



Supporting the Transformation of
Industry through Digitalisation



TUS





Irish Digital Engineering and Advanced Manufacturing Research Institute

Centre of Excellence in Industry 4.0/5.0, Artificial Intelligence, Data Analytics, IoT, Cyber-physical Systems, Robotics and Energy.

Supporting the Digital Transformation of
Industry

Dept of Electrical & Electronic Engineering,
Faculty of Engineering & Technology

Dr John Cosgrove

30+ Years supporting
Industry Innovation.

Director of Smart
Manufacturing / Section
Head – Electrical
Engineering.

Linkedin
[linkedin.com/in/johncosgrovetus](https://www.linkedin.com/in/johncosgrovetus)



supports innovative Companies to be;

SKILLED

**Apprenticeships
Industry-based
Training
Professional
Masters
Industrial PhDs**

SMART

**Data Analytics
Predictive
Maintenance
Cognitive
Robotics
Digital Twins
Artificial
Intelligence**

SUSTAINABLE

**Energy
Efficiency
Electrification
Renewable
Energy
Smart Grids**



IDEAM Research Institute

- 25 Postgraduate Researchers (5 PhDs)
- Industry-based

Smarter Factory Technology Gateway

- €2.5 Capital Equipment.
- 2024 €300k

IDEAM Industry Cluster

- 45 SMEs in Manufacturing & Technology

European Research Projects (7)

- 40 partners (HEIs, RPOs, Clusters & Industry)

IDEAM Learning Factory

PhD in Digitalisation Engineering

- Joint European PhD with TUS, IPCA & IPL.
- Structured Research Degree with industry-based context.

Masters (MSc) in Digitalisation of Manufacturing

- Co-funded with Industry and Irish MedTech Skillnet.
- Structured Research Degree with industry-based context.

In development.

Masters (MSc) in Electrical Power Systems

Masters (MSc) in Wind Energy Systems

Co-funded with EU & EI funded DigiWIND project.

- Structured Research Degree with industry-based context.

Short Courses

Artificial Intelligence,
Machine Learning, Data
Analytics, Edge Devices ,
PLCs, Vision Systems,
Robotics, Cobotics,
Digitalisation, Cybersecurity,
SCADA, HMIs, DCS, Data
Acquisition, Digital Twins,
Electrical CAD, CAX,
HMI/HCI, Databases,
Visualisation, PowerBI,
Dashboards, OEE,
Maintenance, MTTR, MTBF,
LEAN, Optimisation,
Operational Excellence.

FactoryXChange

FactoryXChange is a **EDIH** that aims to accelerate factories of the future by embracing ecological, digital and societal challenges. Digital Europe (2023 – 2030)

M27 – 158 Clients – Booked €4.3m Services

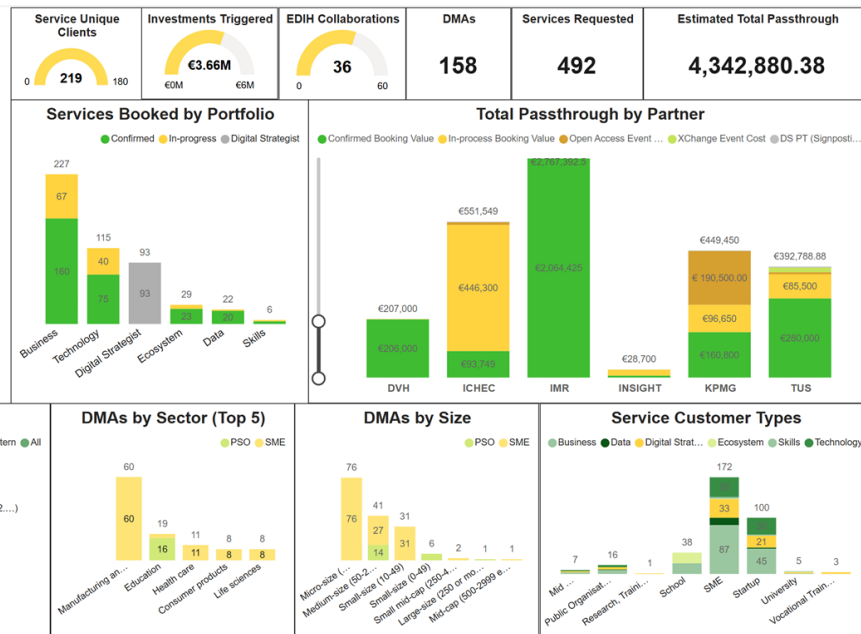
FactoryXChange

Highlights

25/03/2025

FactoryXChange has:

