

GIBSON INDEX NEWSLETTER

NOVEMBER-DECEMBER 2012 – Issue No. 86

Your Monthly e-Newsletter on British Enterprise and Innovation

Welcome to the UK's most comprehensive and best-read Newsletter on Small Technology Companies, Academic Enterprise and Latest Innovation

Our Top 10 Predictions for 2013 and beyond...

1) Continuing fall in house prices.

While the BBC in late December wrongly emphasized the 'rise' in prices in London satellite towns such as Southend and Basingstoke, the vast majority of towns in the UK experienced a fall overall – 10% on average. Durham was the only town in the north to see a rise. We forecast that the fall will continue, and accelerate, certainly for housing outside of the South East, especially if the Bank of England under its new, and sensible, Canadian chief **Mark Carney** from March onwards, tightens the fiscal screw.

2) Interest rates will rise in 2013.

After years of economic stagnation, a likely rise in interest rates – and diminishing benefits – will force several hundreds of thousands of home-owners to put their houses and flats on the market. This will be a repeat of 1990-91, if much milder, following the boom of the late 1980s, when rates leapt north of 13%.

3) SMEs will increasingly dominate the UK economy.

With only 94 manufacturing companies left in the UK employing more than 1,000 staff, the proportion of the economy held by smaller companies will increase. The trend to 'De-Blair' the UK economy will continue.

4) Arise, new University Technology Centre network.

The UK's new centres, in towns such as Milton Keynes, Greenwich, Hastings and Peterborough will provide a vital route into technical education for many thousands of young people bored to death with current courses. Germany largely adopted the UK's tradition of technical education after 1945, and its benefits have been enormous. The UK's restoration of technical education at the core of British education is the greatest single factor in any future renaissance in British engineering and manufacturing.

5) SNP credibility falls away.

The Scottish National Party's grip on reality will fade rapidly in 2013 as their policies of separation, over-spending, renewable energy and inability to remain within the EU ends its hopes of national independence from the UK.

6) Fracking will come to dominate.

Fracking in Lancashire was allowed to re-start in late 2012, and shale seams will probably be found in many of the UK's historic former coalfields. However, production will be slower than in the US. It is likely that cheaper gas will be imported from the US, and then from Poland, where Europe's biggest shale gas reserves are located, steeply undercutting supplies from Qatar.

7) Autumn Statement of December 8th ends 'green' energy strategy.

Chancellor George Osborne brushed aside the energy ambitions of the LibDems in his autumn statement – to the fury of the green lobby, and the BBC, when they realized the true importance of this decision. Osborne agreed funding for 30+ new gas powered stations ended plans for more large-scale offshore wind projects, much lamented by the BBC's 'environment analysts'. In fact, the last few weeks of 2012 saw more historic decisions and developments than in the whole of the earlier part of the year.

8) 3D Printing will finally take off.

In 2013 British firms will no longer look to China or eastern Europe for cheap manufacturing providers – but will initially seek out the growing number of firms able to provide products via 3D printing facilities. 3D printing, we predict, will have far greater impact than the invention of graphene, and its consequences.

3D printing was invented and first commercialized by the remarkable Dr Adrian Bowyer, a lecturer at Bath University, and his wife and production guru, Sally.

9) **Continuing growth will spur on our 2012 'Companies of the Month' in 2013.** From Camcon Oil in January, to Ecebs Ltd in April, Pumping and Technical Services Ltd in June, to Stormsaver Ltd in October, our select companies will continue to spearhead new products and services – often with very little help from the Government – with an innovative, mostly self-funded drive unknown in most countries of the world.

10) **'The richest... will stay the richest...'**

Foreign buyers of London housing still escape stamp duty by claiming ownership through an overseas company. They also escape capital gains tax on sales. A £140m mansion in Oxfordshire pays just £2,900 in top rate council tax. About 40% of housing in central London will continue to be bought by foreign buyers. London property values remain the No.1 asset of politicians of all parties (except UKIP) – and Chancellor Osborne does nothing to redress the imbalance.

www.gibson-index.com

The Newsletter is compiled and edited by **Marcus Gibson**, former *Financial Times* technology correspondent, who has been covering enterprise and innovation for more than 20 years. The Newsletter aims to highlight developments in at least 100+ companies each month. It is derived from the wide-ranging news-gathering operation that produces the [Gibson Index SME database](#), which now contains profiles on more than 48,000 UK-based technology SMEs.

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COMPANY OF THE MONTH	5
Faberdashery Ltd supplies the 3D printing community with best materials	5
SME NEWS – ENGINEERING, ELECTRONICS, TELECOMS	5
FFEI's digital imaging technology wins IMecheE Award for Best SME	5
IQE plc establishes lead position in semiconductor wafer products	6
Red Box International Ltd reaches second decade of many ground power systems	6
M-Squared Lasers to exploit technology devised by Dundee University optical group	7
Edinburgh's Holixica Ltd attends Invest in Photonics fair in France	7
Belfast's Marlborough Engineering powers ahead with £3.6m investment plan	8
SME NEWS – ENERGY, CHEMICALS & MATERIALS	9
Logan Energy's fuel cells power a new London skyscraper	9
Nova Innovation to fabricate tidal turbine for a 'community-owned' scheme	9
CFM produces protective ballistic panels in its own factory, using UK materials	10
Combined Composite Technologies open new facility in Hampshire	10
SME NEWS – IT, SOFTWARE, SERVICES & INTERNET	11
Data and routing expert PIE awarded contracts by Kent Council	11
Law firm facilities provider HighQ Solutions Ltd doubling client year each year	11
Scottish software firm Gael 'set to maintain its rapid growth into 2013'	12
Bath-based landscape architecture consultancy creates 'glory' in Singapore	12
SME NEWS – BIOTECH, PHARMA & MEDICAL SCIENCES	13
Bicycle Therapeutics raises £3.75 million in new VC investments	13
Epistem will use new share placing to support launch of Genedrive device	13
Adaptimmune's cancer therapy boosts patients' own immune cells	14
YFM Equity Partners sells investment in anatomy software pioneer Primal Pictures	14
ImmunoBiology wins £3m funding boost for 'universal' meningitis vaccine	15
FUNDING & INVESTMENTS	16
BIS launches 2012 Annual Innovation Report in late November	16
Cimcyp Simulater wins 2012 KTP Business Impact – by the University of Sheffield	16
Big windfall for founders of electronic cigarette firm sold to giant BAT	17
UNIVERSITY NEWS	17
Strathclyde named 'University of the Year' at Times Higher Education Awards	17
New Technology Centre puts Nottingham at forefront of aerospace research	18
University of Leeds develops 'carbon-negative' bricks from waste materials	19
'Bullet fingerprint' visualisation technique pioneered at University of Leicester	19
Warwick researchers 'compress and stream HDR video to mobile devices'	20
Warwick and Aston Business Schools to host a £2.9m 'enterprise research hub'	20
'Open Data Institute' begins operations in East London's Tech City	21
Joint research by East Malling Research and the University of Greenwich	21
Oxford technology allows mobiles 'to both charge and transmit data without cables'	22

COMPANY OF THE MONTH

Faberdashery Ltd supplies the 3D printing community with best materials

As the power of 3D printing as a world-changing technology becomes better understood, this small but energetic company is attempting to place itself at the centre of this new industry by become its 'nuts and bolts' supplier. Faberdashery provides the reels of filament wire – in all colours – that are used to create finished objects – layer by layer.

