

## CONFIRM, SFI Research Centre for Smart Manufacturing

CONFIRM is the Science Foundation Ireland funded Research Centre for Smart Manufacturing. Our vision is to Fundamentally Transform Industry to a Smart Manufacturing Ecosystem.

The Confirm Centre has embarked on a mission to understand and map the international manufacturing R&D landscape and to articulate our global distinctiveness on our drive to become a world-leading centre in Cyber-Physical manufacturing systems and digital supply chains enabling high-impact business transformations.



### Key Objectives to Deliver Our Mission

- 1 World-Leading Research**  
To develop future smart manufacturing technologies
- 2 Talent & Engaged Public**  
Positive perception of Irish manufacturing globally
- 3 Inclusive & Diverse Community of Practice**  
To embrace the 4th Industrial revolution together
- 4 Internationalisation**  
Internationalisation as part of our growth strategy

### 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 1,619 m<sup>2</sup> Digital Manufacturing facility, located within the University of Limerick Digital District was launched in December 2020. The Confirm Centre hosts 130 researchers, 12 operational and management staff. The new facility includes a large test-bed to house Ireland's future factory demonstrators, an 8 metre diameter Virtual Reality Cave, a 10Gbyte internet access, the first 5G Digital Manufacturing Network in Ireland, and a Digital Manufacturing lab to include 3D printing and non-contact 3D part scanning. This facility will be the centrepiece of Confirm's research network and through a dedicated Community of Practice area – will link our researchers, industry partners and the general public together to raise the profile of manufacturing in Ireland and Internationally.

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.

Built around four key pillars of activity – Education & Careers, Public Engagement, Capacity Building and Government & Policy, the CONFIRM EPE programme aims to challenge public perceptions of manufacturing, highlighting as a valuable and exciting field of STEM. Our mission is to become a global centre of excellence for EPE in manufacturing research.

Examples of some of our activities include:

- › Undergraduate Summer Bursary Schemes (Pictured)
- › Bespoke workshops & activities for Primary & Secondary Schools
- › Public Events such as the Pint of Science Festival
- › Teacher Continuous Professional Development



## Key Contacts

### Prof Conor McCarthy

Centre 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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