- 219 unique service booking clients.
- 158 Digital Maturity Assessments (DMAs) completed, with 30 DMAs pending.
- 492 service bookings totalling € 4,069,174 in Service Booking Passthrough.
- 282 confirmed service bookings totalling € 2,811,774 in Service Booking Passthrough via DocuSign.

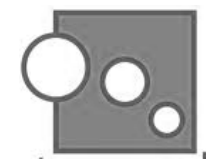


TUS

www.factoryxchange.ie



Irish Centre for High-end Computing



creative spark
centre for creativity and innovation



IRISH
MANUFACTURING
RESEARCH

SERVICES



Data and AI value chain



Support to find investment



Innovative ecosystem networking



Skills and Training



Test before Invest



FutureAnalytics

Insight
SFI RESEARCH CENTRE FOR DATA ANALYTICS

Funded by



COONAGH Smarter Factory Lab

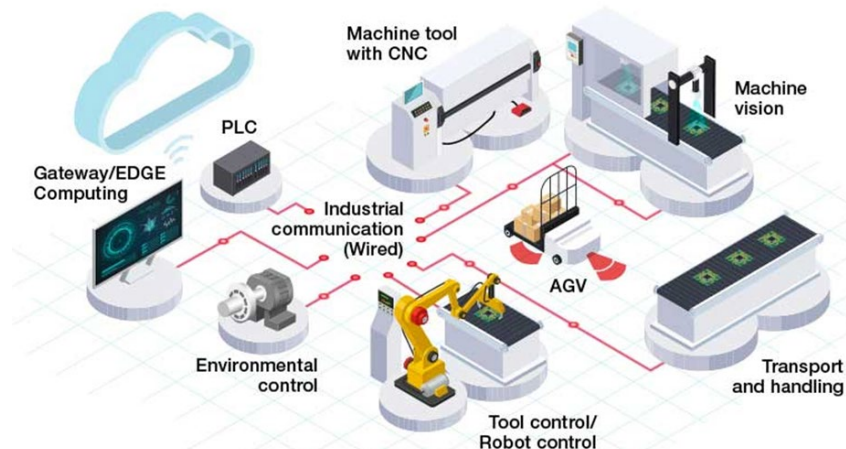
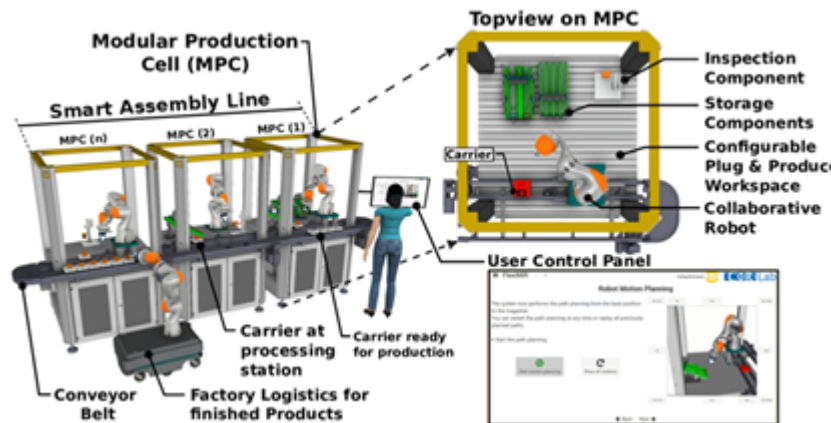
SmarterFactory01 - Smart DCS