3D printers build a solid object by depositing material (filament), layer by layer, until a whole object is formed. As the printer head passes across the 'print bed' it lays down thin layers of the material. The printer head moves backwards and forwards over the print bed, extruding layer upon layer of print material, building it up, until a three dimensional object is created.

3D print machines such as the 'Huxley' from **RepRap Ltd** allow users to buy a printer for less than £500. In offices, labs, workshops and homes, objects can be designed, made, re-made, mass produced 'at the press of a button'. Products can be changed and tweaked to meet the needs of clients – a vacuum attachment, washing machine part, model train set, chess piece, egg cup or coffee cup, you don't need to wait for **Hoover**, **Dyson** or **British Gas** – just print it yourself.

There are a number of different techniques used to print 3D objects. The technique Faberdashery caters for is known as fused filament fabrication (FFF). This is the technology utilized by desktop 3D printers such as RepRap's Mendel or Huxley, **Makerbot's** Replicator and **Ultimaker's** Ultimaker. FFF works by heating plastic filament to a point at which it can be squeezed out of an extruder in the printer head. Faberdashery's extrudable wires are all manufactured in the UK.

Those new to the art can observe the amazing products now being made by amateurs and professional designers and engineers at one particular open-source sharing space for 3D models and content – **Thingiverse**.

Contact: www.thingiverse.com – www.faberdashery.co.uk

SME NEWS – ENGINEERING, ELECTRONICS, TELECOMS

FFEI's digital imaging technology wins IMecheE Award for Best SME

The award recognizes the innovative business ideas and best practice employed within FFEI, along with the company's continued growth since an oil disaster affected its HQ in Hemel Hempstead in 2006. FFEI is the current incarnation of print icon **Crosfield Electronics**, which began in the back bedroom of founder **John Crosfield** in 1947.

FFEI's entire plant was destroyed as a result of the **Buncefield** oil depot disaster, but within a matter of days the company was able to fulfil existing and new orders.

Since this emergence from the disaster, FFEI has continued to grow and the judges were hugely impressed by novel schemes the company runs, such as the offer of extended warranties in exchange for feedback. These are in addition to the company's excellent factory layout and the continued improvement in financial performance.

Contact: www.ffei.co.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

IQE plc establishes lead position in semiconductor wafer products

The Welsh-based firm produces epitaxial wafers combining the optical properties of compound semiconductors with the electronic properties of silicon to produce high power lasers that enable increased storage density for next generation hard disk drives.

In the last 20 years, typical storage capacities for consumer disk drives have increased by 100,000 times from around 20MB to 2TB. The increased capacity has been achieved through cutting edge research and technological innovation. In order to maintain such staggering increases in capacity whilst maintaining the same footprint, the next generation of disk drives need to be capable of storing more than 1Tb of data psi.

Andrew Joel, Commercial Director for IQE's optoelectronics division, said "IQE supplies of MOCVD grown epitaxial layers for photonic applications. Programmes such as this demonstrate how we successfully combine our high volume manufacturing capabilities with leading edge research to support our partners through all stages from development through to production."

In late 2012 IQE won Company of the Year at the **Western Mail Business Awards** staged at Cardiff City Hall, given to IQE CEO and President **Dr Drew Nelson**.

Work published in the August 2012 edition of *Nature Photonics* describes the milestone achievement by **Tyndall National Institute** (University College Cork), **Semprius Inc.** and **Seagate Technology** in successfully combining a high power compound semiconductor laser structure with a silicon substrate using Semprius' proprietary micro-transfer print technology to print epitaxial layers produced by IQE at its Cardiff manufacturing facility. The demonstrated level of optoelectronic integration will allow HAMR to meet growing demand in the high performance, high capacity, and low cost storage markets.

Contact: www.iqep.com

Red Box International Ltd reaches second decade of many ground power systems

The Romsey, Hampshire-based company now operates from a modern, purpose built factory the company boasts a comprehensive range of ground power units in addition to a wide selection of ground support equipment including aircraft tugs, aviation tools and tool control systems.

Today it has become a world-leading manufacturer of lightweight portable DC GPUs, 28V DC TRUs and 400Hz frequency converters, said **Adrian Jackson**, its MD. These are used for static purposes at an air show, enabling a variety of aerospace functions to be achieved, including avionics updates, maintenance work, systems checks, crew training and aircraft start-up.

The RB range of battery start units offer a lightweight portable solution for starting small to medium sized fixed and rotary wing aircraft. From a unit the size of a brief case through to the more substantial but highly powerful RB85 and twin RB85 where maximum short circuit amps of 5200 can be achieved. This dependable range of products is in use with civilian, military and offshore installations all over the world.

Finally, Red Box also supplies visual inspection tools, including the **Snake Cam**. Used by police, fire and rescue, military, councils, bridge inspectors and surveyors, Snake Cam has proven to be a valuable tool.

Using a handheld 12cm colour screen, a mini-LED camera, and various attachments between the camera and the monitor including extendable poles, Snake Cam is a versatile visual inspection tool, and it has an inbuilt audio and image capture system.

Contact: www.redboxpower.com

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

M-Squared Lasers to exploit technology devised by Dundee University optical group

A new EU collaborative research project has been launched aiming to exploit a novel laser technology conceived from research in the Photonics and Nanoscience group at the **University of Dundee**.

Dr Graeme Malcolm, CEO of M-Squared Lasers Ltd, said the £1.2m **HiCore** (High Brightness Conical Refraction Lasers) research project will potentially lead to a whole new stream of world class laser products for use in a broad spectrum of applications wherever high brightness efficient lasers are used including industrial laser welding.

Conical refraction lasers offer a novel way to achieve high laser efficiency, mitigate thermal management issues and improve beam quality while reducing cost, complexity and size – all of which are key drivers of competitive advantage in almost every laser market sector.

M-Squared Lasers Ltd was recently named as Scotland's fastest-growing technology business in a UK-wide survey. It is leading a team of seven European partners which hopes to resolve the key problems associated with the power and brightness of bulk solid-state lasers using Conical Refraction (CR).

The SME partners are: M-Squared Lasers (UK), **Conerefringent Optics** (Spain), **Opteco & Partners** (Bulgaria), and **Time-Bandwidth Products** (Switzerland).

The research performers in the project are headed by the University of Dundee (UK) and include **the Institute of Mineralogy and Crystallography** (Bulgaria), and the **University of Stuttgart** (Germany) a leader in high power lasers for industrial processes.

Dr Malcolm said "The HiCORE project is envisaged to develop leading new high power laser technology which will enable M-Squared to offer products with performance beyond anything available in today's market."

Professor Edik Rafailov, the leader of the Photonics and Nanoscience Group at the University of Dundee, said, "Ongoing close relationships with highly innovative companies such as M-Squared enable the university to translate the research results obtained in the lab into real world products."

Contact: www.hicore.eu.com

Edinburgh's Holixica Ltd attends Invest in Photonics fair in France

It was one of 18 innovative companies from around Europe selected to exhibit at the Invest in Photonics, a two-day business partnering convention in Bordeaux, France in late 2012.

The companies selected for the special funding session are: **Ovizio Imaging Systems** (BE), **Actlight** (CH), **Medimaps** (CH), **Mach8 Lasers** (NL), **Smart Photonics** (NL) and Holixica in the UK.

Holixica's 3D holographic technology was used to develop a new kind of 3D holographic display that does not use glasses or optical tricks, where the 3D images appear in mid-air before the viewer's eyes.

