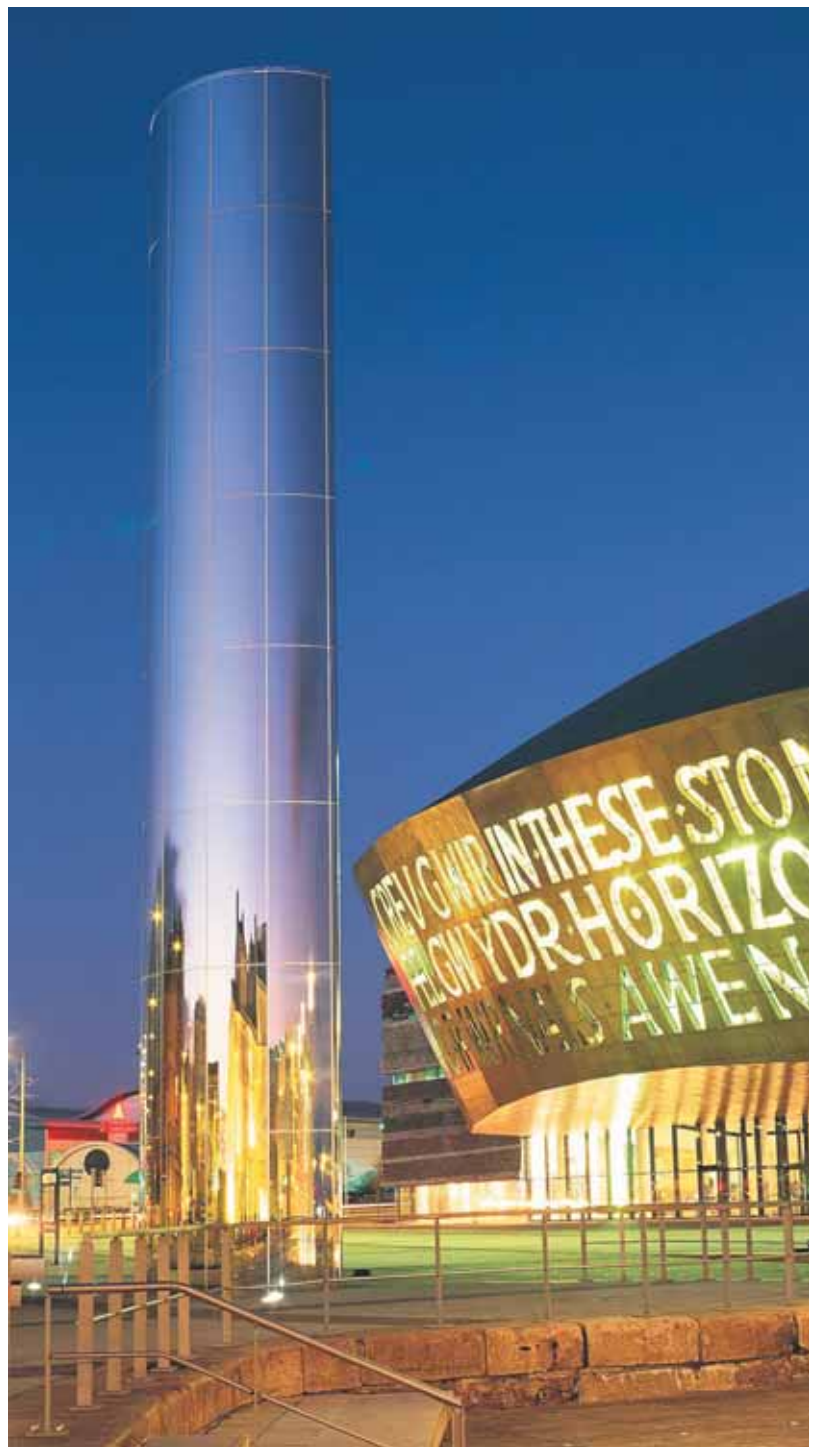


A guide to investing in Wales

Appendix 1 – Key sectors



Appendix 1 – Key sectors

1. Aerospace



The Aerospace and Defence sector in Wales is home to more than 180 companies employing over 25,000 people.

Key employers

The five largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Airbus UK	Wing manufacture and assembly	Airbus SAS, France – Ultimate parent EADS, NV	North Wales: Broughton	7,000
General Dynamics UK Ltd	Defence and communication systems	General Dynamics, USA	South Wales: Oakdale, Blackwood	1,700
British Airways	MRO, Boeing 747, 767 and 777 aircraft, interiors and avionics components	BA, UK	South Wales: Blackwood, Cardiff, and Llantrisant	1,400
EADS Defence and Security Systems Ltd	Defence and Security Systems	ASTRIUM GMBH Ultimate parent is EADSis EADEADS, NV	South Wales: Newport	1,000
GE Aircraft Engine Services	MRO aircraft engines	GE, USA	South Wales: Nantgarw	1,000

Recent inward investors

- *SELEX Galileo*, the UK's second largest defence electronics business, selected ParcAberporth in West Wales to establish its unmanned air systems (UAS) flight test facility.
- *Dytecna* opened a new 12,000 sq ft purpose designed R&D and production facility in Mid-Wales in 2008, creating 35 new jobs. Dytecna Systems Engineering division is a world leader in the development of Land Vehicle – Health and Usage Monitoring Systems, which are installed in military vehicles. The software identifies problems and anticipates future areas for maintenance of the vehicles' highly sophisticated electronic systems.

