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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

News that the official **Consumer Prices Index** had risen to 4.5% yet again brings into further contempt official Government figures. True inflation over the past 12 months is likely to be north of 10% and closer to 25% in the south of England if one includes big rises in oil, gas and electricity, rents, rail fares, parking costs.

As city councils attack residents with ever higher costs in a last ditch attempt to prevent an inevitable 20% nationwide cut in their staff lists – especially in hundreds of education overseers – many observers believe the next hike target will be in business rates – perhaps by as much as 40%.

The background to these inflation figures is the dark shadow of the UK's trade deficit – £4.45bn in August alone – as Britain struggles unsuccessfully to pay its way in world markets. Does the **UK Government** have any handle on the levers of power? It looks very doubtful.

For savers, the backbone of the economic growth, the shadows seem equally dark. The price comparison website, **Moneyfacts**, said it was all but impossible for savers to maintain the value of their money. Its spokesperson **Sylvia Waycot** said: "Over the last year the number of savings accounts that beat inflation for basic rate taxpayers has dropped successively from 91 to a measly five today."

What the UK may need is a sharp rise in interest rates – which occurred during **John Major's Government** in the early 1990s when it also stuck in a deep recession – which led to a turnaround within three years. Higher interest rates may trigger a long overdue surge in re-investment in the economy. Tranche after tranche of 'quantitative easing' has failed – the **Bank of England** has clearly run out of options.

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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 48,300 UK-based technology SMEs.

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COMPANY OF THE MONTH

Electronics stalwart Semi-Scenic Ltd notches up 20% rise in sales

This survivor of the once-mighty Scottish silicon chip industry is enjoying rapid growth on the back of booming sales of gadgets like touch-screen phones and tablet computers.

Semi-Scenic, which specialises in refurbishing the machines used to make computer chips, is working flat out to meet demand for equipment from manufacturers around the world.

The company is on course to record 20% growth in sales, to around £4 million in the year to February. Chief executive **Don Nicolson** expects Semi-Scenic to grow operating profits at the same rate, to around £870,000.

While the outlook for the global economy is uncertain, Mr Nicolson wants to double the floor space available to Semi-Scenic to help accommodate the expected workload in coming months.

Privately-owned Semi-Scenic has been feeling the benefit of a massive increase in the number of chips that are produced around the world. Demand for chips has surged partly as a result of the popularity of consumer electronics devices like hand-held computers. Mr Nicolson noted that chip-driven mechanical devices are now found in increasing numbers in things like cars. The growth in sales of chips has translated into a big increase in investment in refurbished equipment by manufacturers.

Semi-Scenic is a preferred supplier of refurbishment services for **Lam Research**, a California-based equipment maker which has customers around the world. Mr Nicolson did not give details of the clients Semi-Scenic has worked for but said it had shipped equipment to Korea, Taiwan, the US and mainland Europe in recent months. Mr Nicolson said while Semi-Scenic exports around 90% of its production, 'it makes sense for the company to be based in Scotland'.

A graduate of **Strathclyde University**, Mr Nicolson spent three years working at the former **NEC** chip production plant in Livingston, which employed 3500 staff at its peak. It closed in 2002. Several of the 30 employees at Semi-Scenic worked at the East Kilbride manufacturing plant that **Freescale Semiconductor** closed in 2009.

Semi-Scenic grew sales to £3.3m in the year to February 2011, from £1.5m in the preceding year. Operating profits increased to £725,000 from £270,000.

SME NEWS – ENGINEERING, ELECTRONICS, TELECOMS

Mine clearance firm BACTEC International taken over by an investment firm

The fast-growing international specialist in explosive ordnance disposal (EOD), based at Medway City Estate, Rochester, is now owned by **Perusa Partners Fund**.

BACTEC celebrated its 20th anniversary on board HMS Belfast earlier this year, with guest speakers **Ann Widdecombe**, formerly MP for Maidstone and the Weald, and **Lord Digby Jones**, ex-CBI director-general and trade minister.

It was founded by former Royal Engineer **Major Guy Lucas** and his wife **Joanna** in 1991, and has become one of the world's leading EOD businesses. It operates in 45 countries, including Iraq, and has offices in Australia and elsewhere. Last year, it cleared mines from the Falkland Islands. The company employs more than 1,000 people worldwide and around 50 in Medway.