Through CT scans and painstaking animation, Holixica have created a life-sized hologram the **Rhind Mummy**, which was excavated from a tomb in Thebes (Luxor) almost 155 years ago, now sited in the **National Museum of Scotland**.

The hologram revealed new details without opening the wrapping, as part of a project undertaken with the University of Edinburgh's Clinical Research Imaging Centre.

Javid Khan, MD of Holixica, said "We began by painstakingly piecing together an animated hologram of the Mummy's head and upper shoulders, which reveals different layers of visual information as the viewer

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

of the hologram moves from left to right.

“The ‘outer wrapping’ is encrusted with jewels and gold amulets which are visible from angles and, most intriguingly, a metal scarab-shaped cap was placed on top of the skull during mummification, can also be seen in great detail.

“This mummy will never be opened and will always remain intact, so the only way to look inside is to use state of the art scanning and visualisation techniques. The colour animated hologram is the best way to depict this artefact, which is life-sized and shows a level of depth, detail and realism that is difficult to demonstrate in any other way.”

The hologram will be put on display thereafter at the **MIT Holography Exhibition**, until September 2013.

Contact: www.holoxica.com

Belfast’s Marlborough Engineering powers ahead with £3.6m investment plan

Based in Belfast’s **Titanic Quarter**, the company supplies high specification precision machined components and large scale fabrications to customers in a range of industrial sectors including aerospace, high end vision, power generation and construction.

In 2012 Marlborough Engineering secured over £1.6 million in export sales from companies based in Washington State, USA including a £400k order from **Pacifica Engineering**.

Mark O’Kane, MD of Marlborough Engineering, said it would be investing over £3.6million and create 33 new jobs. Having provided services to Bombardier, the company has recognised a clear market opportunity in the growing international aerospace sector and is embarking on a programme of proactive marketing to secure more contracts.

Marlborough has already secured new export business and is on track to exceed its sales targets for this financial year. The company currently employs 67. In recent years it has invested significant resources in developing relationships with aerospace suppliers in the US and Middle East and this is beginning to pay off in terms of opportunities and sales.

Mark O’Kane said: “The company is progressing through an aggressive five-year expansion plan and is on track to more than double its turnover and quadruple export sales. By delivering exceptional levels of quality and service to our customers we have built up our reputation, both locally and internationally.”

Contact: www.marlborough-eng.com

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Logan Energy's fuel cells power a new London skyscraper

In December 2012 Logan Energy, the Edinburgh-based hydrogen fuel cell specialist, signed a £1.36 million contract to supply one of its fuel cells to a London skyscraper.

The 'Walkie Talkie', the structure being built by the **Canary Wharf Group** and **Land Securities**, will be powered by a 300kW fuel cell. The 38-storey office block at 20 Fenchurch Street, which is expected to open in 2014. The fuel cell will provide electricity and power the heating system.

The Direct FuelCell (DFC), to be installed in 2013, will provide electricity, high temperature heat to an absorption chiller to provide cooling, and low temperature heat for space and domestic water heating in a combined cooling, heat and power (CCHP) configuration. The DFC300-EU cell will be supplied by German-based **Fuel Cell Energy Solutions**.

Bill Ireland, MD of Logan Energy, said "This project is another example of how well integrated, fuel cell powered, distributed energy solutions can provide superior carbon and operational savings over other technologies."

Logan Energy was launched in 2005 and offers a full turnkey service including feasibility studies, system design, integration, installation and maintenance. To date, Logan Energy has installed over 170 fuel cell systems worldwide, including one in **Transport for London's** Palestra Building, which has been operating successfully since its commissioning in February 2009. They have installed over 18MWe of fuel cell installations of varying technologies, a major proportion of the worldwide base of 'independently installed' fuel cells.

Contact: www.logan-energy.com

Nova Innovation to fabricate tidal turbine for a 'community-owned' scheme

The company plans to launch the device later this year, with full commissioning set for early 2013, making it 'the world's first community-owned' tidal scheme (a daft Scottish term – just meaning it will be state-owned and won't make any money).

The Nova-30 (30kW) device will be deployed in the Bluemull Sound in Shetland, with the Crown Estate sea-bed lease and planning permission already secured. The 30kW demonstrator device will be grid connected, power a local ice-plant and industrial estate, as well as 'providing income' for the community of North Yell.

Steel Engineering Ltd will manufacture a turbine being developed by Nova Innovation – based in Leith. **Peter Breslin**, MD of Steel Engineering said: "This contract will help to put Steel Engineering on the map as a major renewable manufacturer and will also help to safeguard and create Scottish jobs at our facility in Renfrew."

This initial project is owned by the North Yell 'community' in Shetland, working with Community Energy Scotland and supported by Shetland Islands Council.

Scottish Enterprise says the project builds on two years of hard work and cooperation between the parties, with future plans for a tidal array at the same site to follow shortly after in 2013/14, 'propelling Nova Innovation to the forefront of international marine energy development'.

Contact: www.novainnovation.co.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

CFM produces protective ballistic panels in its own factory, using UK materials

Panels manufactured by **Composite Fiberglass Mouldings Ltd** (CFM) are capable of defeating a 9mm hand gun, .357 magnum, .44 magnum, shotgun, 5.56 rifle and 7.62 rifle NATO ball round and are tested ballistically against BS 5051 (1988).

Certified by testing agencies, its ballistic panels have been used in the walls of banks, building societies, security vehicles, on **MoD** ships and free-standing ATM machines and many other high risk areas.

The company has been expanding its profitable line of antimicrobial tiles – destined for hospitals and clinics. Its '**NoTile**' panels are an alternative to ceramic tiles, as they have the grout line incorporated as an integral part of the panel. However, unlike ceramic tiles, they are quick and easy to fit, with no grout and no mould growth. With the addition of silver technology incorporated into the gel coating of the panels, they are the most hygienic choice for tiling projects.

NoTile panels use silver technology to provide antimicrobial protection, creating cleaner, safer and more hygienic products. This antimicrobial agent is effective against a broad spectrum of micro-organisms, including MRSA, E.coli, Legionella, Salmonella, Campylobacter, Listeria, Aspergillus Niger (black mould) and Ringworm. The silver inhibits the growth of bacteria on surfaces by up to 99.9% over a 24-hour period – and retains its antimicrobial properties for the lifetime of a NoTile panel.

CFM is now partnering with **Addmaster**, its supplier of the antimicrobial additive. With its purchasing power increased, they have direct access to their Biomaster Technology. Addmaster were the recent winners of the Queen's Award to industry for their Biomaster product – www.addmaster.co.uk.

Contact: Emma Baines, Product Manager – emma@compositesfm.co.uk – www.compositesfm.co.uk

Combined Composite Technologies open new facility in Hampshire

Momentive Specialty Chemicals' subsidiary Combined Composite Technologies Ltd (CCT) unveiled a new composite design and manufacturing facility, 44,000 sq. ft. in size, at Segensworth, Hampshire. CCT becomes a fully integrated 'design and build' composite tooling supplier, offering design, stress analysis, master model production, tooling design and production, material selection and final component production capabilities in one location.

Headquartered in Columbus, Ohio, Momentive is organized into two operating companies, Momentive Specialty Chemicals Inc. and Momentive Performance Materials Inc. **Paul Collier**, general manager of CCT said "For over 50 years, CCT has been providing high-quality composite tooling, structures, fixtures and components to aerospace, automotive and defence industry customers."

