



High Performance Engineering

The South East Midlands Employment Guide



Skills Funding
Agency

SEMLEP

South East Midlands
Local Enterprise Partnership

Engineering is **creative**.
It's **practical**. It's **innovative**.
It's about making a difference
to the world. Engineers are the
future – and engineers are in
demand in the UK's South
East Midlands.

This map shows the geography of the South East Midlands area



FACT

Approximately
2.74 million
engineering jobs
will be created
this decade in
the UK.



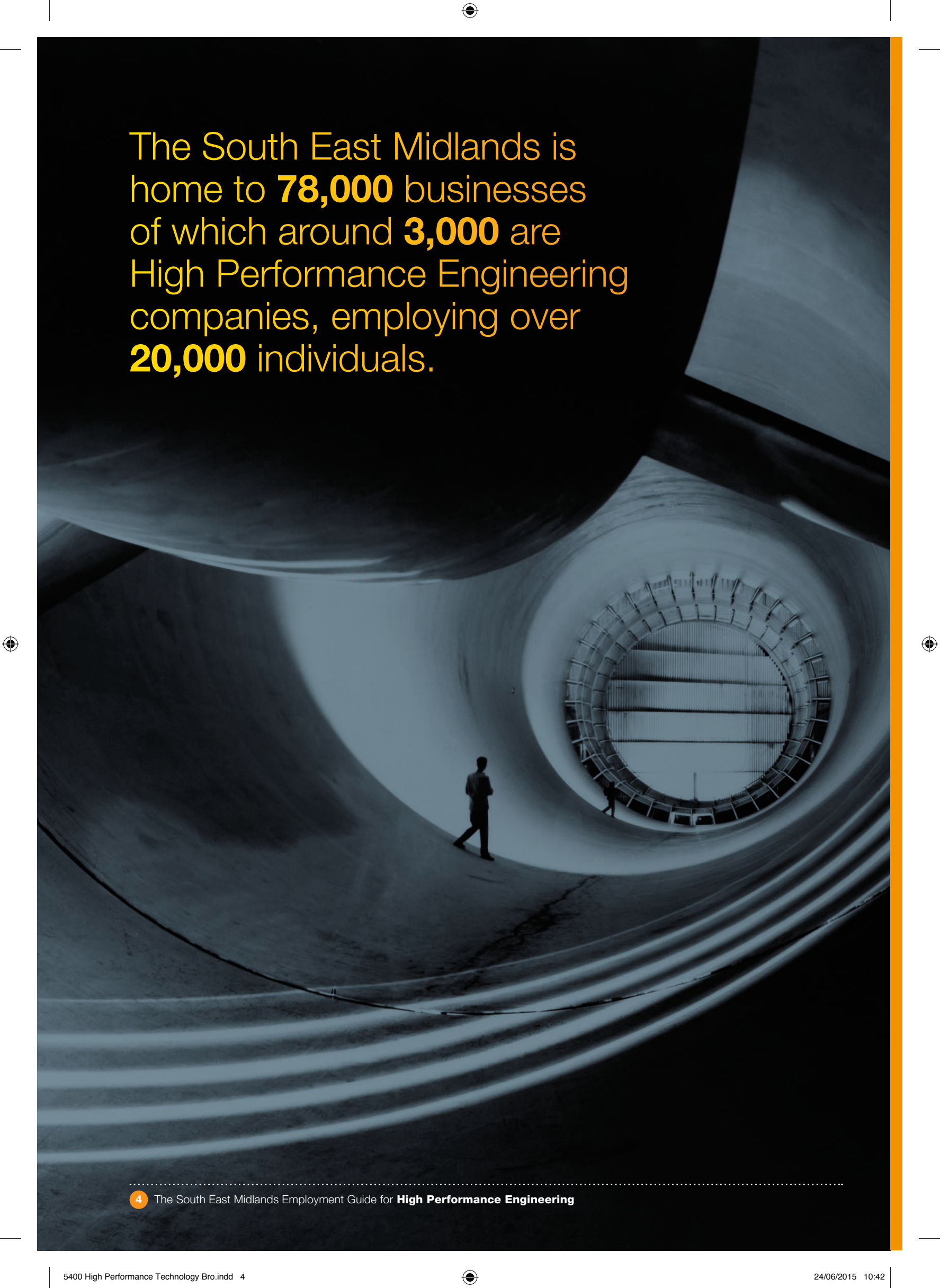
Engineers are problem solvers, critical thinkers, communicators and researchers. Engineers shape the world we live in, by designing, creating, testing and improving almost every product or process you can think of. Engineers are currently designing some of the world's most innovative products such as driverless vehicles, surgical robots and self-charging mobile phones. Whatever you're into – whether it is computer games or fashion, music or films, there is a world of exciting possibilities.

High Performance Engineering is about innovation, utilising the most advanced technologies, applying the latest research to commercial markets, specialist technical skills, developing new and more efficient processes and producing high quality products.

Future engineers have the opportunity to be the brainchild behind new innovations and technological advancements. Nanobots will be tomorrow's most important medical robots. A million times smaller than a millimeter, these micromachines could be injected into people's bodies to fight diseases and carry out repairs. Whilst driverless robot vehicles that let passengers play games and check emails while being chauffeured to their destination are currently being trialed in Milton Keynes.

Space elevators could be the breakthrough to connect planet earth to outer space and beyond, smart contact lenses could be available to help diabetics monitor glucose levels and solar powered laptops and solar panelled cars could be the answer to reduce carbon emissions.

Did you know engineers are currently striving to develop a practical, common use and instant Universal Translator for use with any language making the global market even more accessible? A Flying Car could be the answer to infrastructure chaos in our over populated towns and cities or Teleportation could be a low carbon solution for transferring people or products from one point to another without travel.



The South East Midlands is home to **78,000** businesses of which around **3,000** are High Performance Engineering companies, employing over **20,000** individuals.

The region is already one of the most innovative and dynamic. High Performance Engineering plays a part in an exciting range of industries including automotive, mechatronics, the built environment, aerospace, energy and food, drink and agri-tech. High Performance Engineering companies specialise in the design, creation and manufacture of revolutionary technologies and products.

