

CONFIRM, SFI Research Centre for Smart Manufacturing

CONFIRM's mission is to transform industry to become leaders in Smart Manufacturing.

Smart Manufacturing is the process of fusing intelligence to the production process to improve manufacturing performance via automation and data analytics. CONFIRM has expertise across the full Industry 4.0 Smart Manufacturing ecosystem and works to identify business needs in partnership with industry and then selects the right research team to help to solve business challenges.



We have an extensive researcher network that spans nine research partner institutes and 16 international collaborations. This is coupled with 100+ industry partners and supported by €45 million in funding.

Research Areas

CONFIRM has 8 key research areas that sit within our hub:

- › Data Analytics: AI, Predictive Modelling, Decision Analytics
- › Enterprise Modelling & Simulation
- › Networking Systems & Internet of Things
- › Product & Process Modelling
- › Robotics & Control
- › Sensors
- › Software Systems
- › Material Processing

Research Programmes

- › **Hub 1** – Virtual Industrialisation, focusing on adaptive data analytics and optimisation for smart manufacturing; end-to-end supply chains and predictive modelling of manufacturing.
- › **Hub 2** – Cyber-Physical Manufacturing Systems, focusing on connected infrastructures, machines & software systems; data, information, knowledge integration, security and technology adoption; and semantic interoperability and data analytics for production.
- › **Hub 3** – Self-Aware Manufacturing Systems, focusing on advanced sensors, controls and robotics to add intelligence, efficiency and safety to machines and production systems.
- › **Hub 4** – Testbeds & Prototype Lines to provide versatile, adaptable facilities for collaborative assessment and validation of CONFIRM's technologies by all stakeholders.

Facilities

CONFIRM's new headquarters, a bespoke 1619m² facility based in Park Point, Limerick, will open on February 2020. This facility will enable a community of practice where CONFIRM will host 70 researchers, 12 operational and management staff, resident and visiting investigators from CONFIRM's nine national research partners, international collaborators, industry partners, as well as test-bed and prototype facilities.

Across our partner institutes, we have an array of cutting edge equipment:

- › Process & Product Development Labs – Tyndall National Institute
- › Process Technology Services – Tyndall National Institute
- › JAMIR Composite Joining Suite – University of Limerick
- › Universal Robotics UR Series Cobots – University of Limerick
- › MAXIEM 1530 Water-Jet Machining Centre – University of Limerick
- › Ultrasonic Welding Facility – University of Limerick
- › Injection Moulding Smart Manufacturing Cell – Athlone Institute of Technology

Industry and Commercialisation

CONFIRM gives industry partners a competitive advantage by ensuring the right research team is working to drive business readiness for Industry 4.0. CONFIRM has experience working with MNC and SMEs across diverse sectors, including; Computer, Electronic, Optical, Pharmaceuticals, Medical Devices, Chemical, Nutrition & Beverage, and Electrical equipment.

HOST INSTITUTION



PARTNER INSTITUTIONS



Industry partners include:

- › Johnson & Johnson
- › Analog Devices
- › Accucode
- › SCRI-IS Technologies Ltd
- › Modular Automation
- › SL Controls
- › Robotics & Drivers
- › ATG Europe

Education and Public Engagement

With manufacturing being the second largest employer in Ireland, CONFIRM believes it has a responsibility to future proof the community so that it is best placed to adapt and thrive in Industry 4.0.

CONFIRM has developed an array of training programmes and workshops to inform various cohorts including the general public, schools, industry, and stakeholders on smart manufacturing and Industry 4.0.

Examples include:

- › Smart manufacturing & Robotics for primary school
- › Career information for 3rd and 4th level pathways
- › Pint of science
- › National science week



Key Contacts

Prof Conor McCarthy

Director

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As Professor of Engineering at the University of Limerick, Professor McCarthy also leads a research group, who are developing novel methods to join high performance composite materials to other lightweight materials, to result in structures with superior strength and stiffness properties, and with only a fraction of the weight compared to typical steel or aluminium structures. This work has attracted over €6 million in competitively won research funding from Europe, Irish research funding agencies and both national and international Industries. His research has led to over 150 high impact publications and a patent pending on a new smart glue that can be “unzipped” using only high frequency radio waves for applications in automotive assembly down to dental implants. Prof McCarthy is a SFI Principal Investigator, and leads major research programmes in Engineering Science.

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