The investment into CCT from the parent company will help it 'deliver breakthroughs in processing and final composite performance'. The Segensworth facility will join with Momentive's existing research hub in **Duisburg, Germany**, in order to create custom, lightweight structural composite solutions for clients in the automotive, aerospace and mass transportation markets, especially advances in its Epikote resin and curing agent systems.

CCT will also provide composite design and Finite Element Analysis (FEA) testing through a collaboration with Fareham, Hants-based **Matchtech Engineering Services**. The design area is capable of expanding to 10 design seats.

In addition to the enhanced design capabilities, the new facility is equipped with new tooling and processing equipment including:

Contact: www.momentive.com

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

SME NEWS – IT, SOFTWARE, SERVICES & INTERNET

Data and routing expert PIE awarded contracts by Kent Council

Specialist mapping, data and routing expert PIE has been awarded contracts by Kent Council to deliver a new online navigation portal for freight operators.

Recently debuted at Wiltshire Council, 'Freight Gateway' provides access to freight-specific map-based road information and is designed to help Local Authorities meet the demanding goals of their Local Transport Plans (LTPs).

Freddie Talberg, CEO, PIE Mapping said "Coupled with our work with Wiltshire Council, this new agreement with Kent represents real progress in public/private sector partnership." Freight Gateway will be integrated into the council's website and uses an interface similar to that of Google maps, adding freight-specific details such as weight restrictions, industrial estates and restricted routes.

Stopping rat runs, improving route efficiency, cutting congestion and improving road safety are just some of the problems councils are required to action as part of their Local Transport Plans (LTPs). By ensuring hauliers have access to relevant information when planning journeys, authorities are able to tackle these issues at source, making Freight Gateway an invaluable tool for meeting LTP objectives.

PIE specialises in routing, mapping and data processing for commercial vehicle fleets, local authorities and private business. PIE also developed www.londonlorrycontrol.com, which helps hauliers comply with the London Lorry Control Scheme's Excluded Road Network.

Since 2004, PIE has been collating and processing road network data specific to commercial vehicle movements in London and across the UK. It collects data from more than 470 local authority organisations.

PIE collaborated with Transport for London (TfL) to create Freight Journey Planner (<http://freightplanner.tfl.gov.uk>), a freight-mapping site used by commercial vehicle operators to route 'compliantly' around the capital. In 2012, PIE worked with 2012 games organizer LOCOG to develop the 'Games journey family planner' to help manage the navigation of athletes' family members during the Olympics.

Contact: www.publicinformationexchange.co.uk

Law firm facilities provider HighQ Solutions Ltd doubling client year each year

London-based HighQ is a provider of secure data room, extranet, collaboration, know-how and publishing solutions. HighQ provide client extranet, collaboration and publishing solutions to some of the world's leading law firms, financial institutions, life sciences organisations and corporations including 17 of the top 20 UK law firms.

It recently signing an agreement with elite firm **De Brauw Blackstone Westbroek** in the Netherlands, HighQ have opened an office in Amsterdam to service their clients on the continental mainland.

To build on its success in the UK, US and Australia, HighQ have appointed **Dries Ausems** and **Sebastian Bos** to manage growth and business development in continental Europe. The team bring with them a wealth of experience and a true understanding of the challenges faced by many firms in Europe.

HighQ provide innovative collaboration and publishing products to some of the world's leading law firms, investment banks, life sciences organisations and corporations. It combines secure, enterprise-grade document management with the best enterprise social tools. Now you can securely exchange critical business information and collaborate with colleagues, customers and partners in one unified space.

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Stuart Barr, director, leads product strategy at HighQ Solutions and has over 12 years experience in web and e-business development, strategy and management. Stuart joined HighQ from leading social computing consultancy **Headshift**, where he was Head of Operations.

Veenay Shah, HighQ co-founder said, "The opening of the Amsterdam office marks the start of our plans to deliver our enterprise collaboration, publishing and data room solutions throughout the region."

Contact: www.highqsolutions.com

Scottish software firm Gael 'set to maintain its rapid growth into 2013'

Gael chief executive **Ashley Marron**, and founder **Donald Maciver** expects to grow its sales by around 20% next year based on the company's success in markets such as aviation and healthcare.

Based in East Kilbride, Gael develops software which can be used in areas like risk management and for monitoring compliance with regulations. Mr Marron said the company expects growth to be powered by continued success in overseas markets like the Middle East.

The company has been enjoying a boom in demand in the Middle East since opening an office in **Dubai** in March. "We have some significant deals under discussion," said Mr Marron. "We are working with significant firms in food packaging, we are working in government services, with regulators." The company also supplies systems to hospitals in Kuwait and Oman.

Mr Marron flew out to **Saudi Arabia** before Christmas for discussions with the Saudi military about a potential contract. Gael is on course to increase sales by around 20% annually to a record £8 million in the year to December 31 after enjoying a string of contract wins. The company has carved out a lucrative niche for its systems, which have capitalised on increased investment in areas such as risk management and regulatory compliance around the world.

Contact: www.gaelquality.com

Bath-based landscape architecture consultancy creates 'glory' in Singapore

Grant Associates is a Bath-based landscape architecture consultancy specialising in the creative design of both urban and rural landscapes – do view the photos of the site via the links below.. In November 2012 it co-designed the extraordinary £500m '**Cooled Conservatories at Gardens by the Bay**' in Singapore, which won the overall World Building of the Year Award at the **World Architecture Festival Awards 2012**. Its ambitious design has led to the creation of the one of the most attractive and original complexes in Asia.

The project was designed by **Wilkinson Eyre, Grant Associates, Atelier One** and **Atelier Ten**. Alongside lead designers Grant Associates, the British design team for Bay South includes Wilkinson Eyre (architects); Atelier Ten (environmental design consultants); Atelier One (structural engineers); Land Design Studio (museum and visitor centre designers) and Thomas Matthews (communication designers).

Highlights of Gardens by the Bay are many and include: Cooled Conservatories: two giant biomes designed by Wilkinson Eyre Architects – the Flower Dome (1.2 hectare) and the Cloud Forest Dome (0.8 hectare) – display plants and flowers from the Mediterranean-type climatic regions and Tropical Montane (Cloud Forest) environments and provide an all-weather 'edutainment' space within the Gardens.

Contact: <http://grant-associates.pressdoc.com/32498-british-design-team-behind-gardens-by-the-bay>. www.grant-associates.uk.com

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

SME NEWS – BIOTECH, PHARMA & MEDICAL SCIENCES

Bicycle Therapeutics raises £3.75 million in new VC investments

The drug discovery firm was set up by the man behind Cambridge's largest ever biotech sale, **CAT**, and Bicycle is to start work on its first drug candidates after it raised £3.7m – its first funding round in over two and a half years.

Based at **Babraham Research Campus**, Bicycle Therapeutics was founded in 2009 by **Sir Gregory Winter** and **Dr Christian Heinis**, who were then both at the prolific MRC Laboratory of Molecular Biology in Cambridge. The company says its technology will enable the discovery of a new class of drug candidate with antibody-like selectivity and specificity, but which can be manufactured with economics similar to new chemical entities.

Only now though will it start applying the technology to drug candidates for commercial exploitation, marking what CEO **Rolf Günther** says is its transition from technology development to drug discovery. "We are now expanding our discovery efforts to address multiple drug target classes," said Günther.