Sector initiatives

- *ParcAberporth* – In 2004 the Welsh Assembly Government launched ParcAberporth – Europe's only dedicated UAV technology park with a civil-licensed airfield approved for UAV flying. ParcAberporth uniquely enables companies to test and develop pioneering technologies and systems in civil airspace. Plans are already underway to expand the available airspace even further. www.parcaberporth.com
- *Aerospace Wales Forum* – The Aerospace Wales Forum (AWF) is the representative trade association for the aerospace and defence industry in Wales. The AWF works closely with the Welsh Assembly Government and also uses its networks with the Society of British Aerospace Companies and the UK Aerospace Forum to develop and strengthen the aerospace industry in Wales – a key example is the implementation of the Supply Chain 21st Century Initiative. www.aerospacewalesforum.com

- *St Athan Aerospace Business Park*, established in 2003, is preparing for the arrival of the new UK MOD tri-service training centre. This 25-year, £10 billion contract is one of the largest public-private partnership contracts to be undertaken in the UK on behalf of the MOD, and involves developing a new military academy for 8,500 personnel. In conjunction with this, the Welsh Assembly Government plans a multi-million pound makeover for the site, creating a major aerospace business park of over 200 acres (plus 250 acres airfield), with plans to create a further 3,000 jobs. www.stathanconsultation.co.uk

Universities – key research

Advanced materials

- *The Materials Research Centre at Swansea University's School of Engineering* has internationally leading laboratory facilities and is home to the Rolls-Royce University Technology Centre which deals with materials for gas turbine aero-engines. Additional work, involving the European Space Agency deals with novel intermetallic alloys, and other projects with structural airframe materials have included collaboration with Airbus.
- *The Civil and Computational Engineering Centre at Swansea University* has pioneered the capabilities of finite element analysis, e.g. in the modelling of the Superplastic Forming process for the manufacture of complex and intricate aerospace components, with weight saving implications for the aerospace sector. Major customers include BAE Systems, EADS, NASA and Airbus.
- *The BioComposites Centre at University of Wales Bangor* has been working with partners including QinetiQ and Ford on the BIOMAT project. The project investigated using plant fibres such as flax as a reinforcement for thermoplastics including polypropylene but with a mechanical performance comparable to glass.
- *Cardiff University's* international reputation, working in the field of optimisation of fibre laminates primarily for aerospace applications, has led to collaborations with NASA and BAE Systems – generating essential weight saving designs for wing and fuselage structures.

Design and development

- *The Manufacturing Engineering Centre*, also based at *Cardiff University*, conducts groundbreaking research in key areas of advanced manufacturing technology, product development and the integration of IT within manufacturing. Cardiff University also excels in combustion technology at its Gas Turbine Research Centre, which has unique capabilities. The Centre will be used for research aimed at improving the general design of gas turbines and for testing liquid and gaseous fuels by the University and by companies on a commercial basis.
- *The Advanced Reasoning Group at Aberystwyth University* has a long record of producing tools for automating system design analysis and for model-based diagnosis. Its research on automations of failure modes and effect analysis is now used by a large number of leading aerospace manufacturers including Raytheon. *The University of Glamorgan* has strengths in electronics and control systems, which offer new avenues to design out production and running costs.

Electronics and communications systems

- *Glamorgan University* is also home to the *Centre for Electronic Product Engineering*, which is widely recognised as a major driver of microelectronics technology transfer programmes, providing support in the fields of microelectronics, electronic product engineering embedded internet communications and information techniques – and related fields such as open source software and signal and image processing. The Centre also has its own dedicated resource to test sub-systems for novel power train solutions, including hydrogen fuel cell technology – also see the Automotive Sector.
- *Aberystwyth University's Institute of Biological, Environmental and Rural Sciences* is leading the UMAP consortium with QinetiQ, the Boeing Company and the *Institute of Geographical and Earth Sciences*. This innovative project, funded by the Welsh Assembly, is developing civil unmanned air systems remote sensing products for the Agricultural, Forestry and Environmental Monitoring sectors, delivering high resolution images rapidly, flexibly and cost-effectively.

Non-Destructive Testing (NDT)

- *The Non-Destructive Testing Validation Centre* in Port Talbot, which is managed by TWI, is run in collaboration with *Swansea Institute of Higher Education* and *Swansea University*. The Centre is an independent organisation with the objective of assessing the accuracy and consistency of the NDT methods and improving the accuracy of inspection techniques and flaw detection.
- *The Wolfson Centre for Magnetism* at *Cardiff University* applies its world-leading understanding of magnetic materials to the science of NDT, resulting in highly novel and effective techniques such as the design and installation of an on-line system for the continuous evaluation of steel hardness in electrical steel incorporating a magnetic weighting technique.
- *The Structural Performance Laboratory* at *Cardiff University* utilises NDT techniques that include acoustic emission monitoring, ultrasonic c-scanning, motion analysis and digital image correlation to assess the condition of materials and structures, including those that can be manufactured on site using a recently installed autoclave and injection moulder. An outstanding attribute of the laboratory is the broad range of static, dynamic, thermal and mechanical testing facilities available.

For further information:

International Business Wales – Aerospace team

cari-anne.quinn@wales.gsi.gov.uk
ruth.stockley@wales.gsi.gov.uk

2. Automotive, engineering and manufacturing processes



Wales is home to more than 8,000 manufacturing and engineering companies, employing almost one in seven of every worker in Wales.

This includes the automotive manufacturing sector in Wales. This sector employs 25,000 people in Wales and generates an average of £3 billion revenue per annum. The sector comprises of around 40 international component manufacturers supported by a further 250 companies.

Areas of focus in the automotive sector in Wales are:

- Advanced fuel application.
- Advanced power train.
- Niche products and materials.
- OEM/supply chain opportunities.
- Knowledge and service applications.