Engineering supports the whole of society. Our life is defined by rapid developments in technology such as smartphones, the rocket-powered jet pack, the future of space travel including space planes and robonauts, nanotechnology, satellite communications, high-speed trains and innovative structures – all designed, developed and implemented by engineers.

Engineers encompass a wide range of industries from city planning to nuclear technology and can work literally anywhere - offices, laboratories, recording studios, hospitals, film sets, power plants, construction sites, airports, in space, underground and at sea.

As an engineer, you may be involved in design and development, production and manufacture, testing and maintenance, research and exploration or in the running of projects or businesses. You may work for a small or large business, or even a multi-national company, anywhere in the world.

More engineering companies are investing in initiatives to attract, retain and develop women in the sector including apprenticeship schemes specifically targeting women, graduate schemes and support networks for female engineers already working in the profession to share their experience with others who are considering it as a career path. There are many exciting and rewarding opportunities for talented young women to inspire and encourage future generations of female engineers as role models and support the 2.74 million jobs needed in this sector over the next decade.

Engineering gives you great opportunities for travel and working abroad. Engineers are in high demand, so if you're looking for a job with real earning potential and career progression look no further...

SALARY GUIDE



Trainee engineers
£20,000 - £26,000 per year



Experienced engineers
£28,000 - £40,000 per year



Senior and Chartered engineers
£45,000- £80,000 per year

Figures are intended as a guideline only.

FACT

The UKs engineering sector employs **5.5 million** people across **576,440** companies.

However, **only 9%** of the workforce are **women**.

Automotive

Designing, developing, testing and building the next generation of vehicles, such as domestic motor cars, racing cars, hovercrafts, buses, trucks and motorbikes. Ensuring the safe, efficient, rapid, comfortable, convenient, economical, and environmentally compatible movement of people and goods.

The UK manufactures over **1.5 million** vehicles per year across more than **70** different models.

This sector employs **700,000** people and generates **£59.3 billion** per year.

Last year the UK automotive industry announced more than **£2.5 billion** of investment, creating over **5,000** new jobs.

Government and industry is investing a further **£1 billion** in an Advanced Propulsion Centre to develop the next generation of technologies needed for the vehicles of the future. This will secure up to **30,000** jobs.

Mechatronics

Combining and integrating electrical and mechanical systems in a single device. Mechatronics is the junction where concepts from electrical engineering, mechanical engineering and computer science are merged to design, build and operate products to minimise or reduce human intervention. A robot is a good example of a mechatronic system.

Robots are currently used in car production, to defuse bombs in military operations, extract samples during space expeditions and used increasingly to perform surgical procedures. Some of the world's best minds are currently working together to try and solve the toughest problems of robotics, such as visual recognition, navigation and machine learning.

More than **2 million** jobs will be created in the next **8 years** due to the increasing demand of robotics in industry.

Built Environment

Creating transmission systems for gas, electricity, water supply and sewage; constructing new buildings and building new roads, bridges, rail tracks, airports and tunnels in order to make daily lives run smoothly.

Last year the construction industry alone contributed **£92.4 billion** to the UK economy, employing over **2.2 million** people – it is one of the largest employment sectors in the UK.

Over the next 5 years, **224,000** new jobs will be created with housing and infrastructure being the biggest areas of growth.

Aerospace

Designing and testing aviation systems and supervising the manufacture of aircraft, developing cutting edge defence technology and enabling space exploration.

The UK has the largest market share in Europe, turning over in excess of **£20 billion** per year.

This sector supports **3,000** companies and employs over **100,000** people.

An increase in global air travel is predicted to require a further **29,000** passenger airliners, **24,000** business jets and **40,000** helicopters.

Energy

Finding new ways to generate renewable and sustainable energy, including biofuels, hydro, wind and solar power. Creating and designing energy efficient devices to reduce demand for power – such as intelligent lighting, solar-panel paint, sugar-powered batteries and micro wind turbines.

Generation from renewables currently makes up around **15%** of the UK's electricity supply, with the largest contributor being on and off shore wind power.

The renewable energy sector currently employs **34,500** people in the UK with the potential to create a further **70,000** jobs over the next decade.

Food, Drink and Agri-tech

Developing, designing, constructing, operating and maintaining the systems and processes used in making ingredients; ensuring the safety and efficiency of food production and packaging and distributing food and drink for the society we live in.

The food and drink industry is the single largest manufacturing sector in the UK, turning over **£95.4 billion** per year and employing more than **400,000** workers.

Agri-tech underpins our food and drink manufacturing sector, which is the UK's largest manufacturing sector, worth **£25 billion**.

The entire agri-food supply chain – from farm to table – is worth **£96 billion**.



In the future the most extreme engineering could be performed off-world, turning Mars into a habitable planet within the next 50 years.

Silverstone in Northamptonshire, home to the British Grand Prix, is an International Formula 1 Circuit and the epicentre of '**Motorsport Valley**', a global hub for the motor sport industry and High Performance Engineering.



Image credit: Red Bull Racing



Image credit: Red Bull Racing



Image credit: CHEN WS / Shutterstock.com

'Motorsport Valley', roughly 80 miles long and stretching from the south west of Birmingham to Norwich, has become known as the 'jewel in the crown of British Engineering' contributing £9 billion to the UK economy. 4,500 businesses operate in this sector and the industry employs over 41,000 people. Of these, around 35,000 people are not directly employed by racing teams, but work in smaller companies within the supply chain of the motorsport industry.

There is an extraordinary concentration of talent within the region. Seven of the ten Formula 1 teams are based in 'Motorsport Valley' with 4 of the teams headquartered within the South East Midlands. These are Mercedes AMG Petronas in Brackley, Sahara Force India in Silverstone, Marussia in Brnburly and Infiniti Red Bull Racing in Milton Keynes. Red Bull Racing headquartered in Milton Keynes operate a wind tunnel at Twinwoods Business Park, a fundamental part of the title winning teams engineering excellence.

The Mercedes AMG Petronas headquarters is a huge 60,000 square metre ultra-modern facility boasting the design and development centre for the next generation of Formula 1 cars. With 500 employees working 24 hours a day, seven days a week more than 250,000 working hours go into the design of a Formula 1 car and a further 200,000 hours are spent on production.