The £3.75m is a fairly modest sum for a company established by Sir Greg whose two previous companies feature in Cambridge's all-time largest sales: **CAT** which sold for £702m to AstraZeneca and **Domantis**, which went to **GSK** for £230m.

Since its earliest seed funding days Bicycle Therapeutics has been backed by VCs and the new round brings another one in: **Astellas Venture Management**, the venture capital arm of Astellas Pharma, joins existing investors **Atlas Venture**, **Novartis Venture Fund**, **SR One** and **SV Life Sciences**.

Bicycle will now invest in a selection of drug candidates using its bicyclic peptide technology platform, which is being applied to projects in oncology, metabolic and inflammatory diseases. The platform will also be made accessible for collaborative discovery with pharma partners.

Contact: www.bicycletherapeutics.com

Epistem will use new share placing to support launch of Genedrive device

The firm announced it issued 793,398 ordinary shares with new and existing investors at £5.45 a share, a 4% discount to the closing price of £5.67, back in early December.

The Manchester company was spun out of **The Christie Hospital's Paterson Institute** and floated on the AIM market in 2007. It has created a hand-held device called **Genedrive**, which used molecular diagnosis to test for a range of conditions within half an hour.

The first use of the product is for tuberculosis testing and the firm has signed distribution agreement with medical technology group **Becton Dickinson** to sell it to health organisations around the world. In a separate deal Genedrive will be sold in India through **Xcelris Laboratories**. It is expected those deals will generate more than £20m of revenues for Epistem over the next three years.

Chief executive **Matthew Walls** said: "We are about to enter a new phase of growth for Epistem with the launch of Genedrive our first healthcare/diagnostic product. We believe Genedrive can change the way diagnostics is delivered in 'near patient' settings by providing the 'gold standard' of DNA-based test results at significantly reduced cost in a simple to use device form."

Contact: www.epistem.co.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Adaptimmune's cancer therapy boosts patients' own immune cells

In late 2012 Adaptimmune received encouraging preliminary findings from their clinical trial with patients suffering multiple myeloma – bone marrow cancer – that will enable the company to expand the clinical trial to include more patients.

Established in July 2008 with a research base in **Oxford**, UK and clinical base in **Philadelphia**, US, Adaptimmune was set up to develop unique T cell receptor engineering technology for adoptive T cell therapy exclusively licensed from **Immunocore Ltd** (formerly **Avidex/MediGene**).

As a result of these findings, immune cells are able to target and attack cancer tumours while sparing healthy tissue. The critical step is that the healthy cells are spared.

The survival rate for patients with multiple myeloma using the standard treatments is low – on average, only three to five years. Adaptimmune has other trials for melanoma and sarcoma that are recruiting patients in process. Further clinical trials in ovarian and hepatic cancer are 'scheduled to open' in 2013.

The early phase study using patients' own T cells that have been genetically altered have attacked multiple myeloma (MM) cells. The initial six patient phase is complete and patients reached a minimum of six month follow-up for assessment of tumour response to the treatment. Based on the encouraging preliminary results, which will be reported at the conference, the study has been extended to a target enrolment of 26 patients. To date, infusion of modified T cells have been well tolerated.

Multiple myeloma is a hematologic cancer localized to the bone marrow. With standard therapy, long-term response rates are low, and the median survival for patients with this disease is three-to-five years.

The clinical trial focuses on this unmet medical need and includes patients who have received prior treatment for their myeloma or who have disease considered to be high risk, and who are eligible for an autologous stem cell transplant (auto-SCT). Auto-SCT is the transplant of a patient's own stem cells, which is a standard of care for treatment of multiple myeloma.

Dominic Smethurst, medical director at Adaptimmune, said "We are pleased with the emerging clinical data in our myeloma programme. We are working with a world class team of investigators, who are very engaged with ensuring the clinical advancement of this technology."

Contact: www.adaptimmune.com

YFM Equity Partners sells investment in anatomy software pioneer Primal Pictures

Primal Pictures was established in 1991 by **Laurie Wiseman** and **Chris Briscoe** with the goal of creating the only complete and medically accurate 3D model of the human anatomy – the *Gray's Anatomy* of the 21st century. Today their 3D anatomy software is widely adopted in education and is currently used for patient, practitioner and student education in over 20 countries.

In the past 12 months, Primal Pictures has won the **British Medical Association's** annual prize for the best digital resource, and the **Queen's Award for Enterprise: Innovation 2012**, the highest official award that a British business can achieve.

YFM Equity Partners invested in Primal Pictures 13 years ago from its two British Smaller Companies Venture Capital Trusts. Since it invested in the business Primal Pictures has grown to 35 staff.

Last month YFM Equity Partners has sold its investment to **Informa UK**, a subsidiary of the international publishing, information and events business Informa plc for an undisclosed sum, making a 2x return on its original investment.

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Laurie Wiseman, publishing director at Primal Pictures said “YFM’s investment and unfailing support were critical, enabling us to become a world leader in our niche. When YFM first invested, we were ahead of our time but they had the courage to share our vision for transforming healthcare education with new 3D technology.”

Ian Cameron, portfolio director at YFM Equity Partners said: “YFM Equity Partners has provided several rounds of development capital since we invested in the company in 1999 to support the expansion of the business into electronic media and e-learning. Their 3D anatomy images really bring the human anatomy to life and are used by 500,000 students in 77% of the top 200 medical universities and educational centres of excellence world-wide.”

Informa UK is part of the Informa Group, a Switzerland headquartered business which is listed on the London Stock Exchange. Informa provides academics, businesses and individuals with unparalleled knowledge, up-to-the minute information and highly specialist skills and services. It employs 8,000 people in some 150 offices in over 40 countries. Its business includes Datamonitor, Lloyds List, Euroforum and Taylor and Francis brands.

Peter Allan, CEO of Primal Pictures, said: “Informa Group have a solid international reputation for providing the highest quality information, publications and events to businesses and academics and we look forward to working with them as we expand our market further.”

Contact: www.primalpictures.com

ImmunoBiology wins £3m funding boost for ‘universal’ meningitis vaccine

YFM Equity Partners through its managed fund, British Smaller Companies VCT2 plc, has invested £0.9m as part of a £3m further round of funding into ImmunoBiology Ltd (ImmBio), a Cambridge based biotechnology company.

The company has developed a new patented platform technology to produce vaccines that can protect against infectious diseases. As part of the deal, YFM Equity Partners has introduced an experienced non-executive chairman to the business, **John Lambert**, former president of **Chiron Vaccines**, now part of **Novartis**.

Founded by **Camilo Colao**, its chief science officer, ImmBio employs 15 people at the Babraham Research Campus, Cambridge. **Graham Clarke**, the CEO was previously VP, Global Marketing Operations for **SmithKline Beecham**, while the Development Director **Chris Bailey** led pre-clinical development at **Medeva**.

ImmBio is developing a next generation of anti-infective vaccines, which address areas of high unmet medical need, when current products are inadequate and the consequence of infection are severe.

MenBioVax, the lead product, is a unique strain-independent (‘universal’) vaccine for meningitis, including the B strains. A vaccine against tuberculosis is also being progressed toward human clinical trial in China. ImmBio has an established product and process patent estate around the technology, under the proprietary name ImmBioVax. This safely mimics the normal immune response to a pathogen ex vivo, resulting in a vaccine which appropriately primes the host’s immune system, so that it is able to block any subsequent infection by the pathogen.

