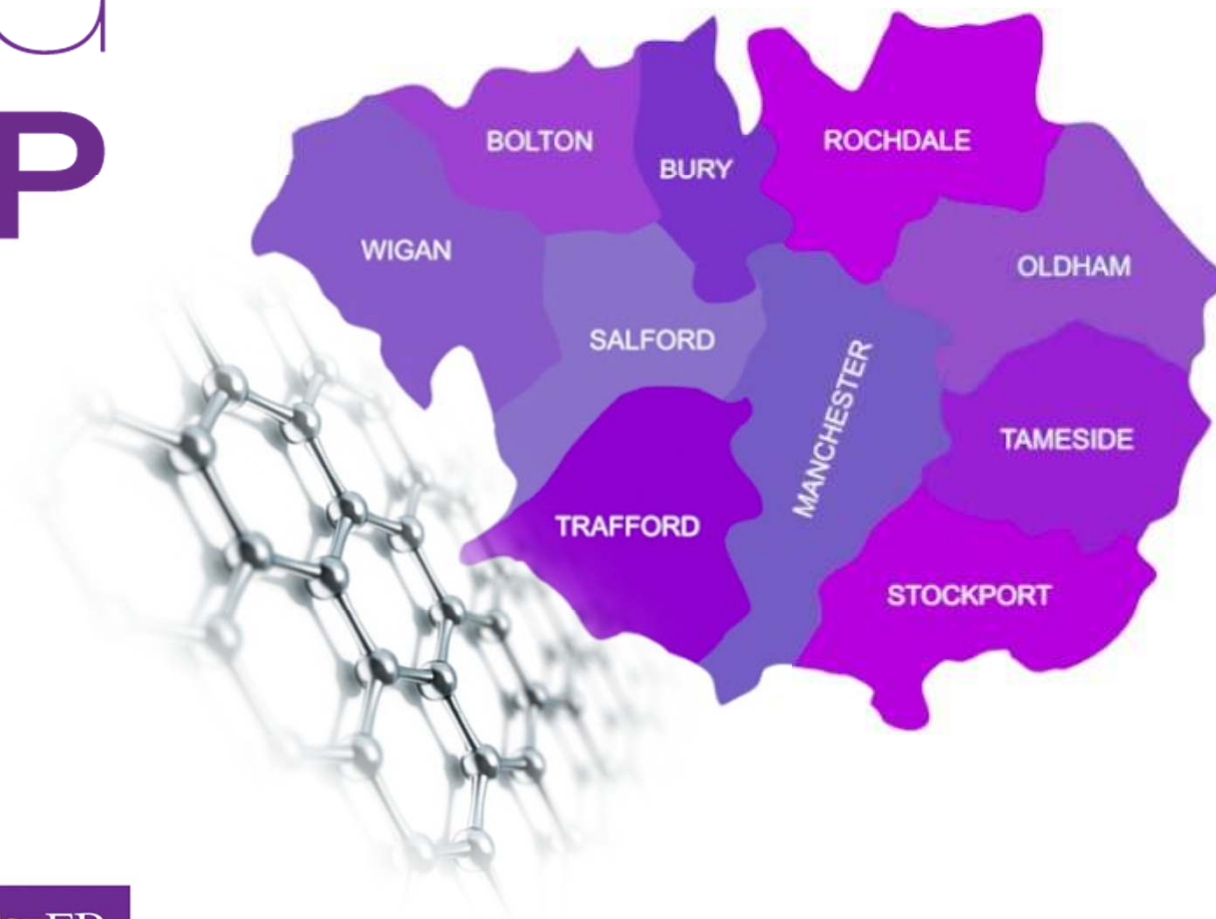


BRIDGING THE GAP



European Union
European Regional
Development Fund

MANCHESTER
1824

The University of Manchester

Dr. Paul Wiper

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www.graphenegrants.com



Background to the Project



- UK and EU: significant investment in infrastructure and capital equipment
- Engagement for businesses; PhD/Postdocs/Tier models
- Limits SME collaboration
- Late 2014: ESIF bid was formalised to address this





ERDF: Bridging The Gap Program



~ £1.5m grant



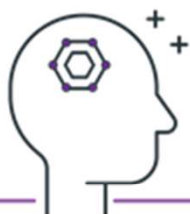
Graphene scientists and engineers



GM SMEs to develop graphene products/processes



What do we offer?