Major Lucas said: “We are delighted about this promising new path BACTEC is about to take within Perusa’s areas clearance group of companies.” Major and Mrs Lucas, and MD **Kevin Kneebone**, will continue to steer the company under the new ownership.

Contact: **www.bactec.com**

Amarinth vows to continue with development of innovative pump in spite of setback

Centrifugal pump specialist, **Amarinth** has decided to continue with its research and development work on manufacturing impellers optimised for best efficiency point to better match pumps to the customer’s duty point, despite the **Carbon Trust** terminating funding for this project.

Already well advanced as the cutback was announced, Phase 1 of the project had proved that optimised impellers had the potential to reduce energy consumption by up to 25% compared with ‘fit-to-curve’ pumps, ‘reducing annual CO2 emissions in Amarinth’s target market by 17,000 tonnes by 2020 and 110,000 tonnes by 2050’.

Phase 2 had developed efficient vanes and commercially viable pattern equipment and Phase 3, the production of prototype impellers and production testing in Amarinth’s new test bay facility, was well under way.

Amarinth was the lead organisation in the High Efficiency Centrifugal pump (HEC-pump) consortium working with **Furniss & White (Foundries)** and **Pera Innovations**, and it is currently leading negotiations to keep the consortium together and complete the project.

The company’s MD and consortium spokesman **Oliver Brigginshaw** expressed his disappointment. “This project will result in the companies in the consortium becoming world leaders in reducing energy use in pumps, opening up many new business opportunities. We are still 100% committed to progressing with the project; however, the pace may now have to slow down to spread the additional costs we will have to absorb.”

Contact: **www.amarinth.com**

Cambridge Consultants helps Iridium with new satellite phone

The Cambridge design and development firm is working with longstanding partner Iridium Communications Inc to develop the core technology of Iridium’s newest satellite phone, Iridium Extreme, a new lightweight handset, with the ability to precisely locate users anywhere on the planet. The phone meets US Department of Defense Military Standard 810F for durability and is rich in capabilities, featuring the first dedicated, two-way emergency SOS button on a satellite phone.

Richard Traherne, head of wireless at Cambridge Consultants said the Iridium Core 9523 voice and data module is the ‘brains’ of the Iridium Extreme phone. It is a sophisticated and flexible device packaged into a small and cost-effective platform. This core technology, designed by Cambridge Consultants, will be licensed by Iridium to innovators to develop their own Iridium-based global voice and data communication devices and solutions.

John Roddy, executive vice president, global operations and product development, Iridium, said “Iridium Extreme is our most advanced handset yet and is a critical component to enabling the new location-based services we are offering customers.”

Contact: **www.cambridgeconsultants.com**

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Oil explorer Faroe Petroleum unveils four-fold rise in interim turnover

The Aberdeen-based firm posted an increase in revenue to £40.1 million for the six months to 30 June, up from £9.3m on the back of higher oil and gas prices and its acquisition of an 18 per cent stake in the Blane field.

But pre-tax losses widened to £24m from £3.8m after the firm booked £25.9m of exploration costs and write-downs on its **Lagavulin, Anne Marie,** and **Talisker** licences.

Chief executive **Graham Stewart** said he was "excited" about this autumn's drilling programme in Norwegian waters. Commenting on the write-downs, Stewart said: "That's the nature of exploration. We're not being judged on the bottom line of our profit and loss account at the moment but instead on our drilling successes."

He added that the company's asset-swap with Norwegian state-owned **Petoro** will be completed in the second half and will "make a big difference to the profit and loss account for the full year".

Stewart added he was "very excited" about the three wells being drilled off the coast of Norway, especially the **T-Rex** prospect, which he said was "the kind of well you dream of". If Faroe hits oil at T-Rex then it would de-risk surrounding prospects.

Evolution Securities analyst **Keith Morris** said: "Faroe continues to be successful with both the drill bit and enhancing asset transactions. We expect more news flow from the drilling programme in the coming months."

Contact: **www.fp.fo**

SSE strikes £300m deal for controversial gas extraction in Scotland

Australian energy firm **Dart Energy** has signed a deal to supply **Scottish and Southern Energy Group** subsidiary **Scotia Gas Networks** over five years with methane.