Contact: www.immbio.com

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

FUNDING & INVESTMENTS

BIS launches 2012 Annual Innovation Report in late November

Key findings provide a mixed picture of the UK's relative progress and performance against other leading industrial nations. In terms of traditional forms of innovation metrics, such as R&D as a proportion of GDP, the UK still trails behind most of our main competitors. On the other hand the UK stands among the top performing countries when all intangible investment is taken into account. Despite a nominal fall in nominal investment, investment as a share of value added in the UK private sector increased by 1.5 per cent.

Spending on innovation held up reasonably well in the UK as we entered recession, with stable R&D investment intensity seen through to 2010. The UK provides a favourable environment for innovation and is a highly attractive destination for foreign direct investment, with an exceptionally high share of UK business R&D funded from abroad.

The proportion of the UK labour force that is trained in science and technology has increased over time, and the UK has a high proportion of engineering and doctoral graduates in comparison to other countries.

The UK maintains a reputation for high quality research, with a 14 per cent share of the world's most highly-cited scientific papers. The UK performs well on international collaboration and international investment measures, with the highest proportion of R&D funded from abroad amongst the **OECD** countries at 16 per cent of total R&D.

The UK is No.1 in the OECD's ease of entrepreneurship index. UK innovative firms are far more likely to be active in foreign markets than their counterparts in France, Italy or Sweden. **Section 2** of the Annual Innovation Report sets out the UK's progress and examples of some of its 'most significant achievements'.

Contact: www.bis.gov.uk/policies/innovation/annual-innovation-report

Cimcyp Simulater wins 2012 KTP Business Impact – by the University of Sheffield

The winner of the 2012 KTP Business Impact – achieved award went to **University of Sheffield** for Cimcyp Simulater; a ground-breaking software project that enables scientists to predict how a drug will behave prior to clinical trials, thereby saving millions of dollars that would otherwise be spent on testing drugs that could later fail.

The winner of the Business Impact – aspiring award went to **Simpleware Ltd/University of Exeter** for Simpleware. A company that develops, markets and distributes world-leading software solutions for engineering design and simulation.

The collaborative impact award went to **University of Bath** and **Ford Motor Company** for Fuel Efficient, Low Carbon Cars; a 25-year collaboration that is now having an impact on emissions resulting from engine improvements in cars.

The special recognition award went to **Tough Furniture Ltd/University of Wolverhampton, School of Art & Design** for Tough Furniture, a project that transformed a business through its engagement in a Knowledge Transfer Partnership between a business and university.

The knowledge transfer achiever of the year award went to **Dr Sonja Vujovic**, of **Edinburgh Research and Innovation** for achievements in translating the outputs of UK research into the new innovations of tomorrow.

www.ktponline.org.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Big windfall for founders of electronic cigarette firm sold to giant BAT

CN Creative Ltd, the Manchester firm behind the Intellicig electronic cigarette brand, has been sold to **British American Tobacco** in a deal which lands its founders a huge windfall.

CN Creative, which has its research and manufacturing operations on Grafton Street in the city and its sales, distribution and accounts teams in Accrington, is understood to have been acquired for between £30m and £50m.

BAT, the FTSE 100 giant, whose cigarette brands include **Dunhill**, **Pall Mall** and **Lucky Strike**, said the acquisition was a natural extension of its approach to tobacco harm reduction.

CN Creative founders **Chris Lord** and **David Newns** said: "This is an opportunity that allows us to accelerate the development and successful launch of our innovative and new e-cigarette technologies."

The pair founded the business in September 2008 and it currently employs 54 staff.

Intellicig is stocked by more than 5,000 retailers and independent pharmacies in 26 countries. The market for electronic cigarettes is worth £30m a year in the UK and 500 million dollars in the US. E-cigarettes are aimed at smokers who want to quit or cut down but still want a nicotine kick.

In addition to Intellicig, the firm is developing its own **Nicadex** product to meet anticipated regulatory requirements in the UK. Nicadex is a hand-held, battery-powered device which delivers purified nicotine to the user through vapourisation.

CN Creative achieved revenues of just over £2m in the 12 months to September and earlier this year received a £2m investment fillip from **Advent Life Sciences** in return for a 50%.

Kingsley Wheaton, BAT's director, said: "Our core business is, and will remain in, tobacco but we've always made it clear that our goal is to provide those adult smokers who are seeking safer alternatives to cigarettes with a range of reduced-risk products that will meet their varying needs."

Contact: www.cncbio.co.uk

UNIVERSITY NEWS

Strathclyde named 'University of the Year' at Times Higher Education Awards

John Gill, Times Higher Education editor, said: "Its focus on 'useful learning' had come together in an impressive way in the past 12 months and the judges were clear that it was a worthy winner of the University of the Year title." Strathclyde principal **Professor Sir Jim McDonald** said: "This has been a transformational year for the University of Strathclyde."

Judges said they were impressed with the university's dedication to working with industry with a number of groundbreaking initiatives including an investment of over £90 million in a **Technology and Innovation Centre** to unite academia and industry.

Strathclyde's **Fraunhofer Centre for Applied Photonics** became the UK's first Fraunhofer Institute – Europe's largest research contract organisation and the university was chosen as the exclusive European partner for South Korea's global research and commercialisation programme.

Other winners at the ceremony at the Grosvenor House Hotel in Park Lane included **John Goddard**, emeritus professor of regional development studies at **Newcastle University**, who won the Lord Dearing

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Lifetime Achievement Award.

Queen Mary, University of London won Research Project of the Year. Queen Mary's **Professor Attila Lorincz**, from the university's **Wolfson Institute of Preventive Medicine**, led research to develop a new screening test to detect the virus that causes cervical cancer. In poorer nations where there is no screening, hundreds of thousands of women die unnecessarily from cervical cancer every year.

In a study of 20,000 women in rural Mexico, a new DIY test picked up more than four times as many cases of cervical cancer and more than three times as many cases of a pre-cancerous condition as a traditional smear test. And crucially, uptake for the at-home test was higher than for the smear test suggesting that women prefer this type of screening.

The **University of Huddersfield** won the title of Entrepreneurial University of the Year. VC **Bob Cryan** leads from the front – it has built a £12m hub for innovation, where global firms rub shoulders with startups and Huddersfield's best students and graduate businesses. It also leads the £2.7m Graduate Entrepreneurship Project, a ERDF-supported collaboration of 10 Universities across Yorkshire won it a 2011 national educator award.

London South Bank University won the Widening Participation Initiative of the Year award at the 2012 Times Higher Education Awards. It introduced people from one of society's most marginalized groups into the City of London's corridors of power – the aim of its City Opportunities scheme. Since its pilot in 2010 the scheme flourished, backed by firms such as **PWc**, **Lloyds of London** and **UBS**.

Participants get taster lectures and seminars at LSBU, careers advice, writing CVs, and preparing for interviews. **John Widdowson**, principal of New College Durham, said there was clear evidence of sustained commitment and success in developing the aspirations of children who had recently left care."

www.timeshighereducation.co.uk

New Technology Centre puts Nottingham at forefront of aerospace research

The centre will be at the heart of the University's **Institute for Aerospace Technology**. The Institute brings together a number of internationally leading research groups involved in work on aerospace materials, advanced manufacturing, more electric aircraft, aero engines and propulsion and aviation operations.

