

# EMD Ireland



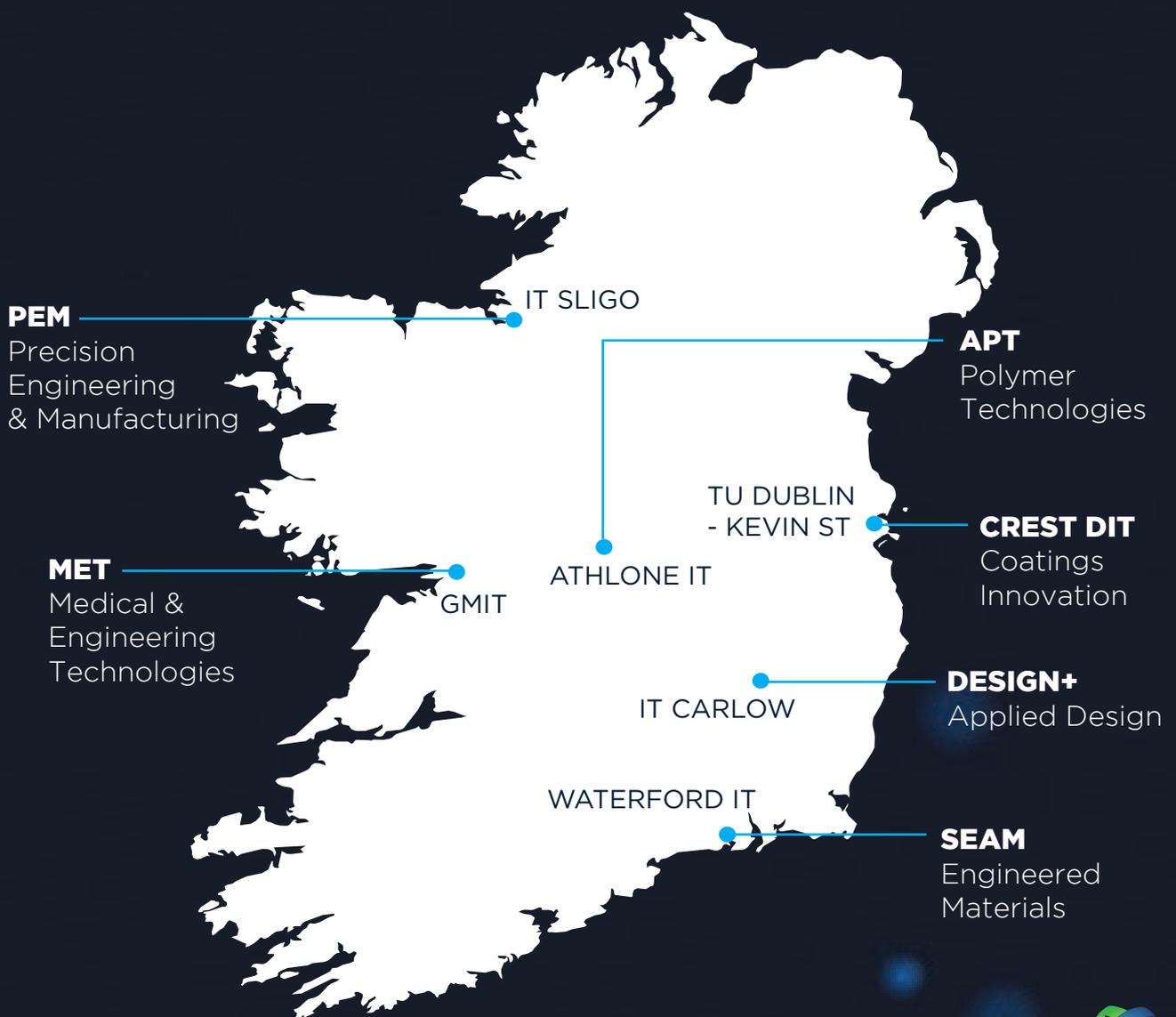
an **Enterprise Ireland**  
Technology Gateway cluster

Providing research and innovation solutions in the  
**Engineering, Materials and Design** space

**A Guide For Companies**

The **EMD Ireland Cluster** is a consortium of six of Enterprise Ireland's Technology Gateways operating within the **engineering, materials and design sector**. The cluster provides a range of expertise for companies who are looking to access research and development within these areas.