Silverstone is also home to the Porsche Test Ground, designed to develop driver skills.

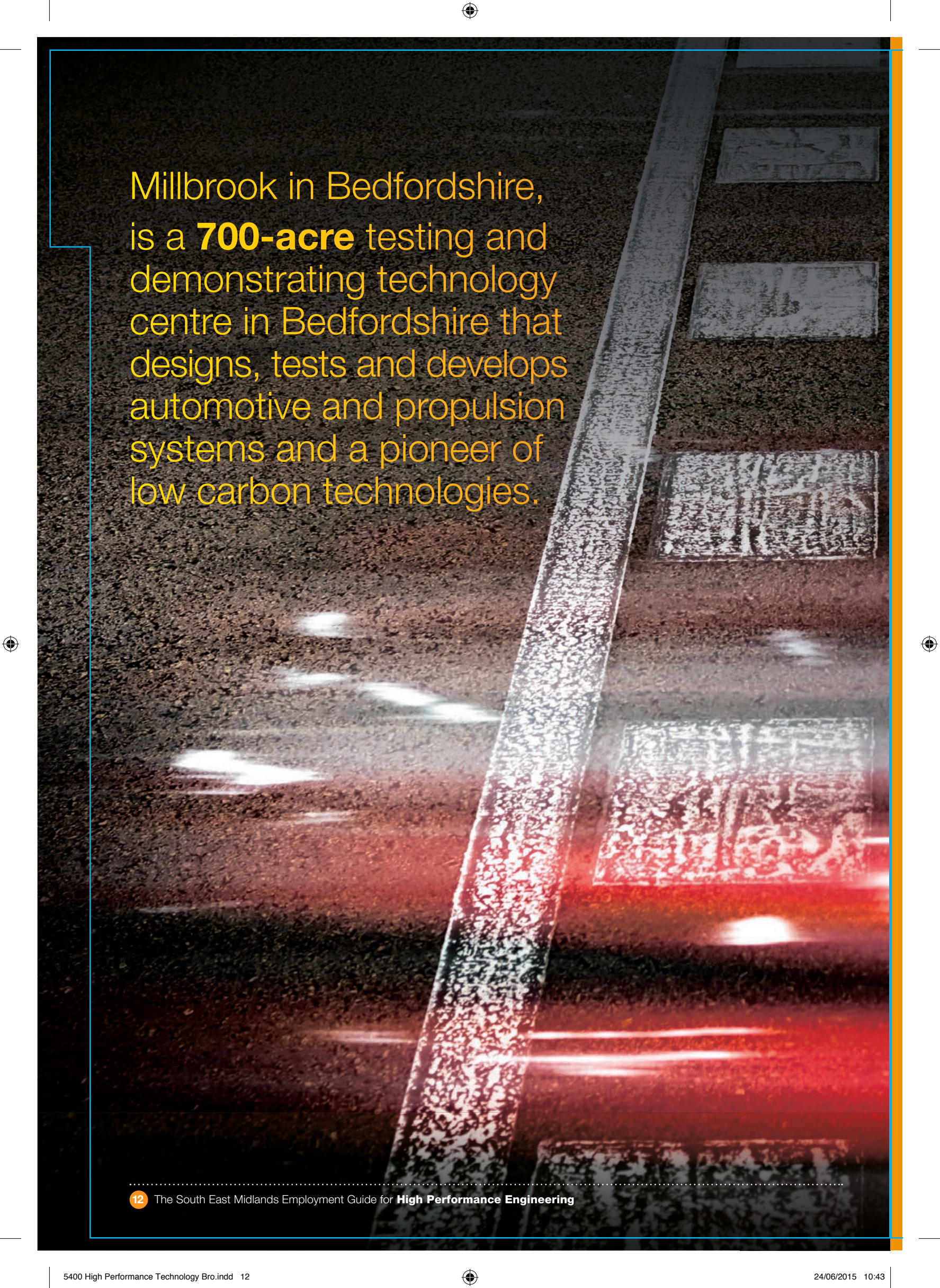
PalmerSport hosts the legendary and arguably best corporate motorsport event in the world based at Bedford Autodrome, established in 1991 by ex-F1 driver Johnathan Palmer.

Mugen Euro has recently opened its new engine research and development facility in Milton Keynes. This facility will represent the European frontline operation for Honda's Formula 1 participation, providing engines for McLaren.

Rockingham Motor Speedway in Corby is Europe's fastest racing circuit and is noted as a super sports car circuit used by the Dunlop MSA British Touring Car Championship. The speedway also hosts a large range of premium motorsport events and is used for the testing of new cars.

Santa Pod Raceway in Northamptonshire is the home of European drag racing and host to the televised FIA / FIM European Drag Racing Championships.

Bicester is home to the Toro Rosso F1 wind tunnel facilities. Whilton Mill, near Daventry, is a karting circuit and venue for national championship races.



Millbrook in Bedfordshire, is a **700-acre** testing and demonstrating technology centre in Bedfordshire that designs, tests and develops automotive and propulsion systems and a pioneer of low carbon technologies.

Cosworth, a High Performance Engineering firm and a globally recognised iconic brand headquartered in Northampton supplies electronics and powertrain products to vehicle manufacturers, motorsport teams and performance enthusiasts around the world. Cosworth has recently benefitted from a £22 million investment to create a new state-of-the-art Advanced Manufacturing Centre. Creating 70 new jobs and apprenticeships, it aims to position Cosworth at the forefront of the UK's automotive industry - to produce engine components for the next generation of car manufacturing.

Cummins, based in Daventry, is a global leader in the design, manufacture, distribution and service of diesel and natural gas engines. Cummins currently employs approximately 54,600 people worldwide and serves customers in approximately 190 countries.

General Motors is the UK's largest commercial vehicle manufacturer, producing approximately 67,000 Vauxhall Vivaro vans at its plant in Luton. Vauxhall's head office is also located in Luton.

Nissan Technical Centre, the largest of Nissan's six European Research and Development facilities, is based at Cranfield Technology Park and is the European Centre of Excellence for the design and development of vehicles.