The 2000m² Centre at the **University of Nottingham Innovation Park** (UNIP), will eventually house over 100 staff, including secondees from industry with researchers working on specific projects to develop new aerospace technology and on ways to transfer that knowledge more effectively from academia to industry.

Nottingham University is currently involved in approximately 70 industrial aerospace projects across a spectrum of research areas. The University's aerospace research portfolio amounts to around £50 million, which includes over £20 million in funding from **EPSRC**.

Many of the world's leading aerospace businesses work with the University, including **Rolls-Royce**, **GE**, **Airbus**, **EADS**, **Boeing**, **BAE Systems**, **GKN**, **Thales**, **Safran** and **UTC Aerospace Systems**. In addition, the University is also working with many small to medium sized businesses which play a key role in the aerospace supply chain.

Speaking at the opening of the centre, **John Rishton**, chief executive of Rolls-Royce and a graduate of Nottingham University, said: "This new facility will help Rolls-Royce, the aerospace industry and the University of Nottingham maintain their positions at the forefront of technology."

Contact: www.nottingham.ac.uk/aerospace

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

University of Leeds develops 'carbon-negative' bricks from waste materials

The process, developed by Dr John Forth in the School of Civil Engineering, uses vegetable oil-based binders and waste aggregates to make the eco-friendly building materials. Encos Ltd, a University of Leeds' spinout company, is now developing products for the commercial market.

Featured in a new report on the social and economic benefits of academic research, Dr Forth's work is picked out as an example of a successful university spin-out in the report, published by the Russell Group of research-intensive universities. The report and an accompanying film, underlining the pay-offs for society and the economy of supporting long-term research in research-intensive universities, were launched at an event in central London.

Dr Forth said he was delighted that his work was being used to underline the usefulness of academic research. He said "I have worked in the construction industry for 30 years and I am committed to improving the sustainability of construction. When these products go to market next year, there will be a significant reduction of waste to landfill," he said.

Contact: www.leedsinnovationcentre.co.uk – <http://encosltd.com>

'Bullet fingerprint' visualisation technique pioneered at University of Leicester

The project has been undertaken by **Dr John Bond**, a senior lecturer in Forensic Sciences in the Department of Chemistry who was awarded an OBE last year for his services to forensic science, and **Dr Lisa Smith**, a lecturer in the Department of Criminology. Dr Bond's work on Visualizing Fingerprint Corrosion of Metal was voted one of the top 50 inventions of 2008 by *Time Magazine* and one of the inventions most likely to change the world in 2009 by *BBC Focus Magazine*.

The former Scientific Support Manager at **Northamptonshire Police** found a technique that reveals previously undiscovered fingerprints on metal, especially gun shell casings, by applying a large voltage to the metal and then adding ceramic beads coated with a fine powder to the surface. This reacts with the corrosion on the metal left over from fingerprints, even after they have been wiped off, revealing the original fingerprint pattern.

The innovation was patented by the Police Authority and an exclusive licence was granted to **Consolite Forensics Ltd** to manufacture, market and sell the Cartridge Electrostatic Recovery and Analysis (CERA) system worldwide. The first machine has recently been sold, yielding the Police Authority a royalty of several thousand pounds.

In addition, the University of Leicester launched a new forensic science institute in December which aims to help UK police forces solve unconventional crimes. The **Alec Jeffreys Forensic Science Institute** is a new multi-disciplinary centre at the University of Leicester which aims to help police forces with some of the requests handled by the former **Forensic Science Service** (FSS).

Named after Leicester scientist **Professor Sir Alec Jeffreys**, who pioneered techniques for DNA profiling and fingerprinting, the institute will initially involve the departments of Chemistry, Criminology, Engineering, Cancer Studies and Molecular Medicine and will involve local and national police agencies in its running.

Professor Jeffreys said: "The provision of forensic science in the UK has undergone major and potentially damaging changes in recent years, so this institute has real potential to provide much-needed breadth and depth of expertise, especially in complex casework, as well as a voice for the proper funding of forensic science research in the UK."

Contact: John Bond at jwb13@le.ac.uk – 0116 252 2090.

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Warwick researchers ‘compress and stream HDR video to mobile devices’

Researchers at Warwick Manufacturing Group at the University of Warwick have found a way to compress and stream HDR video directly to monitors and mobile devices, such as an iPad, bringing real benefits to industries including gaming and security.

Researchers at WMG, working in partnership with spinout company goHDR Ltd, have succeeded in achieving and patenting a method of real-time encoding and remote display of High Dynamic Range (HDR) video.

Working with their Portuguese partner INESC Tec, they have also been able to demonstrate the technique in action on an iPad. This means that full HDR video content can now be encoded and streamed directly to remote displays, including mobile devices, or sent for storage back at home-base. Gaming will be transformed too, with HDR content being directly available for interactive online and cloud-based games.

The amount of data required to capture extra detail, however, is huge, with high definition True Brightness footage generating the equivalent of a CD worth of data every second. goHDR has a patented algorithm that is capable of compressing HDR frames by at least 150:1 with minimal perceptual loss of quality. The partners have now developed a new method that enables uncompressed HDR frames to be encoded and streamed to a remote device in real-time. Encoding rates of over 60 frames per second (fps) have been achieved for 720p resolution on a modern 16-core computer.

Professor Alan Chalmers, Professor of Visualisation at University of Warwick and founder of goHDR, said: “Together the partners have clearly demonstrated the technical feasibility of encoding and streaming HDR video content to mobile devices in real-time.”

“Previously HDR video compression had to be done off-line. This meant the HDR video data from a camera had to be first stored on special high-speed disks, encoded and finally transmitted. This could take many minutes, precluding any live broadcasts. Real-time encoding now opens many opportunities for people to experience HDR content directly.”

Contact: alan.chalmers@gohdr.com

Warwick and Aston Business Schools to host a £2.9m ‘enterprise research hub’

The combined work at the centre will aim to improve understanding of the drivers and barriers to growth that affect SMEs. The announcement by Department for Business, Innovation and Skills (BIS) was given as part of Global Entrepreneurship Week in 2012. BIS also stated that ‘two entrepreneurs will be given advisory roles in the government’.

During the week more than 40,000 enterprise events are expected to take place in 115 countries, including more than 3,000 events across the UK.

Business secretary Vince Cable added: “The £1.1m investment that we are making through the Entrepreneurs and Education Programme will help us unlock this potential by giving real support to people who are looking to commercialise their innovations.”

Contact: www.abs.aston.ac.uk – www.wbs.ac.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

‘Open Data Institute’ begins operations in East London’s Tech City

The ODI is receiving partial funding from the Government’s **Technology Strategy Board (TSB)** – £2m a year over five years. The organisation is the brainchild of **Sir Tim Berners-Lee** and **Professor Nigel Shadbolt** and has been substantially supported through its start-up phase with resources and services from the University of Southampton.

Based in Shoreditch in East London’s Tech City, the world-leading ODI will become the ‘go to’ venue for those seeking to create new products, entrepreneurial opportunities and economic growth from open data.

It will promote innovation driven by the Government’s Open Data policy, helping the public sector use its own data more effectively and developing the capability of UK businesses to exploit the commercial value of open data.

It stated: ‘The creation of the Open Data Institute – the first organisation of its kind in the world – underlines our determination to maximise the potential of data as a material for economic and social growth. The ODI, and the expert team assembled there, are already helping to foster a new generation of innovative businesses built on open data, and to develop the specialist skills among data technologists that will see the creation of new products and services.’