The EMD Ireland Cluster can assist companies with Enterprise Ireland funding mechanisms in the form of Innovation Vouchers, Innovation Partnerships, Innovation Partnership Feasibility Studies and Agile Innovation Fund. Companies can also directly fund their work with the Gateways.



The **EMD Ireland** Cluster is available to SMEs, large indigenous companies and multinationals. It strives to provide companies nationwide with access to the wide range of expertise within the Gateway structure, who can support and aid the development of research and innovation in industry.

Within each Gateway, a dedicated Gateway Manager and a team of sector specific business development staff act as the key contact points for industry and manage the successful delivery of projects on time and within budget.

Gateway staff are always happy to discuss potential collaborations with industry, so for more information, visit [www.technologygateway.ie](http://www.technologygateway.ie), follow us on Twitter [@EITechGateway](https://twitter.com/EITechGateway) and [@emdcluster](https://twitter.com/emdcluster) or simply get in touch.

## Key benefits of working with the cluster

1. Get access to six specialised centres across the Enterprise Ireland EMD Cluster.
2. Receive assistance in delivering near-to-market solutions.
3. Benefit from an extension of your company's Research & Development capability.
4. Access a dedicated Gateway manager and a team of specialised business development engineers.
5. Access information and assistance with various Enterprise Ireland funding mechanisms.

### EMD Ireland Support office:

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# EMD Ireland Technology Gateways

## 6 Technology Gateways

Specialising in...



Engineering



Materials



Design



Enterprise Ireland  
Innovation Vouchers



Enterprise Ireland  
Innovation Partnership  
Programme



Extension of  
your company's  
R&D capability



Providing access to a  
dedicated Gateway  
manager and team of  
specialised engineers  
and researchers



Enterprise Ireland  
Agile Innovation Fund



Direct  
Consultancy



Access R&D solutions  
to develop new  
products or services,  
or optimisation of a  
process, for business  
and industry

**Near-to-market innovation**



We can offer support  
on projects of all sizes  
to all types of company.  
(startups, HPSUs, SMEs,  
large indigenous,  
multinationals, etc.)

**Great support for SME's**



Since 2013, over  
**1500** Irish based  
companies have used  
Technology Gateways  
to complete more  
than **3,200** projects

**An excellent track record**

Supported access to specialist Technology Gateways  
for companies looking to develop within the  
**engineering, materials and design sector**

- **APT Technology Gateway** (Athlone Institute of Technology)
- **CREST Technology Gateway** (TU Dublin – Kevin St)
- **Design+ Technology Gateway** (Institute of Technology Carlow)
- **MET Technology Gateway** (Galway-Mayo Institute of Technology)
- **PEM Technology Gateway** (Institute of Technology Sligo)
- **SEAM Technology Gateway** (Waterford Institute of Technology)



## Applied Polymer Technologies

The **APT** Gateway is based on the Athlone IT campus. APT provides polymer technology solutions for companies in the medical, composite, recycling and pharmaceutical sectors. Industries can access:

- Pilot and Production scale Injection Moulding, Blow Moulding, Thermoforming, Extrusion and Compounding lines and 3D additive printing.
- Advanced Analytical Facilities for materials research, testing and troubleshooting.
- Design, Rapid Prototyping and Micro-Moulding Capabilities.