Milton Keynes is home to the UK Sales and Marketing Headquarters for Mercedes-Benz, Volkswagen Financial Services, Scania Great Britain Ltd and Suzuki GB plc.

Sigma Composites, based in Buckinghamshire, specialises in carbon component manufacturing, working with major Formula 1 teams as well as diversifying into aerospace and defence.

TTI Group in Luton specialises in providing a range of surface engineering and heat treatment services and solutions to the automotive and motorsport industry, as well as other major industries including aerospace, defence, rail, construction and power generation.

RACELOGIC in Buckingham designs and manufactures electronic systems to measure, record, display, analyse and simulate data from moving vehicles.

Wipac, based in Buckingham, is a global designer and manufacturer of lighting products for supercars and technology leaders, specialising in high-powered LED lighting applications.

Mercedes AMG High Performance Powertrains, in the Northamptonshire village of Brixworth, designs, manufactures and tests Formula 1 racing engines for

Mercedes AMG Petronas, Vodafone McLaren, Mercedes and Sahara Force India F1 teams and the Aston Martin race team.

Ilmor Engineering in Brixworth, Northamptonshire, is best known for the development of solutions for motorsport and marine applications. It also applies its engineering expertise to defence and automotive application.

Northampton International Raceway at Brafield-on-the-Green, is famed for its international stock car races.

The Sir Henry Royce Memorial Foundation at Paulerspury is home to a collection of exhibits and papers celebrating the life of the founder of Rolls Royce.

Prodrive, located at Banbury and Milton Keynes, is a British and world-leading motorsport and technology business.

Aston Martin's headquarters in Newport Pagnell, first opened in 1957, is home to a state-of-the-art modern car showroom, as well as the company's first heritage showroom. Customers can now view and compare cars from every era of Aston Martin's 100 year plus history, up to and including the DB7.

Brahms Electric Vehicles are based at Cranfield Technology Park.

Chargemaster at Luton is the UK's leading designer, manufacturer and operator of electric plug in vehicle charging points.

Daventry motorsport companies have had racing success, including JRM Racing and Fortec Motor Sport LTD.

The Transport System Catapult in Milton Keynes is the UK's technology and innovation centre for Intelligent Mobility, harnessing emerging technologies to improve the movement of people and goods around the world.

PRIMO International Raceway at Brafield, Northamptonshire, is the UK's longest serving short oval course.

Benteler Automotive UK, based in Corby, are leading automotive manufacturers of ready-to-install modules, components, and parts for body, chassis, and engine for the automotive and defence sectors.

Silverstone Park in Towcester is home to over 50 companies, many of which specialise in high performance precision engineering, innovation, design, manufacturing, research and technology. Companies at Silverstone Park include Ducati UK's Headquarters, The National College for Motorsport, Road Angel, Lotus and many more.



Festo in Northampton is a worldwide leader in automation and a global manufacturer of pneumatic and electric automation technology.

With **100** product innovations annually and **2,900** patents worldwide, Festo offers its customers innovative solutions for tomorrow and beyond. BionicANTs, eMotionButterflies, Bionic Kangaroo and a SmartBird are just some of the revolutionary projects that have been derived from a wide variety of principles found in nature.



ABB, located in Milton Keynes, is a leading supplier of industrial robots and modular manufacturing systems. The company has installed more than 250,000 robots worldwide and today it is the largest supplier of industrial motors and drives, the largest provider of generators to the wind industry and the largest supplier of power grids in the world.

The Royal Buckinghamshire Hospital in Aylesbury is one of only three locations in the UK to provide the ground breaking EKSO GT Bionic Suit – or wearable robot to aid rehabilitation for adults living with the consequences of stroke, spinal cord injury and other neurological conditions.

YASKAWA UK, based in Banbury, is a leading global manufacturer of MOTOMAN industrial robots, producing over 20,000 robots last year.

Global Robots in Marston Moretaine stock over 300 different models of robots and was the first dedicated wholesaler of industrial robots in the world.

Welding Robotics, Henlow, provides robotic welding cells to clients throughout the UK.

AA Robotics in Aylesbury specialises in the supply of small assembly robots for flexible factory automation.

The Automated Technology Group located in Silsoe design, install and support control and power solutions and automation and process controls that help drive the production lines, supply chain and service delivery of many leading companies including Cadbury, Jaguar and Coca-Cola.

Premier Automation at Bedford, specialise in designing, building and modifying control systems and robot based automation systems.

SMC Pneumatics (U.K.) Limited based in Milton Keynes, is a worldwide leading expert in pneumatics. Producing 12,000 basic products and over 700,000 variations, SMC

offers solutions from air preparation and instrumentation to valves and actuators covering practically every single step in the automation process.

Rockwell Automation in Milton Keynes is a world leader in industrial automation with a reputation for innovation, quality and reliability. World wide, Rockwell Automation employs over 22,000 people and serves the food & beverage, rail, water, oil & gas and energy industries. The UK headquarters in Milton Keynes houses one of the most advanced customer demonstration facilities in the country.

Pilz Automation Technology in Corby develops, manufactures and supplies process and automation control products for use wherever there is a requirement to ensure the safety of the plant, personnel or the environment.

Omron Electronics UK Ltd in Milton Keynes is one of the world's most experienced and innovative Industrial Automation Solution providers.

SKF, based in Luton, has a unique understanding of rotating equipment and how machine components and industrial processes are interrelated. It is a leading global technology provider and specialises in bearings and units, seals, mechatronics and lubrication systems.

Amazon in Milton Keynes has a fulfillment Centre around the size of seven and a half football pitches – that's over 550,000 square feet.

Trafficmaster in Cranfield is a division of Teletrac, which is owned by Danaher. Trafficmaster is one of the largest fleet companies in the UK and USA specialising in Global Positioning System (GPS).

AirWatch in Milton Keynes is the leading enterprise mobility management provider.

With speeds of up to **250mph** and investment of over **80 billion**, HS2 the planned High-Speed rail link from London to Scotland aims to connect cities, increase capacity with an additional **40,000** seats per day and deliver connectivity crucial to the growth and prosperity of the UK economy.