SmarterFactory02 - Cobicotic Machine Vision

SmarterFactory03 - Smarter Factory Data

SmarterFactory04 - Hybrid AI Testbed

SmarterFactory05 - Automated 3D scanning and inspection



DIGI WIND

Advanced digital skills in wind
and energy systems engineering



Digital
Mindset



Digital
Masters



Digital
Experience



Digital
Life-Long Learning



- Coordinator DTU – 5 Universities including TUS – Leading WP4 Lifelong Learning
- First LLM run – Leadership in Offshore Renewable Energy Systems
- Exhibiting at Wind Europe Conference – Copenhagen (April 8-9)



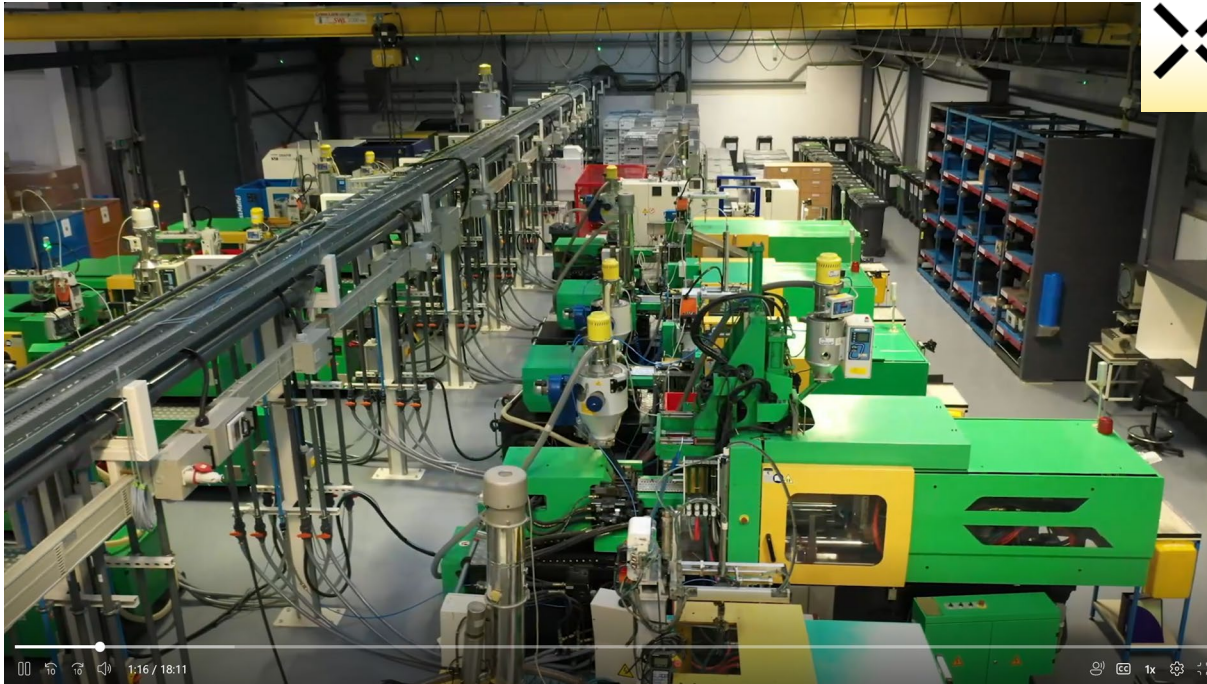
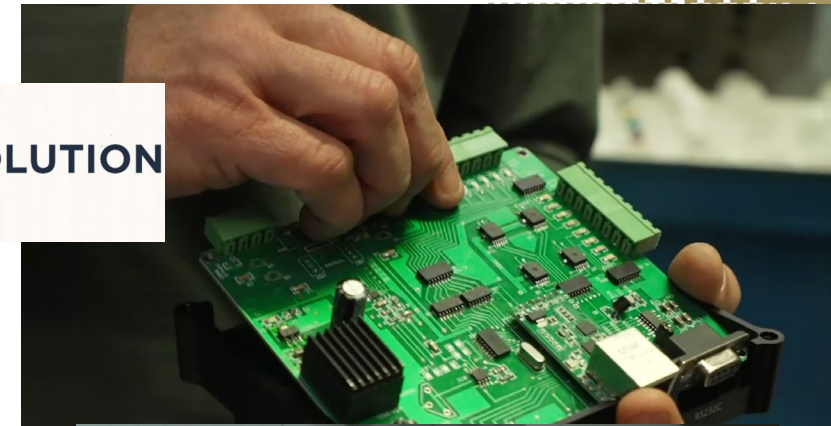
Co-funded by the
European Union

Industry Case Study



- Manufacturing SME, Co Limerick.
- Energy Monitoring Solution, Digitalisation of Machine Status
- Digital Twin of Machines, Maintenance Savings, Business Growth
- Funding leveraged, European Award.