Key employers

The largest private sector employers in the automotive, engineering and manufacturing processes sector in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Corus (acquired by Tata Steel in 2007)	Steel producer	India	Wales-wide: Sites across North & South Wales	Circa 7,000
Ford	The main source of petrol engines for Ford, Europe	US	South Wales: Bridgend	2,000
Robert Bosch	The lead Bosch alternator plant worldwide	Germany	South Wales: Pontyclun	1,000
Toyota	Engine assembly for global Toyota plants	Japan	North Wales: Deeside	700
Harman Becker Automotive Systems	Design and manufacture of Audio and Infotainment systems	Germany	South Wales: Bridgend	500
Celsa Steel UK	Steel Producer	Spain	South Wales: Cardiff	500
Quinn Group	Manufacture of large domestic radiators	Ireland	South East Wales: Newport	460
Intertissue (part of the Delicarta Group)	Manufacture of domestic tissue paper	Italy	South Wales: Port Talbot	300
Mitsui Components Europe	Advanced door lock mechanisms for leading OEMs and suppliers	Japan	South West Wales: Ammanford	230

Recent inward investors

- *SEDA UK*. This Italian food packaging company has invested more than £30m in establishing a facility in South Wales to produce paper cups and cartons. SEDA UK is now expanding these operations, creating more than 50 new jobs to produce thermoformed plastic lids and containers for the UK and Ireland market. This £4m investment in Blackwood, South Wales, will get the latest thermoforming packaging technology and manufacturing equipment. In 2007 it won Supplier of the Year Award from McDonald's. The company is a world-leader in the development of New Packaging Solutions and more than 85% of the raw materials Seda uses are coming from sustainable resources or recycled material.
- *Takao Europe Manufacturing (TEM)* recently consolidated operations from Eastern Europe and Turkey to South Wales. It is involved with the development of a new manufacturing operation to produce vehicle chassis parts for Honda and Toyota in the UK. The project is expected to create 100 new jobs, doubling the existing workforce, together with an investment of £15.5 million on state-of-the-art press/stamping facilities.
- *Connaught Motor Co.* was founded in 2002, the aim of the directors and co-partners being to produce a genuinely exciting car that was also environmentally friendly. With the assistance of the Welsh Assembly Government, their new factory is now taking shape and orders are coming in for a hybrid car capable of 170mph – as well as for the only retro-fit hybrid system in the world which can be used in delivery vans as well as cars. This £12 million investment in Llanelli will secure 200 jobs.

Sector initiatives

- *The Welsh Automotive Forum* is the authoritative voice of the automotive industries in Wales. It serves as the conduit, harnessing all partners, ensuring that a common approach is adopted in developing and promoting knowledge, best practice and innovation to enable the sector to meet the challenges of world-class competitiveness. *The Automotive Academy* promotes globally competitive standards and skill development throughout the UK's automotive industry. It supports the whole supply chain, not just vehicle manufacturers, to encourage universal best practice set against the Academy's stringent validation process. A key aspect of the Academy's work is to cover training from new apprentices through to senior boardroom directors of vehicle manufacturers and component suppliers. www.welshautomotiveforum.co.uk
- *Technium Performance Engineering*. This is a facility that caters for high-growth Automotive and engineering companies and is located in Carmarthenshire, South West Wales. The 2,200 square metre building is situated on an 18-acre site providing companies located within the Technium with potential expansion opportunities. The Technium has strong links with *Swansea University*; particularly the *School of Engineering*. Four R&D staff based at the Technium can provide specialist technical support to companies. www.technium.co.uk
- The *Wales Manufacturing Forum* was created by the Welsh Assembly Government in 2007, with a remit to:
 - develop, implement and keep under review a manufacturing strategy for Wales that addresses issues of generic concern to the sector;
 - assist in obtaining the best possible return upon public sector support investment in providing support to the manufacturing sector;
 - endorse the detailed sector strategies developed by those sectors for a representing priority manufacturing sub-sectors in Wales and support, as appropriate, the implementation of those strategies.

A steering group was established which took early action to identify and focus upon a limited number of strategically significant issues affecting manufacturing in Wales. These key issues were identified as 'High Value Added Manufacturing', 'Skills', 'Marketing' (Image of Manufacturing) & 'Small Businesses'.

- *Wales Electronics Forum* is an independent body which represents electronics, semiconductor, opto and software companies throughout Wales. The Forum's main objective is to help the electronic sector to move up the value chain. It works with its partners to raise the profile and performance of the technology industry and to generate confidence in its resilience, innovativeness and competitiveness. Future success for the technology industry in Wales lies in high-value hardware and software design and manufacturing capabilities, driven by an entrepreneurial culture. www.welsh-electronics.com

Universities – key research

Advanced power train & alternative fuel technology

As well as producing the latest generation of internal combustion engines through Ford in South Wales and Toyota in North Wales, Wales is developing innovative alternative power trains – offering opportunities for automotive businesses locating in Wales, through green technology companies such as *The Connaught Motor Co. Ltd.* University technology is aligned around advanced ‘green power train’ applications with innovative solutions such as:

- *The University of Glamorgan’s Fuel Cell Technology Centre* which has developed a world first – a fully commercialised Hydrogen Fuel Cell Minibus utilising a Tribrid power train of hydrogen fuel cells, batteries, and ultra capacitors;
- *Swansea University’s* electronic systems design group worked with Toyota to further develop hybrid vehicle technology; whilst
- *Cardiff University’s Centre of Research in Energy, Waste and the Environment* is working with Ricardo to research GDI engine fuel injection. The award-winning *National Centre for Product Development* (Cardiff) has designed a leading edge steering column for TRW, and invested in selective laser melting.

Niche vehicles: design, development and manufacture

In Wales we have the full life-cycle of technology development to support the niche vehicle industry, from concept, test, and design to manufacture – backed up by leading edge skills, and a diverse established supply chain. The established base of tier 1 and 2 automotive suppliers, together with the wide range of test facilities, is proving crucial to niche vehicle companies choosing to locate in Wales.

Swansea Metropolitan University offers vehicle styling design and automotive engineering expertise, and is planning a new *Automotive Design Centre* to provide full size clay modelling and structural design. The most recent industrial project involved the design team from the new Jaguar XF working with undergraduates on the generation of speculative concepts for future model proposals. Working on a brief to design the next generation Jaguar based upon the LWB Jaguar XJ platform, the design work involved detailed surface development, CAD visualisation and 1/4 scale clay models. Colleagues from Swansea Metropolitan University’s School of Industrial Design worked closely with the senior design team at Jaguar, including Ian Callum and Julian Thomson.