Education

Often the entry point for SMEs that want to learn more about graphene and how their products/services could be enhanced through the use of the technology. We run several open sessions at the GEIC throughout the year, including tours of our state-of-the-art labs.



Project scoping

Our application specialists will spend time discussing your products in detail to understand the particular challenges you have and how the potential use of graphene could improve overall performance.



Lab-based R&D

The GEIC houses 6 unique labs, each of which specialises in a different research programme. You will gain access to our specialist staff, who will undergo some basic initial research into how graphene could enhance your products.



What do we offer?



Extended R&D

We can offer long term R&D based collaborative projects which will work to develop your product or technology. Projects include the time of specialist scientists and engineers as-well-as access to state-of-the art equipment and facilities.



Pre-production prototypes

Often the entry point for SMEs that want to learn more about graphene and how their products/services could be enhanced through the use of the technology. We run several open sessions at the GEIC throughout the year, including tours of our state-of-the-art labs.



Manufacturing preparation

Our experts will work with you to understand how your manufacturing partners can adapt their tools and techniques ready for the production of your enhanced products.



How are we engaging?



Identified **>3,350** GM SMEs



Proactively and reactively approached **1001** GM SMEs



Engaged with **137** GM SMEs (67 not taken forward)



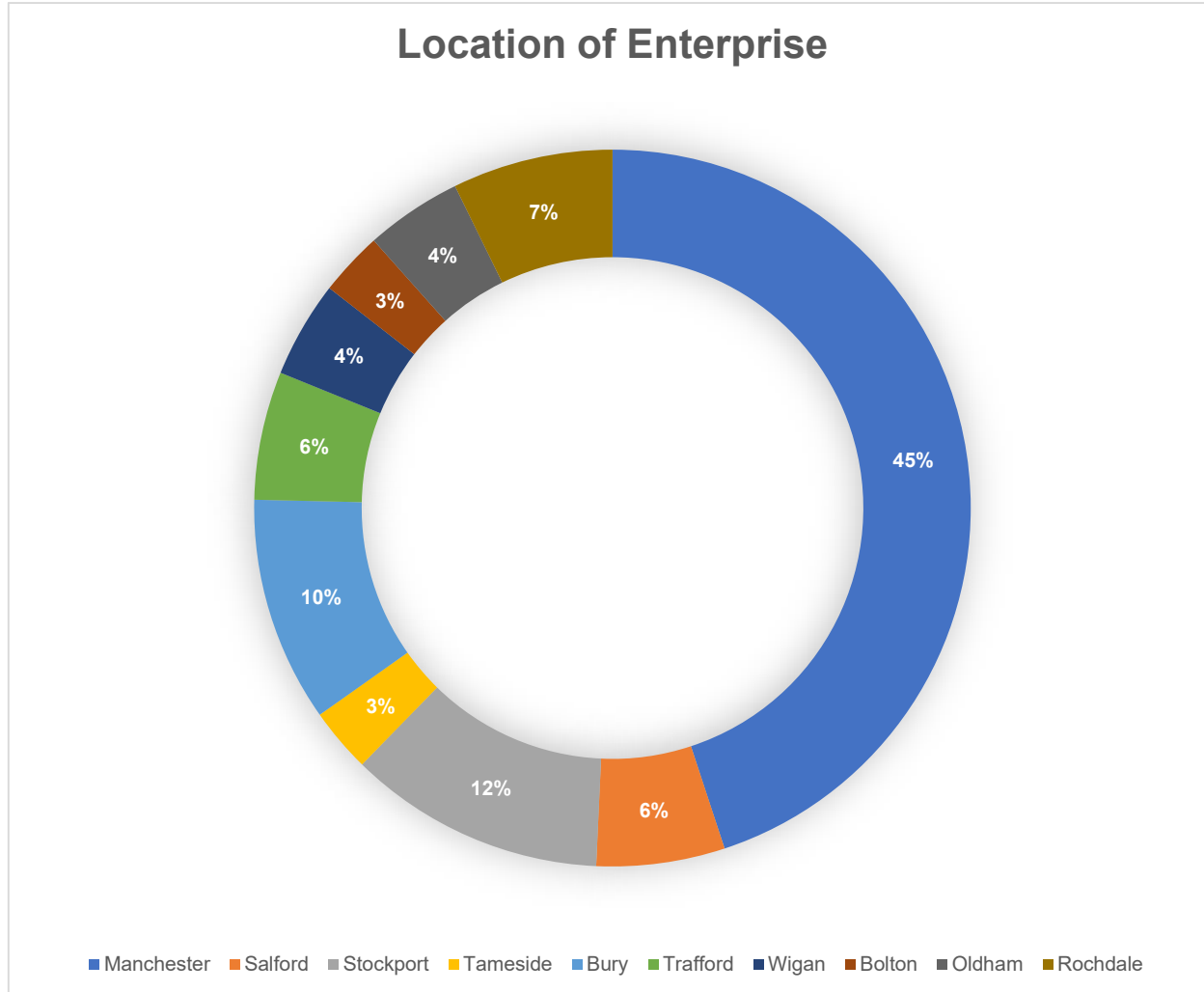
Actively looking to support **70** GM SMEs (pipeline)