The APT Gateway applies polymer technologies for Ireland-based companies who use polymer materials – ranging in size from startups and SMEs to multinational companies. The plastics industry in Ireland is worth €2 billion and comprises of 200 companies with an accumulated 12,000 employees. APT has a core focus on three applied technology areas it aims to transfer to industry: biomedical polymers, polymer recycling and composites. APT is a dedicated resource for the Irish polymer manufacturing industry and regularly provides training and information dissemination, as well as production demonstration days for companies.

Using its suite of characterisation equipment and pilot polymer processing facilities, APT can cover all areas of the production lifecycle. This capacity ranges from concept design and prototype development towards commercial launch of a development product, production optimisation and troubleshooting for existing processes and end of life recycling. Using 3D additive printing, APT can fabricate customised injection mould tooling which, married with its pilot production facilities, can fabricate a limited run of bespoke prototypes.

### **Project:** Optimisation of new lab extrusion equipment

“We frequently use the team in APT for specialist polymer testing and investigations beyond the capabilities of our own lab here in Athlone Extrusions, and consistently find their support invaluable. A real synergy exists in the relationship between APT and Athlone Extrusions, with APT providing advanced material science capabilities and some specialist equipment for product development and our team here, who frequently provide APT with colour masterbatch and thermoforming sheet for their research needs.”



**APT Gateway Manager**  
Noel Gately

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Mark Hallinan - Technical Manager, Athlone Extrusions

## CREST Gateway Manager

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The **CREST Gateway** based in TU Dublin - Kevin St delivers coatings innovation solutions for industry in the engineering, construction, healthcare and biomedical industries. CREST offers companies expertise in:

- Coatings and surface treatments on construction materials
- Protective Coatings for challenging environments
- Surface treatment of metal components
- Coatings for Environmental Applications
- Biomedical Devices
- Sustainable Building Technologies

The CREST Technology Gateway is the only dedicated surface coatings laboratory on the island of Ireland. Its precursor was the Institute for Industrial Research Standards (IIRS), established in 1946. CREST operates within a certified ISO 9001 Quality Management System and provide a range of consultancy services to over 100 companies per year, from Irish SMEs to multinationals.

Based in the FOCAS Research Institute, CREST is a nationally approved laboratory that has been retained by many Irish government bodies (Department of Agriculture, Food and the Marine; NSAI; OPW; NRA; city and county council bodies) to give advice on public and private funded projects.

CREST Technology Gateway is addressing the needs of the Irish engineering, aerospace, automotive, architectural, electronics, biomedical and healthcare sectors in the area of surface coatings. The centre has over sixty years of commercial surface coating experience to provide an outstanding level of service. CREST recruits and develops industrial development scientists with a product development background to guarantee consistent and reliable project delivery.

### **Project:** Engineer training course in protective coatings

“This training has added another level of expertise for the ESBI senior engineers from Asset Management Services and HV Design; they can quickly identify suitable coatings, failures and potential treatments during the courses of their work, both during the asset lifetime on site and feeding back to design and specification stage.”

Stewart Flood - Electrical Engineer, ESB International

**Design+ Gateway Manager**  
Ailish Delaney



IT Carlow  
Kilkenny Road, Carlow,  
Co. Carlow

**DESIGN+**  
Bioscience · Engineering · Computing

The **DESIGN+ Gateway** based in IT Carlow champions the application of the design thinking process within the Technology Gateway network, with a focus on the Engineering, ICT and Bioscience sectors. The technology offers to industry include:

- **Design:** design strategy, visual communication and product design capabilities
- **Engineering:** smart energy systems, embedded circuits & systems technologies and surface and coating engineering
- **Prototyping:** 3D printing, machining and modelling

The Design+ Gateway applies industrial design capabilities for companies from the engineering, ICT & software and bio-lifescience sectors based in the midlands, southeast and nationally. Approaching a product or service with the user in mind is key to successful product development. During the development process, Design+ use end-user insights to make informed decisions that drive strategic and tactical progress. The greater the meaning of the final experience, the greater the authenticity and level of user engagement – regardless of the product, service or system being designed. This is very important in engaging the user and building a positive experience.