Building HS2 will create nearly **25,000** jobs and **2,000** apprenticeships. Phase one of this National Infrastructure project is due to commence next year in the region.





With a visionary and imaginative city design, a thriving cultural, retail and business centre and the best growth prospects for jobs in the UK, Milton Keynes is likely to double in size, increase its population to 370,000, build 70,000 new homes and create 40,000 new jobs during the next decade making this the country's biggest urban expansion in more than 50 years.

Balfour Beatty Construction Services in Northampton is a leading international infrastructure group. The company finances, develops, builds and maintains innovation and efficient infrastructure that underpins daily life, supports communities and enables economic growth. Projects include the widening of the M25 and Heathrow Terminal 5. Balfour Beatty has begun work on its £154 million contract to convert the London 2012 Olympic Stadium into an all-round multi-use venue. This new venue will be home to West Ham United Football Club, major sporting events and the UK's competition stadium for athletics. Balfour Beatty's engineering excellence will create the world's largest cantilevered roof (84m wide) to cover every stadium seat, improving acoustics and the spectator experience.

Kier Group Plc in Sandy is a leading property, residential, construction and services group which invests in, builds, maintains and renews the places where we work, live and play. Recent projects include Cross Rail and the Channel Tunnel Rail Link.

Work has begun on the £162.1 million investment on the A5-M1 Link Road Dunstable Northern Bypass.

SDC Construction Group based in Bedford embrace all forms of construction activity, procurement methods and client organisations in both the public and private sector. Projects include Center Parcs, Weetabix Ltd and The Open University. They have recently won the contract to build a new £13 million Leisure Centre in Flitwick.

Towcester Racecourse has installed the world's first lightweight roof tile – the Decra tile. This revolutionary new lightweight product combines strength, exceptional durability, easy handling, fast installation and low maintenance.

Milton Keynes is home to Network Rail's National Centre. Following the UK's largest ever corporate relocation, Milton Keynes is at the centre of Britain's railway operations. Network Rail is committed to increase the number of female employees in engineering and promoting the profession as a career path including a commitment to work with 5 secondary schools within the Milton Keynes community reaching 500 14-18 years old girls per year, and 2,500-3,000 young people by 2018 as part of their pledge to get more women in technology and engineering.

Daventry International Rail Freight Terminal (DIRFT), a railroad intermodal freight terminal with an associated warehousing estate, is a leading distribution location and is directly served by the West Coast Mainline railway, which transports 75 million passengers per year. This is complemented by the Eurohub freight terminal at Corby.

A new rail training academy, set to specialise in traction and rolling stock skills, has been developed by Siemens and NSARE (National Skills Academy for Railway Engineering) it will be based at Siemens' existing flagship train depot in Kings Heath, Northampton.

Rail connectivity is set to get a boost as East-West Rail establishes a rail link between Cambridge and Oxford, via Milton Keynes and Bedford.

London Luton Airport is the fifth largest airport in the UK, connecting **12 million** passengers to over **100** destinations each year. The airport provides **8,500** direct jobs and generates over **£1 billion** of revenue to the region each year.





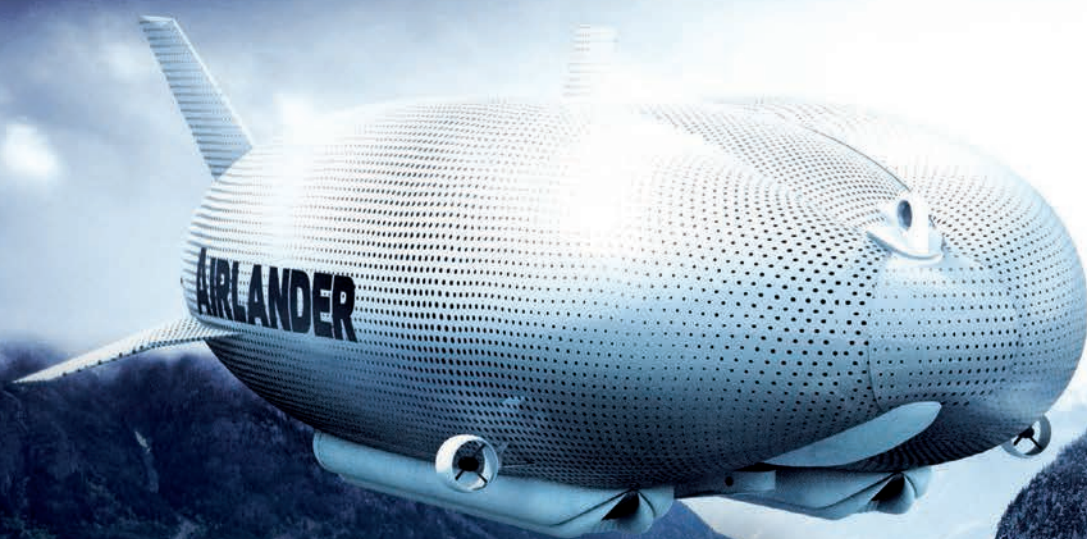
In 2015, the airport commenced its £100 million development which will increase passenger capacity to 18 million per year and create over 5,000 new jobs. The plans, including an expanded and modernised terminal building, are forecast to increase the airport's annual economic impact by £283 million to £1.2 billion per annum.

London Luton Airport is home to 14 airline operators including easyJet, Wizz Air, Ryanair, Monarch, Thomson, El Al, AtlasGlobal, Blue Air, VLM, TAROM, SunExpress, La Compagnie, Air Nostrum and First Choice, while easyJet, Monarch and TUI are headquartered at the airport.

London Luton Airport is also the UK's largest private jet airport and home to three dedicated private jet terminals; Harrods Aviation, Landmark Aviation and Signature Flight Support.

The headquarters of Monarch Aircraft Engineering based at London Luton Airport provides base maintenance, line maintenance, engineering and technical support, design services, component and full material support, aircraft engine services and technical training to both the Monarch Airlines fleet and to global blue-chip clients including easyJet, Flybe, Cyprus Airways, Air India, Air Arabia and Emirates.

