers, SMEs and MNCs with relevant materials, components or services, together with clinical experts and clinical research facilities as applicable."



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