Advanced materials

- *Bangor University* has been involved in using plant fibres such as flax as a reinforcement for thermoplastics in the BIOMAT project – researching the viability of natural plant fibres as raw materials for the automotive industry, specifically trying to enhance the performance of plant fibre in injection-moulded thermoplastic composites – working with partners including QinetiQ and Ford.
- Researchers at the *Wolfson Centre* have demonstrated that a quarter-inch-thick ring of cobalt-ferrite can be used in an electronic torque sensor to regulate the steering power provided to a car’s wheels by an electric motor. This could allow automotive manufacturers to eliminate the heavy, energy draining hydraulic pumps used in power-steering. Replacing the power-steering system with an electric system that uses this type of sensor should improve the car’s efficiency by about 5%. Moreover, the compound being researched by Wolfson is 20-100 times less expensive than other materials being considered.
- *The Materials Centre of Excellence* (Swansea) was a lead partner in INTCAST, designing and manufacturing cast aluminium components with considerable weight savings. One case study resulting from the project was the new design of a bushhousing component which demonstrated a 36% increase in strength, a substantial improvement in fatigue life and a 5% reduction in weight.

For further information:

International Business Wales – Automotive and Engineering team greg.green@wales.gsi.gov.uk
jane.jones2@wales.gsi.gov.uk
anna.meyer@wales.gsi.gov.uk

3. Bioscience & healthcare



The Bioscience sector in Wales is home to some 250 companies employing over 15,000 people and contributes more than £1.3 billion to the Welsh economy.

Key employers

The five largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
ConvaTec Ltd	Development, manufacture and supply of modern wound management products and ostomy devices	USA	South and North Wales: Rhymney Valley and Deeside	925
Siemens Healthcare Diagnostics	The plant manufactures and distributes IMMULITE® reagents used on blood analysers in hospitals and clinics worldwide	Germany	North Wales: Llanberis	500
Biomet UK Ltd	The manufacture and sale of hip replacement and internal fixation devices	USA	South Wales: Bridgend	492
GE Healthcare	Manufacture of sophisticated chemical and biochemical reagents for medical and life science research; high throughput screening and testing of new medicines	USA	South Wales: Cardiff	450
Wockhardt UK	Manufacture of prescription medicines in their final dosage form	India	North Wales: Wrexham	378

Recent inward investors

- US-based McKesson, listed 18th in the Fortune 500, is providing a new integrated human resources and payroll system for the National Health Service in Bangor, North Wales. The project is expected to result in the creation of over 250 jobs by 2011. The office will become a key centre of operations for McKesson Shared Services that will manage the day-to-day running of the ESR system on behalf of NHS Trusts who opt to outsource their HR and payroll transactional activity.
- *Bilcare*. Indian-owned multinational Bilcare acquired the successful Welsh start-up company DHP Pharma to expand the European arm of its global pharmaceutical packaging business. With access to an expanding workforce of high quality local staff, Bilcare GCS Europe is about to move to an £11 million clinical supplies facility in Crickhowell, South Wales, which will be the centre of European operations. Bilcare GCS Europe provides drug stability research prior to clinical drug trials, and then manufactures the most appropriate packaging for the active drug and placebo, tailored to the environment and climate where the trials will take place. The company then distributes the packaged drug to locations all over Europe.
- *Current BioData*. A science information company that provides information services to the global pharmaceutical industry is to set up a new centre for its scientific editors in Swansea, creating 45 jobs. Scientists here work on its flagship product, the Targeted Proteins Database, which is used by pharmaceutical companies worldwide in their search for effective new medicines.
- *Morvus Technology*, at its new headquarters in Carmarthenshire, West Wales, is developing a number of exciting new anti-cancer drugs and associated technologies. Morvus has expanded massively since it moved to Wales. Starting its relocation with five staff, it now employs 20 people; and these are highly qualified technical staff, 90% of whom have PhDs. An Assembly grant is now available to Morvus to help it grow to 50+ staff over the next three to four years.

Sector initiatives

- *BioWales* is an annual event that showcases the Welsh bioscience sector to an international, commercial and academic audience. Attracting bioscience industry professionals and academics seeking licensing and business development opportunities, it offers an opportunity to showcase your business, learn about the latest trends and developments in the sector and make valuable connections. The event is held in March. www.biowalesevent.com
- *MediWales* is the representative networking body for the Life Science and Healthcare sectors in Wales, with over 100 subscribed members, and is in regular communication with over 1,500 contacts. www.mediwales.com