Frank Brown & Son in Luton designs and manufactures ground support maintenance equipment and tooling for the aerospace and aircraft industry and airlines throughout the world.



Famous for airships, the Cardington Airship Sheds are home to a cutting-edge lighter-than-air vehicle. The **93 metre** Long Endurance Multi-Intelligence Vehicle (LEMV) is the world's largest aircraft.

LEMV is re-designed and manufactured by Hybrid Air Vehicles (HAV). HAV received a £5.9 million grant that will facilitate the development of the Airlander 10 airship to flight and create nearly 2,000 jobs in the region.

Airlander 10 takes the best of aeroplanes, helicopters and airships and combines them with the latest innovations in materials to create a truly revolutionary aircraft. The Hybrid airship can stay airborne for up to two weeks at a time, can take off and land on a variety of surfaces including ice, water and sand and has a low carbon footprint and better cargo-carrying capacity than any other flying vehicle.

The South East Midlands is crammed with aviation highlights, including the Aircraft Research Association in Bedford and Moog in Luton, a worldwide designer, manufacturer, and integrator of precision control components and systems. Moog's high-performance systems control military and commercial aircraft, satellites and space vehicles, launch vehicles, missiles, automated industrial material, marine applications and medical equipment.

COM DEV International Limited, with an operational base in Aylesbury, is a global designer and manufacturer of space hardware and systems and a world leader in the production of space-qualified passive microwave equipment, specialised electronics and optical subsystems.

Cranfield University's Department for Aerospace Engineering was BAE Systems' partner in developing the DEMON, an unmanned aircraft vehicle (UAV) designed to fly without using conventional 'flaps'. The university is now home to the UK's Aerospace Technology Institute.

BAE Systems in Towcester is a global defence, aerospace and security company providing some of the world's most advanced technology-led defence, aerospace and security solutions to deliver military capability, protect national security and people and keep critical information and infrastructure secure.

Royal Air Force stations in the South East Midlands include RAF Croughton, which operates one of Europe's largest military switchboards. RAF Weston-on-the-Green, built in the First World War but now used as a drop zone for the No.1 parachute training school and RAF Henlow, which runs the Centre of Aviation Medicine, the UK's main site for aviation medicine research.

Safran Power in Pitstone, part of the Safran Group, plays a key part in the UK's aerospace (propulsion and equipment), defence and security industries supporting a range of prestigious customers both in the UK and worldwide. Safran is a world-class manufacturer of aircraft and rocket engines.

GKN Aerospace Transparency Systems in Luton is the technical and development centre where the company undertakes the manufacture of military canopies, and specialises in aircraft icing protection and cockpit lighting to military and civil aerospace markets.

Selex ES, Luton, is an international electronics information technology business and hosts the Air and Naval Electronic Warfare System, Strategic System, Eurofighter Defence Aids Systems, ISTAR Intelligence, Surveillance and Target Systems. The Luton site is the European Centre of Excellence for Electronic Warfare.

Cranfield Aviation Training School (CATS) was formed in 2002 and is a provider of Theoretical Knowledge training for student airline pilots. With its headquarters in Luton and partners throughout the World it is one of the leading organisations in its field.

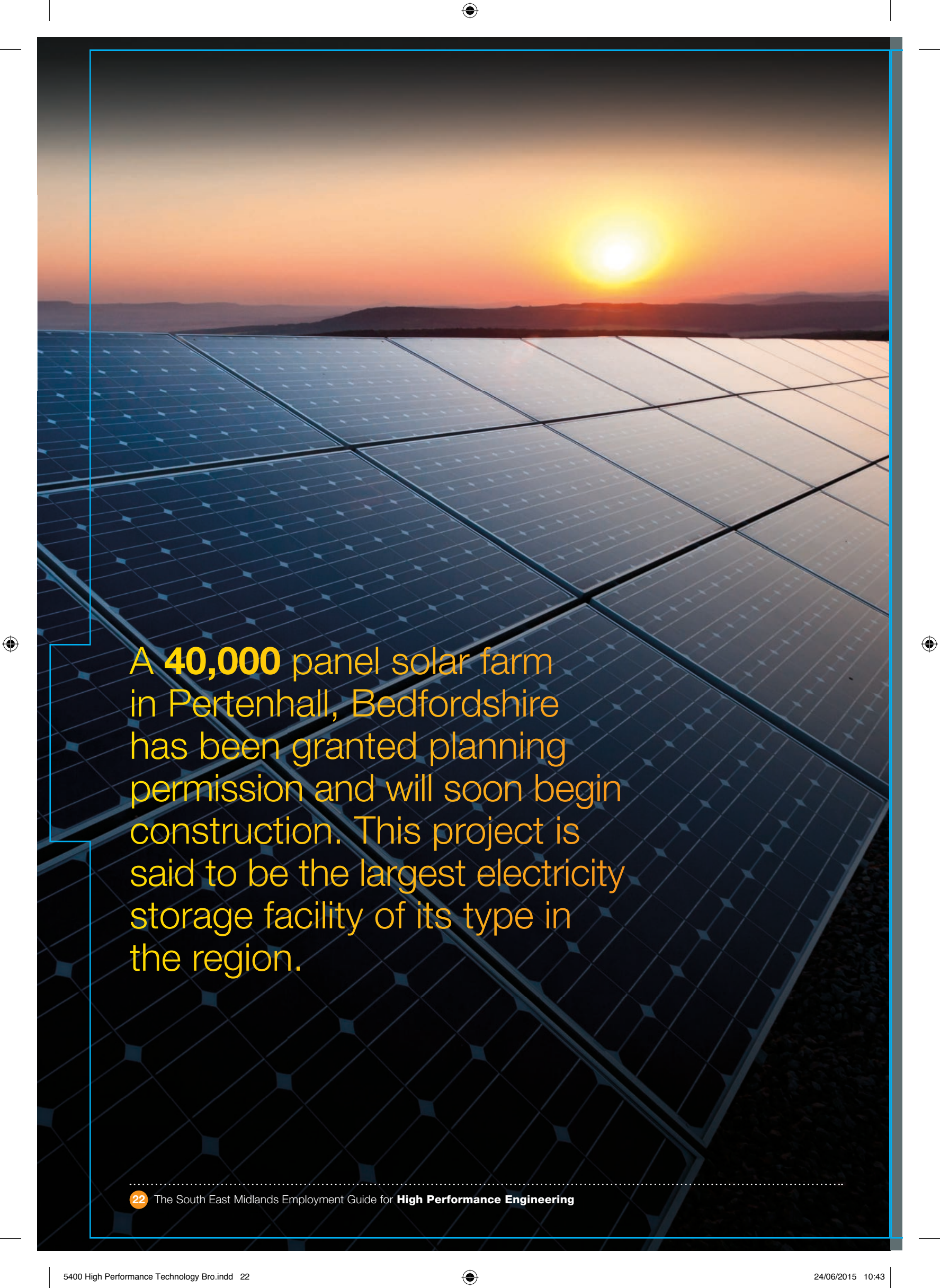
Cranfield Airport, owned by the renowned Cranfield University in Bedfordshire, was originally a World War II aerodrome and is home to the Met Office research aircraft Facility for Airborne Atmospheric Measurements (FAAM) which provides aircraft measurements for UK atmospheric research organisations on worldwide campaigns.