Prototyping is key to building knowledge in the product development process. It enables proof and reasoning of decision making and the identification of possible issues in early-stage development, enabling critical elimination of tooling and production costs or errors. Through the analytical evaluation of prototypes, Design+ are enabled to develop the design for assembly and manufacturing making significant savings for a company. Design+ can also introduce the user at this early stage to review interaction and ergonomics and test the fundamental intent of the project – adding valuable insight to a project.

### **Project:** Innovation of the gym experience

“I cannot recommend the DESIGN+ Gateway team at IT Carlow enough. Their professionalism in effectively dealing with a completely raw idea surprised me. I started out with one idea and after just three meetings with the team this had evolved into five concepts, all of which in my opinion have market potential. Thanks to all on the DESIGN+ Gateway”

Ciaran Cleere - Founder, Fitness 360

## MET Gateway Manager

Eugene McCarthy



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medical & engineering technologies

The **MET Gateway** based in GMIT has a technology offer for the medical device and engineering companies based in the West of Ireland and nationally which consists of:

- Medical Imaging Technologies
- Biomedical Engineering Technologies/Solutions
- Data Analytics and Visualisation
- Design Engineering/Verification
- Medicinal Nutrition

Based at GMIT's Galway campus, the Medical and Engineering Technologies Gateway offers a range of applied technologies relevant to companies in the product engineering and design application phase. These technologies include Medical imaging technologies that allow for companies' prototypes to be tested under simulated conditions and biomedical engineering technologies, which include the translation of medical data (MRI's, ultrasounds, etc.) into engineering data and then into clinically endorsed anatomical models with accompanying simulation system.

The Gateway personnel offers a unique conduit between medical product engineering and an in-depth knowledge of internal anatomy.

MET has expertise in data analytics and the visualisation of clinical data/the Gateway's clinical data repository to inform the design of the next generation of medical device prototypes. They also provide services in design verification technologies, such as 3D solid works design, rapid prototyping in 3D printing and 4 axis machining, technical reviews and brainstorming, materials and product testing. The Gateway also offers expertise in design of experiments (DoE), independent critique and access to resource pool that may not be available internally to companies.

### **Project:** Cerebral Vascular Model Generation

“The neurovascular models developed by the MET Gateway played an important role in Neuravi's EmboTrap device development, and we also use these models in training stroke doctors in our technology. The work at GMIT has made an important contribution to the successful treatment of acute ischemic stroke patients with our device”

Michael Gilvarry - Head of Research & Development, Neuravi

**PEM Gateway Manager**  
Finola Howe



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The **PEM Gateway** based in IT Sligo has a technology offering for industry in precision engineering, manufacturing and materials targeted at companies based in the North West and nationally which consists of:

- Precision Engineering and Design
- Manufacturing Process Modelling and Simulation
- Advanced Process Monitoring and Control
- Advanced Material Syntheses and Characterisation

The PEM Gateway's objective is to assist precision engineering companies based in the North West and nationally to develop enhanced manufacturing processes and procedures. It achieves this by offering industry a range of solutions, ranging from design for manufacturing, process modelling and simulation, advanced process monitoring and control, as well as advanced material synthesis and characterisation. In-house specialisms include the development of complex micro and nano scale structures using techniques such as laser machining and welding for polymers and electro-chemical machining.

PEM is helping companies to understand how the increasing level of data generated from sensors on the production line can be mined, interpreted and employed to provide increased production line optimisation and control. This intelligent design applying generated data can be used to develop process monitoring and adjustment methodologies for addressing dynamic system behaviour, optimising production by the reduction of bottlenecks and inefficiencies.