Universities – key research

- *The Wound Healing Research Unit (WHRU)* at *Cardiff University's School of Medicine* is perfectly positioned to offer essential services for product research and development for companies in the wound healing field. It helps service providers and wound care companies to evaluate and develop their products and services. WHRU works in confidence with both major wound care companies and companies developing innovative products: providing world-class expertise and access to the clinic.
- *Cardiff Institute of Tissue Engineering and Repair (CITER)* is an established interdisciplinary network, linking around 130 academic staff from 11 schools across *Cardiff University*. With internationally recognised expertise in basic, translational and clinical research in the field of tissue engineering and repair, CITER's ethos is that of "bench to bedside" – to foster the route from lab bench to practical application. An example is the Smart Bandage project: Is a bandage designed to be responsive to wound condition and able to signal important changes to the clinical carers?
- *Healing Foundation UK Centre for Burns Research*. In 2007 *Cardiff University, Swansea University's School of Medicine* and *Swansea's Morriston Hospital* won an investment bid in the face of competition from Britain's most renowned institutions to host the Healing Foundation UK Centre for Burns Research – the UK's only burns research centre. Over the next 20 years this new centre will aim to improve treatment and long-term support for survivors of burns.
- *The National Centre for Product Design & Development Research (PDR)* at the University of Wales Institute, Cardiff is one of Europe's most successful and effective design and development centres offering a complete service from original research and analysis through to design, prototyping, manufacture and launch. PDR has a dedicated Medical Applications Group meeting demand for product development expertise and technological solutions for the medical sector. For example, PDR has worked with a leading manufacturer of bariatric beds to streamline the manufacture and improve aesthetics, improving patients' care and saving the NHS vast sums of money.
- *Cardiff University's Institute of Medical Genetics* was one of the winners of the 2007 Queen's Anniversary Prizes for its success in identifying genetic causes of diseases and developing new diagnostic tests and treatments for them. The Institute is now expanding with a £4.8 million investment in new cancer genetics laboratories with a focus on developing new methods for earlier diagnosis and treatment.
- *The Institute of Life Science (ILS)* at *Swansea University*. Life science is recognised as one of the most fertile sources of technology transfer in the world, giving the ILS the potential to create significant economic wealth. With state-of-the-art laboratories and a dedicated Business Development Centre, the focus is on building long-term commercial-academic links and making first-class medical progress. *The Boots Centre for Innovation* is based at ILS: an innovation access hub for medical products which may be marketed via the extensive retail and distribution operations. The ILS and Swansea University provide a unique infrastructure for computational biology, which is centred on the Blue C supercomputer. This is one of the very few supercomputers in the world dedicated to life science research and, thanks to a high profile collaboration with IBM, it has a permanent home at Swansea University. For more information about the Institute of Life Science, visit www.swansea.ac.uk/ils

For further information:

International Business Wales – Bioscience Team

chris.williams2@wales.gsi.gov.uk
christopher.davies@wales.gsi.gov.uk
sharon.thomas@wales.gsi.gov.uk
katie.weeks@wales.gsi.gov.uk

4. Business processes



Wales has an active contact centre, shared services and business processing outsourcing market, with more than 24,000 people working within this arena in over 140 companies across Wales.

This arena is characterised by significant regional, national and international operators. Wales is home to significant players such as LogicaCMG, MacQuarie Bank, Unilever, Atradius, Zurich, VirginMedia, Yell and Tesco.

Key employers

The five largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Conduit	Outsourced customer service	USA	South Wales: Cardiff	1,500
ONS	Inbound customer service	Public Sector	South East Wales: Newport	1,300
AA	Inbound and outbound sales	UK	South Wales: Cardiff	800
Atradius	European IT SSC	Netherlands	South Wales: Cardiff	600
DVLA	Dept. of Transport Finance, IT and related SSC	UK	South Wales: Swansea	400

Recent inward investors

- *Her Majesty's Prison Service (HMPS)* – South East Wales, Newport, is now home to a flagship centre, responsible for some 77,000 prisoners in 128 prisons across England and Wales, which is recognised as being at the vanguard of developments in the delivery of shared services. The centre provides HR, finance and procurement support to all HMPS establishments and other sites across England and Wales. The main attraction of the shared service centre, which will employ staff of over 500, is the benefit of economies of scale. Savings are projected to be in the order of £32m each year. The centre's high delivery standards and effective operations have led to additional growth from other Government departments, the Home Office and the Ministry of Justice.

Sector initiatives

- *Wales Shared Services Group*. Addressing the current and future agendas of SSC practitioners in Wales. Sharing of best practice and initiatives, developing talent and ensuring close working relationships between private and public bodies. New investors in Wales are welcome to join this group of practitioners. www.welshcontactcentreforum.co.uk
- *Call Contact Forum* – supported by the Welsh Assembly Government, acts as a lobbying organisation for the industry in Wales with the aim of boosting best practice, innovation, and the introduction of new technology. The Welsh contact centre arena has evolved steadily over the past 15 years and is now a significant part of the Welsh economy. www.welshcontactcentreforum.co.uk

For further information:

International Business Wales – Business Process Team

tony.godfrey@wales.gsi.gov.uk

ruth.millersmith@wales.gsi.gov.uk

5. Creative industries



Both the audio-visual and creative and cultural industries in Wales employ around 24,000 people and contribute an estimated £750 million to the Welsh economy.

The UK has the largest creative sector in the EU with 2 million people being employed in creative jobs. The sector contributes £60 billion to the economy of the UK (Department of Culture, Media and Sport – DCMS). It now makes up 7.3 per cent of the economy and is growing at 5 per cent per year (almost twice the general rate of the economy).

Key employers

The six largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
BBC Wales	Broadcaster	UK	South Wales: Cardiff	1,300
Tinopolis	TV production – sport, drama, current affairs, factual, entertainment + animation, interactive & learning	UK	South and West Wales: Llanelli and Cardiff	450 UK-wide
Rondo Media	Production company – sport, music, drama & features for TV + multi platform interactive content	UK	North and South Wales: Caernarfon, Cardiff and Menai Bridge	130
S4C	Broadcaster (Welsh language)	UK	South Wales: Cardiff	168
ITV Wales	Broadcaster	UK	South Wales: Cardiff	129
Boomerang	Production for TV – extreme sports, drama, comedy, live events, children’s programmes and web content and radio broadcasts	UK	South Wales: Cardiff	116

Sector initiatives

- *BAFTA Cymru Awards* (currently in its 17th year) comprises 33 categories – the focus of BAFTA Cymru is to promote and encourage excellence in the Welsh media industry. Held annually, in April. www.bafta-cymru.org.uk
- *Celtic Media Festival* – 400+ delegates from the Celtic Nations convene for three days of discussion, conference, ideas, culture, business, awards, networking and screenings. The awards ceremony comprises 21 different award categories. Held annually in March/April. www.celticfilm.co.uk
- *Talent Attraction Scheme* funded by Creative Business Wales and Skillset Cymru in association with Channel 4, ITV, BBC and PACT. This scheme is currently in its pilot year and will award three Welsh based companies with investment up to £40,000 per year, per company for three years. www.skillset.org/uk/cymru
- There are numerous organisations assisting the creative industries in Wales. For example:
 - *Welsh Music Foundation* est. 2000 acts as a focal point for the commercial music industry in Wales, advising and informing both the private and public sectors on matters relating to the economic development of the Welsh industry. www.welshmusicfoundation.com
 - *The Film Agency for Wales* is at the forefront of nurturing Welsh talent. www.filmagencywales.com
 - *Wales Screen Commission* offers comprehensive information and support on locations, facilities, crew and local services. www.walescreencommission.com
 - *Media Antenna Wales* administers the European Union’s MEDIA programme in Wales and promotes funding and training opportunities. www.mediadesk.co.uk

Universities

The University of Glamorgan is in the process of conducting a feasibility study into the economic impact of the creative industries in Wales.