B/E Aerospace, based in Leighton Buzzard, is the world's leading manufacturer of aircraft cabin interior products. They design, develop and manufacture a broad range of products, including aircraft cabin seating, lighting and engineering solutions, oxygen systems, food and beverage preparation and storage equipment, galley systems, water and waste systems and advanced lavatory systems for the commercial, business jet and military aircraft markets.

Lockheed Martin's Ampthill facility is the company's largest and fastest growing in the UK, providing mission systems for armoured fighting vehicles.

BSI (British Standards Institute) is based in Milton Keynes. BSI is the business standards company that helps organisations all over the world embed excellence into the way people and products work.

Bedford Autodrome now has its own airport, with a 1000 metre licensed runway which can accommodate all piston engined aircraft and most turbo-props for public transport operations.



A **40,000** panel solar farm in Pertenhall, Bedfordshire has been granted planning permission and will soon begin construction. This project is said to be the largest electricity storage facility of its type in the region.



MK: Smart is a large collaborative initiative, partly funded by HEFCE (the Higher Education Funding Council for England) and led by The Open University, which will develop innovative solutions to support economic growth in Milton Keynes. The MK Data Hub is the key component of this project and aims to develop the technical infrastructure of the city.

Building 12 is a flagship environmental project designed to function as an exemplar office development at The Open University headquarters in Milton Keynes. This building is was one of the first in the UK to achieve a BREEAM sustainability rating of 'Outstanding' and is home to the UK's largest closed loop ground source gas absorption heat pump installation. Bletchley Leisure Centre and DC1 Prologis Park, Dunstable have also achieved 'Excellent' ratings under the BREEAM scheme.

Milton Keynes has a vision to become a Smart City and resource-efficient metropolis with renewable energy sources and sustainable systems. With radical building codes, retrofit programmes, smart electricity grids and integrated transport systems, MK is cultivating an 'innovation ecosystem'. Milton Keynes was the first in the UK to introduce door to door recycling, pioneered the introduction of electric car charging points and is currently developing wireless charging on the city's new electric buses.

The Milton Keynes Electric Bus Project is an innovative approach to charging electric buses to enable the quieter, cleaner future of public transport in Milton Keynes.

University College Milton Keynes is home to important research initiatives, such as the Smart Cities Institute and the Centre for Telehealth.

The UK's first active solar house was built in Bradville in Milton Keynes in 1972

Terrapin Ltd in Bletchley is a leading UK provider of off site construction solutions to a range of sectors including: healthcare, education, development and commercial projects. Off-site construction delivers fast, accurate, affordable and sustainable solutions to permanent, temporary and relocatable building requirements.

Kingspan Timber Solutions in Sandy is the UK's leading supplier of engineered timber frame structures all manufactured to precision in factory controlled conditions to high levels of accuracy for onsite assembly. Kingspan manufactured all 625 lodge frames for Center Parcs, Woburn Forest.

E.ON in Bedford is one of the UK's leading power and gas companies.

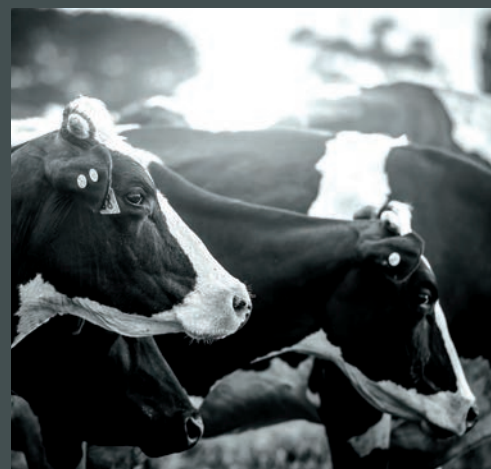
Infinis Energy in Northampton is the third largest renewable energy generator in the UK producing electricity from landfill gas (LFG). LFG is one of the naturally occurring products of decomposing organic matter in landfill sites.

Intertek Group in Milton Keynes offers precision testing and global certifications for the renewable energy sector.

Onshore wind energy is now the UK's largest source of renewable energy generation. A single turbine will generate 6.5 million units of electricity each year – enough to make 230 million cups of tea. With over 12 wind farms in the region, supply chain businesses include Alimak Hek Group in Northants, Opus Energy in Northampton, RTS International Ltd in Kettering and G2 Energy in Olney.

Cranfield University is home to the Centre for Energy and Resource Technology.

The Northants Advanced Processing Centre (APC), owned and operated by farmers' co-operative Camgrain, processes more than **400,000** tonnes of UK farmers' grain, pulses and oilseeds annually. The facility is strategically located at the centre of over **1.2 million** tonnes of quality wheat.



Food and Drink companies across the South East Midlands are working together to establish the region as a national centre of excellence. The food and drink manufacturing industry across Bedfordshire, Buckinghamshire, Northamptonshire and Cherwell is worth 5.8 billion per year and currently employs approximately 17,000 people.

