

# CONFIRM Smart Manufacturing Research Centre

Smart manufacturing involves the complete convergence of IT systems and industrial automation systems. Confirm's mission is to support the transformation of the Irish manufacturing sector to a smart manufacturing paradigm. This will enable advanced capabilities for industry in the areas of customer-centred manufacturing, optimised real-time decision-making, increased product quality and new business opportunities.



Confirm will be a game changer for Irish manufacturing competitiveness, delivering the technological advances and expertise for a smart manufacturing innovation ecosystem, enabling companies to compete within the rapidly changing global landscape, and boosting Ireland's reputation as a leading international manufacturing location.

The Centre benefits from expertise spanning 8 core research performing organisations in Ireland and 16 international collaborations. The centre also benefits from collaboration with 42 Industry partners across MNC and SME sectors.

## Research Areas

- Smart manufacturing
- ICT-enabled production
- Virtual industrialisation
- Right-first-time decisions
- Optimised processes/products
- Sensor-enabled tools
- Adaptive data-analytics
- Test-Bed & Prototype lines



A World  
Leading SFI  
Research  
Centre



# Confirm Smart Manufacturing

## Research programmes

CONFIRM will undertake fundamental scientific and engineering research to deliver disruptive innovations in the following areas of digital manufacturing:

- 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 is currently planning to build its Headquarters at Park-Point, located near the gates of the University of Limerick. This 16,000 m<sup>2</sup> facility will house many of Confirms 160 strong research staff, resident and visiting Investigators and international collaborators, Industry partners and very many test-bed and prototype facilities.

## Industry and commercialisation

The manufacturing sector is the second largest employer in Ireland and accounts for €110 billion in exports. Smart manufacturing optimises production systems, adding intelligence and enhanced information technology. These new technologies will be at the heart of the factories of the future, increasing product line adaptability, enabling real-time decision making, shortening supply-chains, and speeding up the development of new innovations to produce higher-quality goods at reduced costs across all industry sectors. CONFIRM will be revolutionary for Irish manufacturing competitiveness, delivering the technological advances and expertise for a smart manufacturing innovation ecosystem, enabling companies to compete within the rapidly changing global landscape, and boosting Ireland's reputation as a leading international manufacturing location.

## Industry partners include:

- > Johnson & Johnson
- > Analog Devices
- > Action Point
- > Modular Automation
- > SL Controls
- > United Technologies Research Centre Ireland
- > KUKA
- > Medtronic

## Education and Public Engagement

Confirm's EPE instruments include:

- > Smart Manufacturing & Robotics for Primary Schools
- > Access to Extensive Education Programmes inc. Professional Doctorate in Engineering, MEng Mechatronics (in partnership with SL Controls and J&J), MSc Artificial Intelligence, MSc Data Analytics, MSc Business Analytics; BSc Engineering Science and many Apprenticeship programmes.



## Key Contacts

### Prof Conor McCarthy

Director

*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 €6million 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.*

### Dr Graeme Maxwell

Deputy Director

### Dr Bill O'Leary

General Manager




### Sean O'Brien

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### CONFIRM






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