For further information:

Creative Business Wales

allison.dowzell@wales-uk.com

Tel: +44 (0) 29 2043 6110

6. Information and communication technology



The ICT sector in Wales is home to some 427 companies employing over 12,000 people with a further 22,000 ICT professionals in other sectors. The sector contributes in the region of £1 billion to the Welsh economy per annum.

Key employers

The five largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
BT	Telecoms & IT Services Provision	UK	South Wales: Cardiff and Swansea	3,800
Logica	IT & IT Enabled Services Provision	UK	South Wales: Bridgend and Cardiff	683
Mitel Telecoms Ltd	Telecoms Equipment & Services Provision	Canadian	South East Wales: Caldicot	500
Fujitsu Services	IT & IT Enabled Services Provision	Japanese	South Wales: Swansea, Cardiff and Newport	350
Cap Gemini	IT & IT Enabled Services Provision	French	South Wales: Swansea and Cardiff	300

Recent inward investors

- *Sword IT* – A French headquartered company set up in 2000, Sword has grown indigenously and by acquisition to achieve revenues of over 152 million Euros (2006) and a global presence of 35 locations in 20 countries. The group specialises in the development, application and support of software solutions in the Governance, Risk and Compliance area. It has proved an attractive area – a niche market with few competitors and high intellectual property value. From its new South Wales base, Sword is building what will eventually be a 200-strong workforce whose job is to support around eight business units, mainly UK based.
- *Next Generation Data* – A £200m data centre project for South Wales, creating 100 hi-tech jobs, is underway. Next Generation Data will establish one of Europe's largest and most technically advanced "green" data centres in Newport, South Wales. The centre, which will total in excess of 70,000 square metres with approximately 21,000 square metres of data centre space available, will be sub-divided for different uses including managed hosting, co-location and hotel type services. It is located near an electricity sub-station which will ensure that the facility has adequate power for the foreseeable future.
www.nextgenerationdata.co.uk
- *Valtech* – A French listed software development consultancy which is creating nearly 170 IT jobs with the launch of a centre in Wales. Valtech is establishing its new centre in purpose-designed offices near Caerphilly, South Wales. Valtech already has offices in London and Manchester but expects "high growth" in the UK marketplace. The company simplifies software development and provides consultancy and training across a wide range of industry sectors, including aerospace, finance and media.

Universities – key research

- *Institute of Advanced Telecommunications, University of Wales Swansea*. The Institute of Advanced Telecommunications (IAT) at the University of Wales Swansea is a world-class centre for telecommunications research in Wales integrating ground breaking academic research with knowledge transfer expertise, providing tailored solutions to the world's leading multinational companies and entrepreneurial SMEs.

IAT is staffed by international experts in optical communications, wireless communications and communications networks. Experts are complemented by an experienced commercial team, which is responsible for all aspects of contract negotiation and ensures projects are managed to meet companies' timescales and expectations.

IAT has invested in and gained access to extensive state-of-the-art laboratories, test-beds and demonstration facilities, which are used to demonstrate and evaluate the performance of various technologies in simulated real-life environments.

IAT offers a wide range of knowledge transfer collaborative opportunities to SMEs; ranging from problem solving and consultancy, to short and long term research and development. IAT also boasts postgraduate training, and supports spin-off company activities.

IAT's Commercial Team is supported by experts who have extensive knowledge of Photonics, Wireless and Networks. IAT can assist companies with a wide range of tailored solutions via academic input, solving product/process problems, impartial advice, consultancy and access to test facilities. www.swansea.ac.uk/iat

The main research partners include Marconi, BT, Cisco, Telcordia, and Nortel as well as those with a firm relationship with the University and the Centre for Computing and Software Technologies, also based at Swansea University.

- *Technium CAST (Centre for Advanced Software Technologies)* forms part of the *Technium Wales network*, a series of technology-led business incubation environments dedicated to providing the relevant knowledge, support and physical facilities to help young technology businesses realise their potential for long-term growth. It specialises in Visualization and Data Communication industries – both research strengths found at *Bangor's School of Computer Science* with which it is associated. www.techniumcast.com. Brand Source is a graduate of the CAST Technium. Offering high quality 2D imagery Brand Sauce works for a variety of clients ranging from creative and advertising agencies to games, pharmaceutical and food manufacturers, as well as large retailers and specialist local producers. Brand Sauce employs a team of highly skilled technicians experienced in all forms of the 3D visualisation and software world. www.brandsauce.co.uk

- *Institute of High Frequency and Communications Engineering, Cardiff University*. The High Frequency Centre at Cardiff University has a track record of working with multinational companies in the field of mobile communications, developing novel test and measurement techniques for the rapid evaluation of RF components and devices for base station and mobile hand sets. This Institute provides a common umbrella to coordinate research activities within the broad themes of microwave devices and applications, and signal processing and information technology. The three research centres within this Institute have modern well-equipped state-of-the-art laboratories and industry-level software tools. They are capable of addressing some of the most demanding research challenges constraining the development and application of acoustic, biomedical and beyond-3G wireless telecommunication and information systems: digital signal processing, non-linear microwave amplifier design and data fusion.

