

**“Most Competitive Business
Location in Europe”**

KPMG Competitive Alternatives, 2014

Contact us

T: +44 (0) 161 237 4470

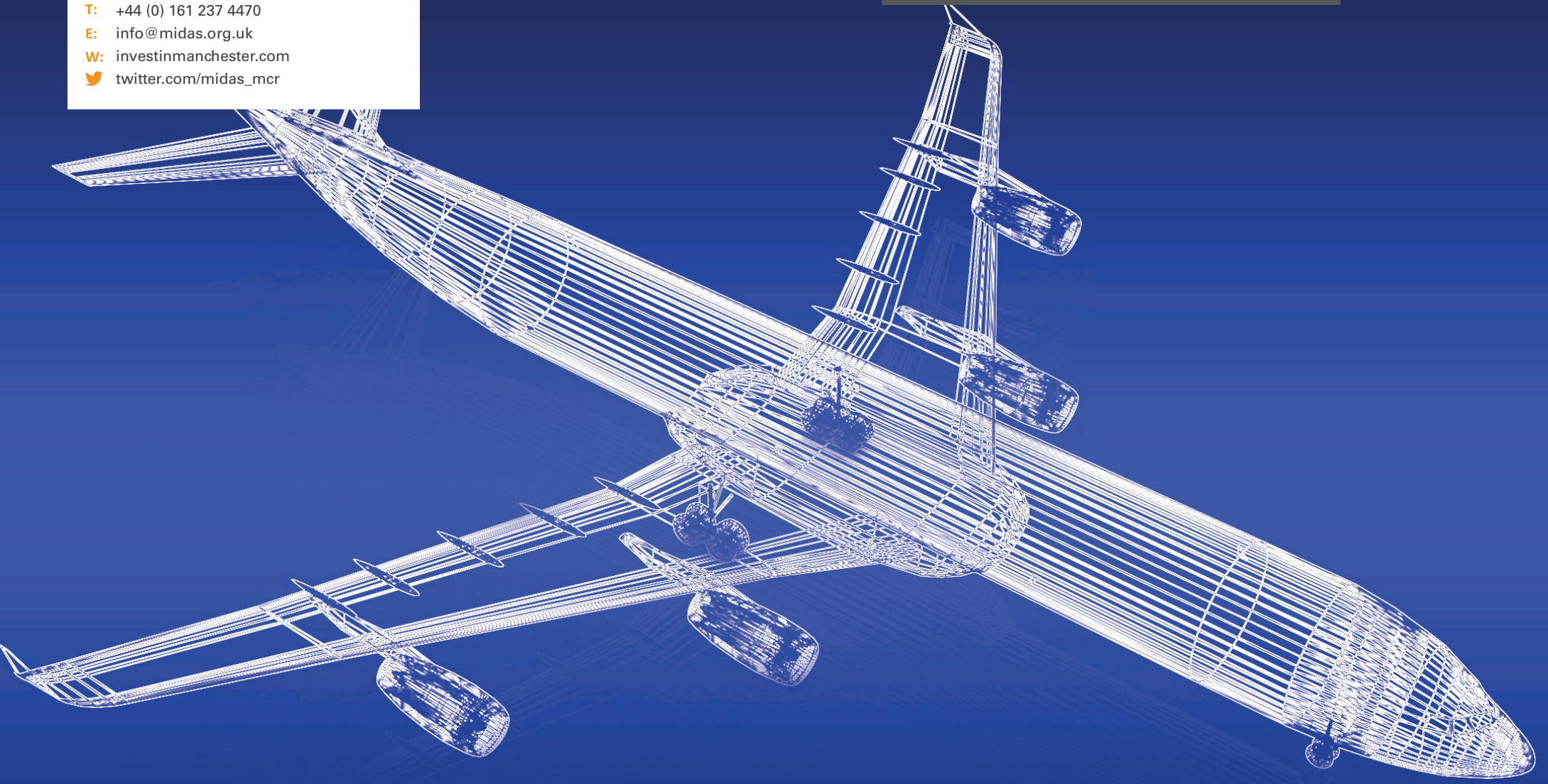
E: info@midas.org.uk

W: investinmanchester.com

🐦 twitter.com/midas_mcr

Manchester

Composites opportunities



Composites opportunities in

The City of Innovation

Manchester is a city of firsts; from the birthplace of the industrial revolution, the world's first modern computer and more recently the isolation of graphene, Manchester's spirit of innovation is placing the city at the forefront of the advanced materials revolution.