Collaborating with **33** GM SMEs (C01 Assistance)



Location of the 70 GM SMEs (pipeline)

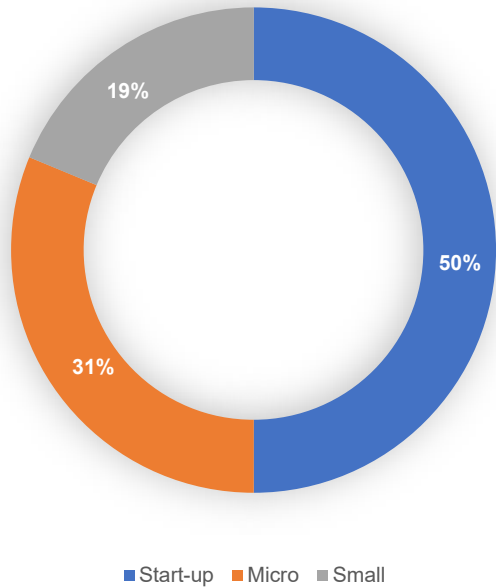


*more registered in Manchester as we're also supporting start-ups who register in the Manchester postcode

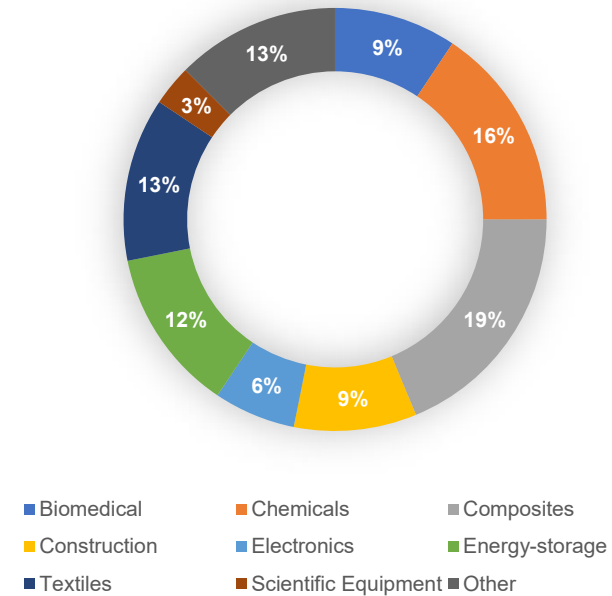


Assistance to 33 GM SME Enterprises

Enterprise Type



Manufacturing Sector



*Assistance comes in the form of scientific and engineering consultancy, grant writing, access to ERDF capital equipment, R&D programs