Dynamic partnerships with industry, from multi-nationals to small local companies, is the hallmark of the research performed within this Institute. The group receives support from Agilent Technologies, Nokia, Filtronics, LabTech, EPSRC, General Dynamics, Texas Instruments, EU, and QinetiQ (Malvern).

The Cardiff School of Engineering is recognised as being one of the top engineering research centres in the UK. In the RAE 2008, Cardiff School of Engineering consolidated its position as one of the top 10 research led engineering schools in the UK. www.engin.cf.ac.uk/research

- *The Mobile Communications Research Group at the University of Glamorgan*. This unit specialises in automatic wireless network planning and optimisation and is focused on the use of wireless broadband network for voice, telecommuting, video and Internet services. The Integrated Communications Research Centre of the University of Glamorgan led by Professor Khalid Al-Begain has been working with major industries on the creation of the next-generation IMS Service Creation Facility. The project has been heavily supported by the operator giant Orange plc and some key technology companies such as Avaya Inc/Ubiquity, Dialogic and Voxpilot. The facility emulates the next-generation operator network and consists of the latest standards based IP Multimedia Subsystem (IMS) technology, carrier grade equipments. It conforms to the latest 3G Partnership Project (3GPP) specifications and generally reflects the current state of the art in the area of next-generation networking.

The project's final goal is to provide a unique infrastructure and support for Welsh SMEs and innovation community to build creative and innovative services and applications in all fields of economy including ICT, health care, business, etc. It also aims at creating a unique international NGN-IMS Interoperability testing unit. More details on <http://mobile.research.glam.ac.uk/NGN>

For further information:

International Business Wales – IT & Comms Team

martin.jenkins@wales.gsi.gov.uk

kelly.marsh@wales.gsi.gov.uk

7. Financial services



The Financial Services sector in Wales is home to some 1,800 companies employing over 32,000 people and generates 5% of Welsh GDP.

Key employers

The largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Lloyds Banking Group	Retail Bank, Asset Finance, Insurance, Mortgage and Card services, back office and contact centres	UKSE	South Wales: Cardiff, Swansea, Bridgend and Newport	7,000
Admiral Insurance*	Insurance – Head office and contact centres	UKSE	South Wales: Cardiff, Swansea and Newport	3,300
Legal and General	Life & Pensions contact centre and administration	UKSE	South Wales: Cardiff	2,200
Moneysupermarket.com	Online Financial Services price comparison website	UKSE	North Wales: Ewloe (nr. Chester)	600

Note: All companies are UK owned and quoted on the London Stock Exchange

* Included in The Sunday Times 100 Best Companies to Work for 2008

Recent inward investors

- *GoCompare.com*. The internet-based price comparison site offers a range of General Insurance products from car, van and motorbike through to home insurance. It has generated huge brand awareness and business traffic to its site through an advertising spend of £9.6 million in 2007. Wales is now home to the biggest UK on-line market aggregation sites including such brands as Moneysupermarket.com, Confused.com and Insurance.co.uk. The company employs 29 people in Newport.
- *Lloyds Banking Group*. Lloyds Banking Group has closed its Indian operation and repatriated 250 jobs into two of its South Wales banking CRM centres. The bank's Welsh CRM centres handle a huge volume of calls from customers. In 2007, the bank received 70 million calls, the equivalent of 8,000 calls an hour or 133 calls every minute.

Sector initiatives

- *Call Contact Forum* – supported by the Welsh Assembly Government, acts as a lobbying organisation for the industry in Wales with the aim of boosting best practice, innovation, and the introduction of new technology. The Welsh contact centre arena has evolved steadily over the past 15 years and is now a significant part of the Welsh economy. www.welshcontactcentreforum.co.uk

Universities – key research

- *Training Securities Trading Floor* – A Training securities floor to provide the next generation of financial movers and shakers with hands-on experience opened in *Cardiff University Business School* in September 2008. The new Training Securities Trading Floor is one of a number of initiatives being supported by the Welsh Assembly Government to strengthen the region as a centre for financial services. The First Minister said "It will be only one of five universities in the UK with this facility and the first to offer this training to undergraduates as well as postgraduates. The initiative will boost the skills base and provide Wales with an attractive proposition for investment projects in the financial services sector."

The centre will initially cover equities trading but is intended to extend the training to Forex (Foreign Exchange) and derivatives to match the theoretical training offered on the undergraduate and graduate programmes. The centre has the latest Bloomberg and Reuters information services along with software so that teachers will be able to control markets while simulating conditions.

- *Islamic Finance* – In conjunction with *Cardiff University Business School (CARBS)*, an initiative has been launched to deliver Islamic Finance skills training to industry practitioners, train the trainer and regulatory and audit courses. CARBS is working with Islamic Banking and Finance Centre UK for delivery of the programmes, which are accredited by Islamic Banking and Finance Institute Malaysia. For further information: www.ibfc.eu and www.ibfim.com
- *Unum Group*. Unum is an international employee benefits provider that works with organisations of all sizes and their employees. Launched in July 2004, the Unum Centre for Psychological and Disability Research, *Cardiff University*, offers unique opportunities for extending knowledge and understanding of the psychosocial, economic and cultural factors that influence health, illness, disease and recovery. The Centre’s research, supported by £1.6 million funding by Unum Group, is leading to a better understanding of what makes people incapacitated and how to prevent and better support disabling incapacity – helping people to return to work after illness. This brings benefits to employers, insurers and to society as a whole.
- *Legal & General*. Legal and General has teamed up with the university to establish a specialist foundation course for its medical underwriters. The success of this award-winning, highly business-focused course led to the creation of the pioneering Medical Underwriting Academy. The academy provides in-depth medical training for the insurer’s claims handlers and underwriters through a mix of on-campus and on-line learning, visits to clinics and hospitals, discussion groups and lectures.