Arla Foods UK, which has a one-billion litre fresh milk dairy based in Aylesbury is home to some of the UK's leading dairy brands, including Cravendale, Anchor, Lurpak and Castello. Not only is Arla the UK's number one dairy company by turnover and milk pool, it is the largest supplier of both butter and spreads and cheese in the country. The business has a yearly combined milk pool of circa 3.2 billion litres and a turnover in excess of £2 billion.

Weetabix Food Company in Kettering is the second largest branded manufacturer of cereals and cereal bars in the UK. Its family of brands includes Weetabix, Alpen, Ready brek, Weetos, Oatibix and Alpen cereal bars. The Weetabix brand has been manufactured and sold in the UK since 1932; today it is the UK's number one selling and is one of Britain's most iconic brands. The mills based at Burton Latimer, Kettering, export to more than 80 countries around the world and for the Weetabix brand all of the wheat is grown within 50 miles of the site.

Unilever in Bedford is one of the leading suppliers of consumer goods. With more than 400 brands including Wall's, Magnum, Cornetto, Colman's, Marmite, Pot Noodle, Flora, PG tips and Hellmann's.

Coca-Cola Enterprises in Milton Keynes is home to a newly refurbished Operations Centre (OC). Coca-Cola Enterprises is the world's third largest independent Coca-Cola bottler selling over four billion bottles and cans in Great Britain every year.

The Incredible Bakery Company in Kettering is a creative manufacturer that produces high quality bakery and pastry products that are all free from gluten, dairy, eggs and soya.

Whitworth Bros. Ltd in Wellingborough manufacture flours in some of the most technically advanced mills in the world.

Synergy Flavours in Corby is a leading manufacturer and supplier of flavourings, extracts and essences, with a truly global footprint.

Foodmaker in Corby has a passion for developing and manufacturing innovative dry blends of seasoning and spices to give food the best taste, flavour and functional performance.

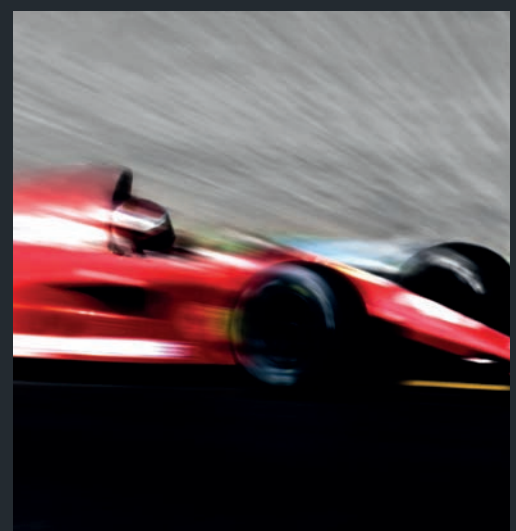
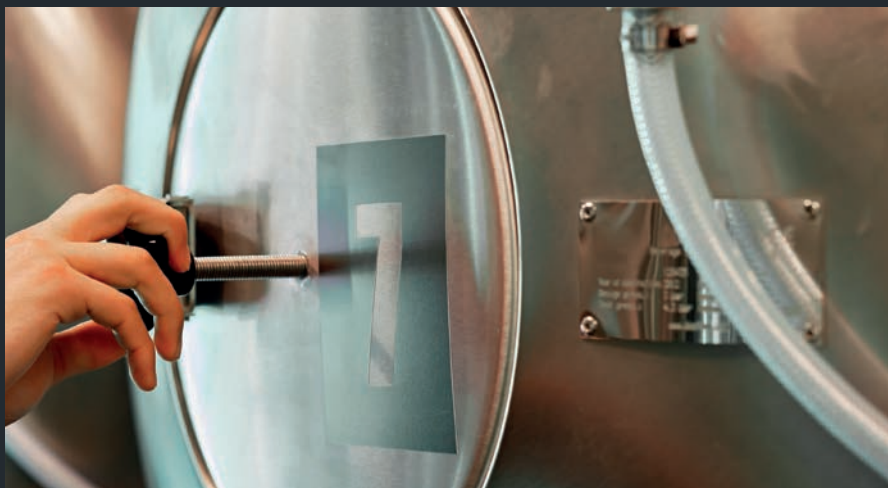
Roquette in Corby specialises in the starch manufacturing industry, processing renewable raw materials including maize, wheat, potatoes, peas and microalgae. Its innovative developments focus on nutrition, health and plant-based chemistry.

Euro Food Brands in Northampton is about bringing the world's finest quality food to the UK market. Brands include Illy Coffee, Hershey's and Reese's.

The Jordans And Ryvita Company is located in Biggleswade.

Central Bedfordshire is home to over 65 farms including Blunham's Chillies and a successful Rural Development Programme for England (RDPE) that has received £1.6 million of LEADER funding. Central Bedfordshire is also set to become home to a new Food Enterprise Zone in the South East Midlands.

Cranfield University's own experimental farm is located in Silsoe and is eager to be involved in establishing a centre of excellence for Agrifood in the area.



Concept to Capability

If you do decide that a career in High Performance Engineering is for you, there are several different routes to get you started. The work-based learning route (apprenticeships), the university route (degrees) and the vocational route (college courses). Choose the path that's best for you.

Apprenticeships allow you to earn money while you combine on-the-job training with studying.

Vocational courses are those that prepare you for a particular job, industry or sector. Traineeships prepare young people aged 16 to 24 for their future careers by helping them to become 'work ready' and University will allow you to study towards a degree.

Taking part in some practical work experience will help you decide what's right for you and will also improve any applications you make later.



For further information contact...

The National Careers Service who provide information, advice and guidance to help you make decisions on learning, training and work opportunities.

There are various channels for finding job opportunities in High Performance Engineering, get in touch with the Job Centre and use this guide to contact employers within the South East Midlands and ask about current vacancies.

For apprenticeship and traineeship opportunities visit
Find an apprenticeship www.gov.uk/apply-apprenticeship

www.nationalcareersservice.direct.gov.uk
or call **0800 100 900**

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If you require any further information about this project or skills planning and development in the South East Midlands please email skills@semlep.com

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