Home to world-class universities, leading research and technical centres of excellence, including the North West Composites Centre, a thriving cluster of companies and established skills based, Manchester offers excellent opportunities for collaboration, innovation and business growth.

What are composites?

Composites can be defined as two or more materials combined together to give enhanced properties versus other materials. These properties may include, for example, higher strength to weight ratio, or better fatigue better fatigue and corrosion resistance than other materials such as metals. Composites may also be cheaper than specialist alloys used in aerospace.

Composites can be used in:

- Aerospace
- Automotive
- Energy & Environment
- Marine

Glass fibre and carbon fibre are the most common types of fibre used in composites. Other types of high value composite, such as Kevlar, metal matrix, plastic or ceramics are growing in significance. Light weight composites are being used extensively in the aerospace sector followed by marine applications. Light weight composites have offered benefits in terms of improved fuel efficiency as well as increased reliability, reduced corrosion and reduced fatigue.



A Thriving Sector

Manchester has a strong research base, coupled with excellent access to key industries and their supply chains. Companies operating within the sector include **Sigmatex**, a leader in carbon fibre weaving, and **Victrex** an advanced polymer producer for composite polymer resin.

Manchester's strengths

Manchester's strong heritage in weaving lends itself to composites particularly in:

Weaving of glass fibre and carbon fibre into a wide range of materials as well as the development and application of resins to turn those fibres into composites systems.

3D weaving which provides advantages in terms of lightweight, reduced fatigue and in the long term reduced cost compared to metals.

Developing metal matrix composites such as titanium, used as the matrix surrounding silicon carbide continuous fibres. Able to withstand higher temperatures, they may have applications in jet engines such as the Rolls Royce Triton engine.

Access to the right talent

The region is home to one of Europe's largest student populations with over 106,000 students studying across four universities. Businesses located in Manchester can access a talent pool which consists of 59% of the UK's polymers and textiles students and 27% of the country's materials science students.



Key assets

North West Composites Centre

A regional centre of expertise which bridges the gap between research and industry.

National Composites Certification & Evaluation

Facility which boasts a modern, well-equipped research unit of national and international reputation.

Aerospace Research Institute

The Institute has a proven track record for collaborating with industry. The Institute comprises 100 academics from across the University of Manchester, harnessing its diverse research capability in aerospace.

University of Salford

The University has a particular focus on applied research in composites. Its composites lab allows close collaboration with industry in the manufacture and testing of different composite materials.

Opportunities for Investors

Manchester is ideally positioned to enable businesses and investors to benefit from Manchester market opportunities in the city's speed of innovation and take advantage of:

- Developing lightweight components for aerospace and automotive
- Developing 3D weaving of complex shapes
- Developing metal matrix composites
- Smart sensing composites e.g graphene working with the National Graphene Institute and the Graphene Engineering Innovation Centre.

Case Studies



Sigmatex

Sigmatex is one of Greater Manchester's leading companies in carbon fibre weaving. It is the world's largest independent convertor of carbon fibre. Sigmatex, as well as offering conventional 2D and NCF carbon textiles, has developed ultra-light weight textile solutions designed to meet the weight reduction challenges from the automotive market. Sigmatex has also developed the weaving of 3D composites for over five years, mainly for the aerospace market and automotive markets.



Victrex

Victrex is a leading global polymer manufacturer based in the North West, producing a range of products including its own PEEK polymer range for a variety of applications in harsh environments and high temperatures. From originally producing powders, Victrex has vertically integrated its supply chain to add value. It produces a polymer mixed with glass fibre in pellet form to be used as resin in further manufacture of advanced composites. This gives extra strength at high temperatures and good reparability. Almost all its final product is exported.



About MIDAS

MIDAS, Manchester's inward investment agency, can help you and your business with relocation and expansion plans. MIDAS has a reputation for understanding diverse business needs and helping to remove any barriers for companies looking to locate or expand into Manchester.

Their specialist business development team can assist you with a range of free, bespoke packages of confidential support that will make your journey as smooth and simple as possible.

The services provided by the team, which are also available to intermediaries such as location consultants, will save you money, time and effort and will enhance your project with the expert knowledge and local intelligence that result in a faster and more successful move.

MIDAS Services Free support includes:

- Research support and business case development
- Introductions to local networks
- Recruitment and training support and advice
- Property solutions
- Relocation advice and assistance
- Post-investment PR support

See how MIDAS can help you make Manchester part of your success story.

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