### **Project:** Enhancing the performance of a turbine

"The work carried out by PEM has proved invaluable in the design of our latest high speed air driven turbine. The CFD analysis provided allowed us to experiment with various jet configurations, these were then 3D printed by PEM enabling us to run the necessary power, torque and speed tests. This process allowed us to optimise the motor output while learning a great deal about the flow & expansion of the air through the assembly. I look forward to working with PEM on further design projects in the future."

Hugh McManus - R&D Manager, ATA

## SEAM Gateway Manager

Ramesh Raghavendra



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The **SEAM Gateway** based in WIT provides engineering material solutions for industry in sectors such as Bio-medical devices, Pharmaceuticals, Micro-Electronics, Precision Engineering & Construction with expertise in:

- X-Ray Micro-tomography (XMT): 3D Non-destructive characterisation
- Finite Element Analysis: 3D Software Modelling
- 3D Metal Additive Manufacturing
- Materials & Precision Engineering: Engineering Design & Characterisation
- Bio Medical Engineering: Medical Device Design Optimisation & New Material Assessment

SEAM is one of Ireland's leading Technology Gateway centres. Based within Waterford Institute of Technology, it facilitates the development of technology solutions through collaboration and access to expertise in the Irish research infrastructure. The SEAM gateway provides innovative materials engineering solutions for industries from wide ranging sectors such as biomedical, pharma, precision engineering, energy and electronics. SEAM's unique strength lies in its ability to anticipate, and understand, respond quickly and professionally to industry needs through provision of competitive customised solutions

**Project:** Redesign of the impeller and shaft section of a submersible pumping system

“Sulzer’s contact with SEAM began in September 2015, with the redesign of a rotorshaft on the XFP PE3 submersible, solids-handling sewage pump. This is the second largest pump built at the Sulzer plant, with a P2 of 22KW. Each report from SEAM contained analysis, inferences and recommendations, which is a great benefit to the customer and truly collaborative. Throughout the process, there have been helpful discussions and exchanges of information as requested avoiding delay. SEAM provide a complete materials investigation, design support and failure analysis service”

Ben Breen - Technical Manager, Sulzer

# Enterprise Ireland Supports

## Innovation Voucher

The Innovation Voucher initiative was developed to build links between Ireland's public knowledge providers (i.e. higher education institutes, public research bodies) and small businesses. Innovation Vouchers worth €5,000 are available to assist a company or companies to explore a business opportunity or problem with a registered knowledge provider.

### Am I eligible?

The Innovation Vouchers initiative is open to all small and medium-sized limited companies registered in Ireland. Applications are not restricted to clients of Enterprise Ireland.

You can see the full list of participating knowledge providers on the Enterprise Ireland website. For further information about the programme and how to apply, please visit [www.innovationvouchers.ie](http://www.innovationvouchers.ie)

## Agile Innovation Fund

This fund supports clients to quickly develop innovations and respond to opportunities and threats in new and existing markets. It is a great fit for companies that need to rapidly develop solutions or are planning a first R&D project. Eligible companies submit a short online application form to get quicker approval for projects with a maximum expenditure of €300,000.

[www.ambition.enterprise-ireland.com](http://www.ambition.enterprise-ireland.com)

## Innovation Partnership Programme

The Innovation Partnership Programme encourages Irish-based companies to work with Irish research institutes resulting in mutually beneficial co-operation and interaction. Companies can access expertise and resources to develop new and improved products, processes, services, and generate new knowledge and know-how.

### Am I eligible

A manufacturing or internationally traded services company with an operating base in the Republic of Ireland that wishes to collaborate with one or more research institutes, also based in the Republic of Ireland, is eligible to participate. The company must be a registered client of one of the following state development agencies: Enterprise Ireland, IDA Ireland, Údarás na Gaeltachta, a Local Enterprise Office.

Programme provides grants of up to 80% towards eligible costs of the research project. Funding from

Enterprise Ireland will normally not exceed €200,000. For more information visit [www.enterpriseireland.ie](http://www.enterpriseireland.ie)

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