Case Studies: Established Enterprises

COMMERCIAL IN CONFIDENCE

NATIONWIDE
RAIL

Profile: civil engineers, construction industry

Location: Stockport

Enterprise type: Small

ERDF Project: Initial consultancy work looking into the potential use of graphene in construction which has led to a significant R&D package of work and a new start-up



Development of graphene-concrete

Improved compressive strength
Reduced water/salt migration
Reduced CO₂ footprint



Case Studies: Established Enterprises

COMMERCIAL IN CONFIDENCE

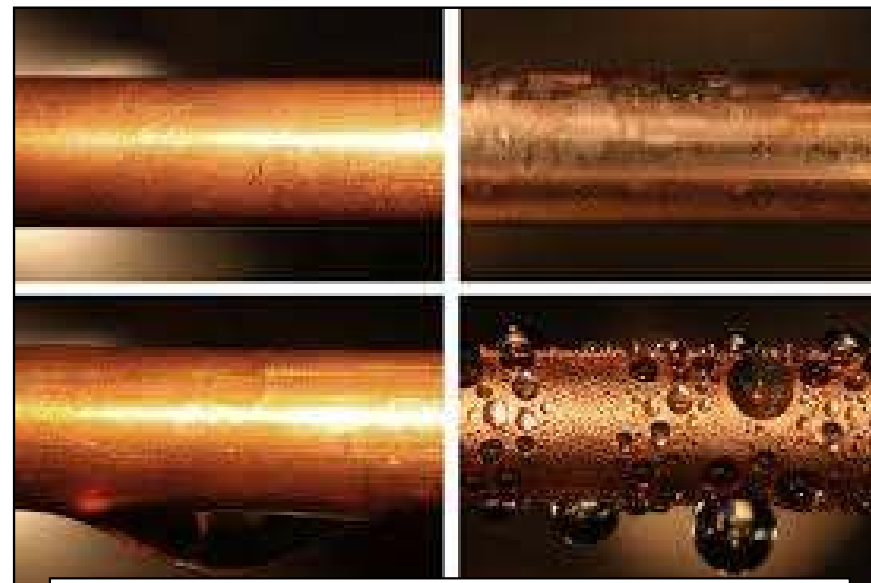


Profile: suppliers of electroplating, grinding and finishing services

Location: Bury

Enterprise type: Small

ERDF Project: R&D to investigate the barrier and coating performance of graphene coatings on BEP's metal substrates for a range of applications



Development of coated metal parts,
copper/steel

Improved barrier performance
Improved heat/condensation



Case Studies; Companies outside GM

COMMERCIAL IN CONFIDENCE



Profile: manufacturer of electrochemical materials for energy-storage devices.

Location: Cornwall but setup base in Manchester to be ERDF eligible

Enterprise type: Micro

ERDF Project: Investigate the performance of graphene additives with PV3's cathode materials for improved lithium ion batteries



(left) Coin-cell batteries showing the graphene/composite cathode material (right) coin-cell testing at the GEIC