Dart Energy expects to extract from its 329km2 acreage near Airth in Stirlingshire using a system called coal bed methane (CBM) extraction. Scotia, which supplies gas to Scotland and southern England, is owned by SSE and two Canadian pension funds. It is the first such deal of its kind in Scotland, coming on the back of a similar operation by another company called **IGas Energy** in Warrington. CBM and the controversial extraction of shale oil and gas are likely to become more common as North Sea gas reserves run low over the next decade.

The deal, which aims to start producing gas from next year, is the culmination of seven years of exploration by Stirling-based **Composite Energy**, which owned the licence until it was taken over by Dart earlier this year. Dart, which is based in Singapore and listed in Australia, is a global specialist in CBM.

CBM involves drilling into coal seams at depths of 4000 feet and removing water, which unlocks trapped methane. It has been controversial in the US, where it now provides 7% of natural gas, because it involves a process known as hydraulic fracturing, or fracking, which involves pumping water and chemicals into seams at high pressures to help with extraction by fracturing formations.

This is said to carry serious environmental risks such as contaminating ground water and bringing hazardous waste to the surface. The process is banned in France and is being reviewed by the German and UK Governments. For CBM in Europe, however, fracking is inappropriate because coal seams are much thinner.

Having said that, fracking is appropriate in Europe for extracting so-called shale gas and oil. The difference between shale gas and CBM is that the gases are trapped in sandstone instead of coal seams,

at depths that can be up to twice that of CBM.

Dart is due to start drilling for shale hydrocarbons in its Stirlingshire acreage in the coming weeks in a joint venture with oil and gas giant, **BG**.

Ed Cox, a gas specialist at consultancy **ICIS Heren**, said the 1.2 billion cubic metres (bcm) of CBM reserves at the Airth acreage and the maximum predicted extraction rate of close to one million cubic metres per day were the equivalent of a moderate gas field offshore.

Sandy Wito, fuel procurement manager at SSE, said: "The link-up with Dart Energy provides an innovative opportunity to make use of onshore gas supplies that might otherwise be stranded. Alongside new contracts with European partners via interconnectors, it will help SSE further diversify its approach to fuel procurement."

Contact: **www.sse.com** – **www.dartenergy.com.au**

Image Scan plc receives sizeable order for its x-ray imaging systems

The company is a specialist in the field of real-time 3D and 2D x-ray imaging for the security and industrial inspection markets. Its new contract is valued at approximately £1,460,000 for the supply of x-ray security screening systems, which will be deliverable in the financial year commencing 1st October 2011.

This contract takes the order intake in the current financial year up to £4.3m, a substantial part of which is deliverable in the next financial year. However, due to highly competitive tendering processes, the overall projected margin for the business will be lower than historical levels.

Louise George, CEO, said: "We are delighted to win another major contract this year as well as a steady flow of smaller orders. The level of regular order intake and the strengthening lead pipe line demonstrate the effectiveness of the investment in building our sales team in recent years."

The company's customers include the police, military, security services, bomb disposal teams, prisons, ports, airports, cargo handlers, freight forwarders, corporate HQs, mailrooms, stadia and events operators.

Contact: Louise George, CEO – 01509 817400 – **ir@ish.co.uk**

Hovercraft maker Reaction International wins major order from Saudi Arabia

The Southampton-based firm is shipping a £154,000 order for seven hovercraft following the appointment of a new dealer to the Gulf area. The order includes two of its Hov Pod models, which were first introduced at the **Southampton International Boat Show** as far back as 2002. The company now manufacturers more hovercraft than any other firm around the world. They also offer 'build yourself' DIY versions for enthusiasts who want to assemble their own smaller craft, which glide effortlessly over grass, snow and mud, for leisure, survey work and even rescue missions for the Scottish Red Cross.

Mike Glanville, marketing manager, said that hundreds of the hovercraft, which are built with high density polyethylene (HDPE) hulls to provide extra strength and durability, have now been sold around the world.

Recently, the company supplied one hovercraft to Norway to help a company involved in holiday home maintenance during the winter months. Reaction International Ltd, which has a turnover of £1.3m, employs 15 people.

Contact: **www.hovpod.com**

Oil group Rockhopper Exploration plans £1.3bn investment in Falkland Islands

In a move that will transform the remote territory into a new oil province, Rockhopper said it 'expected to start pumping oil in 2016 from the **Sea Lion** discovery made in 2010 and production would ramp up to a maximum of around 120,000 barrels of oil per day by 2018'.

Following the initial find made by the company in 2010, analysts questioned whether there was sufficient viable oil to justify investment in infrastructure in the South Atlantic.