Factory
XChange



Industry Case Study

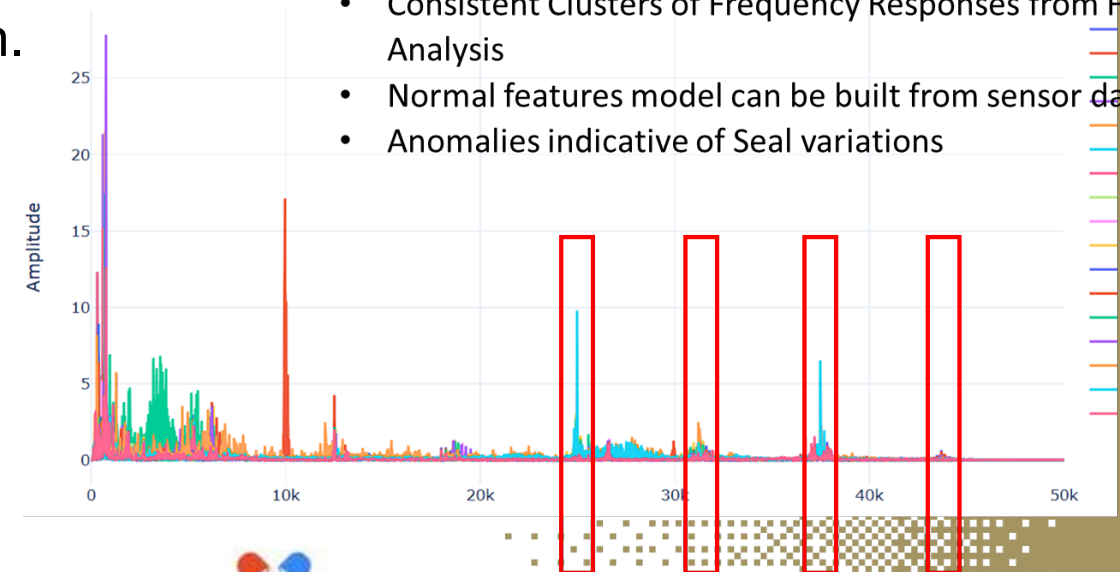
ÆPIC



- Collaborative Project:
- **ÆPIC: Realtime monitoring for predictive failure modelling of mechanical seals**
- Vibration & Acoustic Sensing
- Industrial IoT Solution & Cloud-based Data Acquisition.
- Machine Learning Analytics / RME & Frequency Domain Analysis
- **Convolution Neural Network (CNN1D)** with model accuracy of **87%**.



Tank 17 Production



- Promising approach to Seal Characterisation
- Consistent Clusters of Frequency Responses from FEA Analysis
- Normal features model can be built from sensor data
- Anomalies indicative of Seal variations



Industry Engagement

DigiWIND Knowledge Day: Wind & Energy Systems

- Thursday 1st May 2025, TUS Coonagh Campus
- Keynote speakers, industry panels, and AR/VR technology demonstrations.

DigiWIND Webinar Series: Energy Islands – Baltic, North Sea & Ireland.

- Webinar Series - Thur 8th – 21st , Zoom.

Manufacturing Solutions Conference and Exhibition (Precision Engineering)

- 11-12 June 2025, TUS Coonagh Campus

Smarter Factory – AI, Digitalisation & Control in Pharma and Bio-Pharma

- FXC Workshop – 12th June 2025.

Smarter Factory – Electrical & Automation Engineering Knowledge Day

- FXC Workshop – 9th September 2025. TUS Coonagh Campus

FactoryXChange – Female Leaders in AI & Digitalisation: Showcase and Networking Event

- Workshop – TBC Nov 2025.



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