For further information:

International Business Wales – Financial services team tony.godfrey@wales.gsi.gov.uk
rowena.o'sullivan@wales.gsi.gov.uk

8. Logistics – warehousing and distribution



Logistics currently contributes approximately £2.5 billion per annum to the Welsh economy. It is estimated that people employed in logistics activities account for up to 7% of employment in Wales (around 61,000 people are employed in logistics companies, with a further 30,000 in logistics roles for other organisations) and there are some 7,400 logistics workplaces in 2,400 logistics companies. Companies currently operating distribution centres in Wales include Amazon, Tesco and Wilkinson.

Key employers

The largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Amazon.com	Fulfilment Centre	USA	South Wales: Swansea	1,200
Wilkinson	Warehousing & Distribution	UK	South East Wales: Newport	1,000
Tesco	Warehousing & Distribution	UK	South East Wales: Newport	1,000
The Book People	Warehousing & Distribution	UK	North West Wales: Bangor	250
Hasbro UK	Warehousing & Distribution	USA	South East Wales: Newport	170

Recent inward investors

- *Amazon.com*: Recognising the benefits of locating in Wales in terms of ease of access to market and cost efficiency, Amazon chose a site near Swansea to establish its newest UK fulfilment centre. The facility covers 800,000 sq ft and services its UK and European customers. Over five years, Amazon's fulfilment centre will employ approximately 1,200 people.

For further information:

International Business Wales

anna.meyer@wales.gsi.gov.uk

9. Sustainable technologies



It is estimated that there are about 1,000 primary Environmental Goods & Services companies in Wales and a further 320 secondary EGS firms giving a total of 1,320 companies that are active in the EGS sector in Wales. The sector has about 22,000 employees which accounts for approximately 1.5% of workplace employment in Wales.

Key employers

The five largest private sector employers in Wales are as follows:

Company	Activity	Ownership	Location	Employ
Sharp Solar	Solar cell assembly and education centre	Japan	North Wales: Wrexham	520
SIMS	WEEE disassembly of white goods	Australia	South East Wales: Newport	250
npower renewables	Renewable energy production via on and off shore wind power, hydro-electric generation, marine energy generation.	Germany	Wales-wide: Swansea, Dolgarrog and Llanidloes	N/A
ARUP	Full project support and engineering consultancy services	UK	South Wales: Cardiff	200
G24 Innovations	R&D, manufacture of dye sensitised solar cell	USA	South Wales: Cardiff	Currently 55 rising to 300

Recent inward investors

- *Closed Loop Recycling*, Australia. The company is in the process of proceeding with construction of a 50,000 tonne plastic recycling facility in North Wales. The project will employ around 50 people at the £12 million facility. CLR's facility will double the UK's capacity in this area and the company has worked closely with Marks & Spencer and other high street retailers to ensure that the quality of their recycled materials are able to re-enter the food chain. CLR has negotiated a supply agreement with Veolia Environmental to supply both of their recycling facilities in the UK.
www.guardian.co.uk/environment/2008/sep/15/waste.recycling
- *Dyesol* (Australia) & *Corus Colors* (India). Dyesol and Corus are currently undertaking a joint research and development project to integrate dye solar cell sensitised (DSC) technology onto steel building products. Dyesol has established a base within the Technium OptIC at St Asaph, North Wales. Both companies will spend in excess of £5 million on the project which will employ 16 people.
- *G24 Innovations*, USA. G24i is a newly formed company which manufactures dye sensitised solar cells in Cardiff, South Wales (whose major shareholders are Renewable Capital LP of the US). G24i's solar cell technology is based upon material that converts light into electrical energy even under low-light, indoor conditions. The company's technology has a wide range of potential applications including consumer products such as mobile phone chargers and laptops, smart textiles, emergency and security applications.

Academic collaboration

- *Bangor University, Dyesol & Corus Colors*. Sustainable energy is a rapidly developing theme in the group. Current projects in Bangor University are looking at studying bio-gas production and in situ monitoring techniques with IGER (Institute of Grasslands & Environmental Research). The department is also studying the development of low cost, high area photovoltaic materials for integration into buildings. This work is based on dye sensitised solar cell (DSSC) technology where a photoactive semi-conductor (such as titania) is sensitised with a dye molecule (e.g. a ruthenium complex) and the solar energy is captured and converted into electrical energy in a similar manner to photosynthesis.

The group is studying the materials chemistry aspects of these cells (dye-oxide and oxide-oxide interactions). This work is in collaboration with Corus Colors and Universities at Bangor, Swansea, Bath and Imperial College.

Dr Peter Holliman has also collaborated on a number of relevant research projects including:

- “Development of PV materials for organic coated steel” with Corus.
- “Study of pigment degradation and stabilisation” with Corus Colors.
- “Development and testing of novel pigments for organic coated steel” with UWS and Corus Colors.

- “*Smart*” Coatings. *Bangor University* is investigating “smart” films on metal surfaces (steel and aluminium). Current applications include corrosion control, novel colour effects and low cost photovoltaics.

For further information:

International Business Wales

helen.donovan@wales.gsi.gov.uk

emma.harney@wales.gsi.gov.uk

Deloitte refers to one or more of Deloitte Touche Tohmatsu ('DTT'), a Swiss Verein, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.co.uk/about for a detailed description of the legal structure of DTT and its member firms.

Deloitte LLP is the United Kingdom member firm of DTT.

This publication has been written in general terms and therefore cannot be relied on to cover specific situations; application of the principles set out will depend upon the particular circumstances involved and we recommend that you obtain professional advice before acting or refraining from acting on any of the contents of this publication. Deloitte LLP would be pleased to advise readers on how to apply the principles set out in this publication to their specific circumstances. Deloitte LLP accepts no duty of care or liability for any loss occasioned to any person acting or refraining from action as a result of any material in this publication.

© 2009 Deloitte LLP. All rights reserved.

Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 2 New Street Square, London EC4A 3BZ, United Kingdom. Tel: +44 (0) 20 7936 3000 Fax: +44 (0) 20 7583 1198.

Designed and produced by The Creative Studio at Deloitte, London. 31244