Case Studies; Supporting Start-ups

COMMERCIAL IN CONFIDENCE



Profile: use of novel electrotherapies for the treatment of aggressive tumours

Location: Manchester

Enterprise type: Start-up

ERDF Project: Use of graphene electrodes for brain tumour treatment

Profile: flexible pressure and touch screen devices and applications

Location: Manchester

Enterprise type: Start-up

ERDF Project: graphene-based pressure sensors

Profile: use of graphene-based hydrogels for hydroponics and agriculture

Location: Manchester

Enterprise type: Start-up

ERDF Project: graphene-based hydrogels

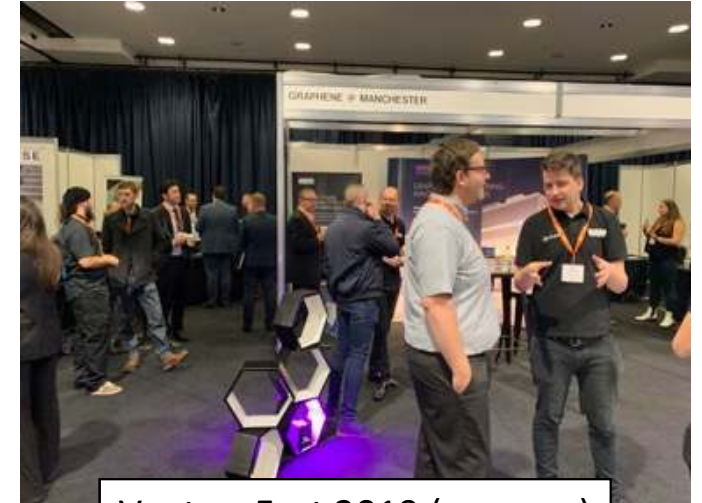
Events



March and May Breakfast Events at GEIC



Manufacturers Alliance May



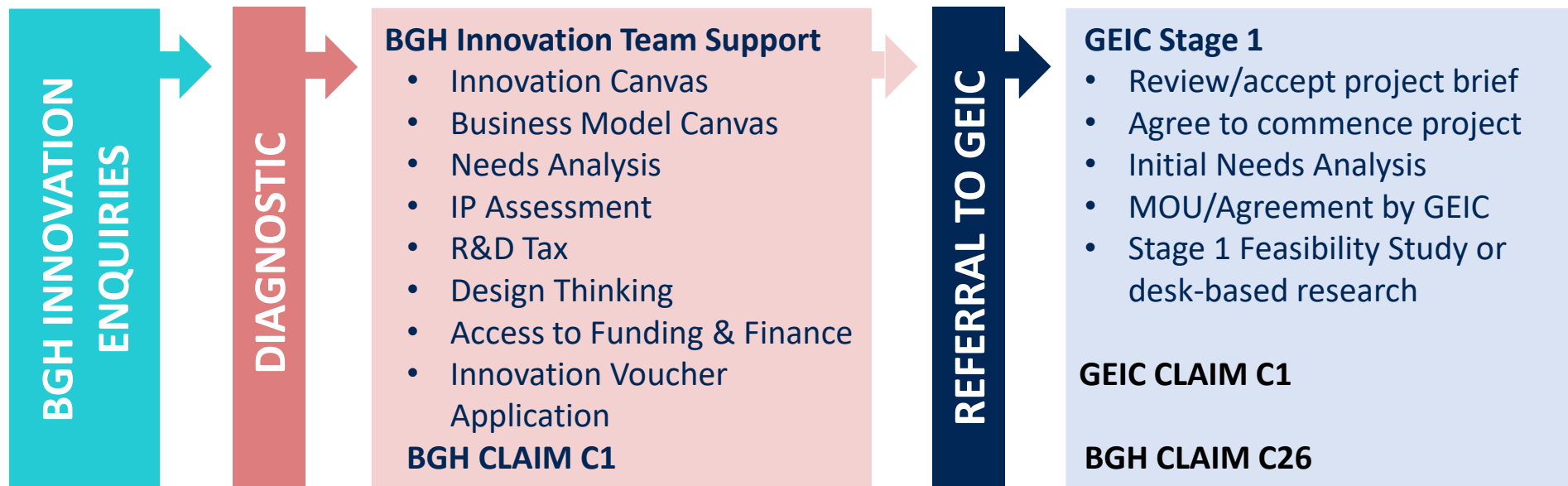
VentureFest 2019 (sponsor)

- Manchester Business Market Event
- Shout Network Bury Network Meeting
- Trafford Park Business Event

Welcome anymore events to attend this year!



MOU with GrowthHUB; Referring GM SMEs





Comments and Lessons Learnt

- ERDF Bridging the Gap is a successful framework model for University-SME engagement
- Revised our original application and re-profiled our outputs based on evidence over the past 12 months
- Applied for an extension and work closely with MHCLG on this proposal
- MHCLG have been very helpful and understanding