Between January 2010 and September 2012, demand for open data on data.gov.uk, measured by the average number of page views for each dataset, ‘has grown by 285 per cent’, it claimed.

Four start-up businesses are already working in the ODI’s HQ. First, **Mastodon C**: A big-data analytics company, which is aiming to increase the environmental performance of cloud computing.

Secondly, **Placr**, which creates their own commuter-focused apps and make multiple transportation data sets available in one place for developers and create their own; thirdly **Locatable**, which is making house-hunting easier by providing all the information people might need about a location; and lastly, **Open Corporates**, which is aiming to bring all the information about all the companies in the world together in one place.

Contact: www.theodi.org

Joint research by East Malling Research and the University of Greenwich

A major new scientific collaboration between **East Malling Research (EMR)** and the **University of Greenwich (UoG)** has been launched by **The Duke of Kent** during a visit to EMR.

The **Produce Quality Centre (PQC)**, which receives funding from the BBSRC, combines the technical expertise of both organizations to help ensure food security and minimise waste throughout the supply chain – a critical issue for fresh produce supply over the next decade.

EMR will focus on temperate crops and the University’s **Natural Resources Institute (NRI)** on tropical crops – utilizing the world-class research storage facilities at EMR.

The focus of the PQC is on optimising both pre-harvest and postharvest factors to improve the storage and quality of produce throughout the supply chain (ie. from producer to plate), in order to increase consumer choice, improve energy and transport efficiency, improve quality and nutrition, reduce waste and extend availability.

EMR chief executive **Prof Peter Gregory** said “By focusing the widest range of horticultural expertise and post-harvest research facilities assembled in the UK, we can improve quality and reduce losses for a wide range of temperate and tropical fruits, vegetables and cut flowers, develop best practice and troubleshoot problems in the supply chain.”

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Professor Andrew Westby is director of NRI. The Natural Resources Institute and East Malling Research have long shared a strong collaborative working partnership. At the heart of the PQC is the **Jim Mount Building**, the UK's leading controlled atmosphere (CA) research storage facility. On-going and recent projects at the PQC are funded by BBSRC, **Defra**, the agricultural levy bodies and numerous commercial clients, including most major retailers.

Contact: www.emr.ac.uk – www.gre.ac.uk

Oxford technology allows mobiles ‘to both charge and transmit data without cables’

Isis Innovation Ltd, the University of Oxford's research commercialisation company, is working with **Dr Chris Stevens** from the Department of Engineering Science and his team to bring the technology to market.

Dr Stevens said: “You could have a truly active, cable-free, battery-less desktop that can power and link your laptop or PC, monitor, keyboard, mouse, phone and camera. For example, by incorporating the technology behind the screen of a computer monitor, digital files, photos and music could be transferred effortlessly to and from a USB stick simply by tapping the flash drive against an on-screen icon.”

“This work comes from research into metamaterials, that is, materials that act as magneto-inductive wave guides and magneto-inductive power surfaces. You can find simple inductive technology in the charging unit of an electric toothbrush but in this case we can transfer data as well, and over a distance.”

“The real beauty is that since the technology is in a patterned conductive layer, we can start adding that layer to any surface or indeed into a fabric.”

Devices can be completely encapsulated, making them waterproof and robust. This makes metamaterials attractive for service in the aerospace military, automotive and medical sectors.

Dr Stevens said: “We can have smart medical sensors in the form of a sticking plaster that can act as a diagnostic tool as well as powering something like an implanted insulin pump.” The underlying technology forms part of a portfolio of National and PCT phase patent applications.

Contact: Chandra Ramanujan, Isis Innovation – chandra.ramanujan@isis.ox.ac.uk

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

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Contact: www.ostrichpillow.com

>> **Some New Year's Gongs for entrepreneurs, SME directors and bright academics**

University of Southampton **Professor David Payne FRS** received a well-deserved knighthood for services to photonics, the science and application of light and electronics.

In 1987, Professor Payne developed the **first optical fibre amplifier** – a crucial component in the Internet's ability to transmit huge amounts of data which is widely regarded as one of the most significant developments in modern telecommunications.

He said: "I was recently described by my peers as the man who made phone calls free. While this is an exaggeration, it conveys the profound impact of the optical internet on our daily lives."

His main research interest is high-power fibre lasers. With US funding, he led the team that broke the kilowatt barrier for fibre laser output to international acclaim and now holds many other fibre laser performance records.

Section Links

Company of the Month // SME News – Engineering, Electronics, Telecoms // SME News – Energy, Chemicals & Materials // SME News – IT, Software, Services & Internet // SME News – Biotech, Pharma & Medical Sciences // Funding & Investments // University News // And Finally...

Professor Payne's many other inventions navigate airliners, cut steel, mark smart phones, manufacture life-saving medical devices, help defend the country and power the Internet, while his activities have led to the creation of nine Hampshire firms. He founded **SPI Lasers plc**, which has recently been purchased by the **Trumpf Corporation** of Germany for \$40m.

Contact: www.orc.soton.ac.uk/people.html?person=dnj

At the other end of the country, Orkney jewellery designer **Sheila Fleet**, who set up her business almost two decades ago in 1993, won an OBE. Her family-run business, **Sheila Fleet Jewellery**, has grown to become one of the biggest employers in the rural countryside of Orkney. The 67-year-old said: "I was extremely surprised. It was very unexpected and after 44 years in the jewellery industry I'm delighted, it's the icing on the cake."

Contact: www.sheilafleet.com

Denys Shortt – entrepreneur and founder of **DCS Europe plc** in Stratford-upon-Avon – won an OBE. His company DCS is now the UK's leading distributor of health, beauty and household brands with sales of £150 million and 250 employees. He has also created two technology companies – **Enable Software** and **Deal Track Limited** which employ 30 people. Denys also created the Enliven brand – a range of health and beauty products which are Made in England and where millions of bottles are exported to 70 countries world-wide. He recently invested over £4 million into a new toiletries factory in Stratford with the aim to help revive British manufacturing. At a local level Denys has formed **Stratford Vision** – a group focused on improving the local economy and creating a jobs and growth plan for Shakespeare's home town for the next 20 years.

Contact: www.dcseurope.com

Martin Sadler, director of the Cloud and Security Lab at **Hewlett Packard Laboratories** based in Stoke Gifford, Bristol, received an OBE. He also supports HP's Security Office to co-ordinate security efforts across the company. Sadler, who has a degree in pure mathematics, lectured in theoretical computing science and advanced software engineering at Imperial College London, before joining HP Labs in 1989. He subsequently managed projects in the area of telephony call control before leading early work on e-business and security.

Contact: www.hpl.hp.com/people/martin_sadler

>> 11-14 July 2013 – **The Coronation Festival 2013**, garden party at Buckingham Palace. In July 2013 you can walk around the lawns at Buck House and buy products from the 200 companies awarded the **Royal Warrant** of Appointment. This is part of a 'unique showcase', split into four interactive areas offering entertainment and shopping opportunities: food & drink, design & technology, homes & gardens and style, pursuits and pastimes.

The Queen's Diamond Jubilee in 2012 but the actual anniversary of her coronation is in 2013 as she took the throne on 2 June 2013. In the evening, the Palace Gardens will host a Coronation Gala featuring a range of UK music and dance talent as well as performers from across the Commonwealth. Day tickets are priced £30pp; Evening Gala tickets cost £90 per person..

Contact: www.coronationfestival.com

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