Rockhopper said its reserves, which it estimated at around 350 million barrels of recoverable oil, were large enough for a development, having spent recent months drilling a series of appraisal wells to establish the size of the oilfield. The company has not yet said how it plans to fund the project. It currently has $170 million, enough to pay for two more scheduled wells.

Some of the world's largest oil companies, however, have said in the past the Falklands were not attractive. A US diplomatic cable leaked in 2010 quoted a senior executive of ExxonMobil saying he believed resources in the islands were not sufficient to be profitable.

The emergence of the British-governed territory as an oil producer will likely stoke tensions with **Argentina**, which 30 years ago fought a war against Britain for control of the islands over which it still claims sovereignty.

Contact: **www.rockhopperexploration.co.uk**

Aerospace work beckons for engineering firm Premier Deep Hole Drilling

The company, a tier two supplier to the aerospace industry, has won a new contract to supply actuators for the **Bombardier** CSeries regional aircraft programme.

Stuart Grant, MD of the company, said "We have invested a vast amount of time and committed to a substantial level of capital investment for equipment to support programmes such as the CSeries. It is good to see our efforts recognised by major suppliers in the industry."

With 35 staff **Premier Deep Hole Drilling** operates an aerospace standard OTIF (On Time, In Full) system, which allows customers to monitor delivery performance. Mr Grant added: "Working with our aerospace customers generates a number of benefits for everyone we supply. These include much more reliable and robust processes, scrap rates reduced by at least 90% and delivery rates improved to better that 97% OTIF."

The new Bombardier CSeries aircraft contain features similar to those found in the **Boeing 787 Dreamliner** and the **Airbus A350** aircraft, including higher usage of composite materials, a lower cabin altitude and larger windows.

The CSeries aircraft contain 70% advanced materials comprising 46% composite materials and 24% aluminium-lithium, which provides a 15% lower seat-mile cost and a significant reduction in maintenance costs.

Mr Grant said: "Bombardier forecasts that over 60% of today's 100- to 149-seat aircraft fleet will be retired by 2030. New generation aircraft such as the CSeries specifically designed for this segment will have superior economics, comfort, lightweight design and built-in operational flexibility. According to the company, 7,000 new aircraft will be delivered over the next 20 years, and the total fleet will grow from 5,200 to 9,200 units – an increase of 35%."

Contact: **www.premier-drilling.co.uk**

Smart Metering Systems plc foresees greater profits following flotation

Even before flotation the company stated it had 'more than doubled pre-tax profit in the six months prior to the event.

The Glasgow-based gas meter pioneer said that in the half year to 30 June, it grew its gas meter portfolio to 227,000, increasing rental incomes by 58 per cent and made profits before tax of £1.5 million, up 118 per cent on the first half of 2010.

Chief executive **Alan Foy** said: The first six months of the year demonstrated further growth for the group and a successful IPO. We are well placed to continue this growth by maintaining a consistently high quality service to our customers and on-going investment in meter assets. We view the remainder of the year with confidence."

SMS floated at the end of June with a market value of £50m. The over-subscribed share placing raised £10m for the company. It confirmed that the net proceeds of the IPO were £8.6m. Foy said the company had all the infrastructure it needed, and the cash would be used to buy more gas meters to be fitted with its patent device to allow regular remote readings. The firm is now targeting the commercial and industrial market for its meters.

Contact: **www.uk-smg.com**

SME NEWS – CHEMICALS, MATERIALS & ENVIRONMENT

Three industrial consultants invest in bio-diesel plant near Stourport

The entrepreneurs behind Organic Drive Ltd are now aiming to turn over £2m in their first year. Engineers Geoff Cunningham, Tom James and Duncan Morrison said they spotted a gap in the market where they could use cooking oil to create biodiesel. Once the biodiesel has been produced, having been processed, it will then be sold on directly to major fuel providers.

The trio secured start-up support from Business Link West Midlands (BLWM) and invested £80,000 in launching Organic Drive, developing the company brand and building a 4,500 sq ft facility.

"There has to be a minimum of 5% biodiesel blended into all main fuels so the market is exponential and, in the UK, there are currently very few producers," said Morrison. "When we are up to full capacity we should be producing 100 tonnes per week and the long-term strategy is to target the big fuel wholesalers like BP, Shell and the supermarket retailers."

The trio said their next step would be to secure an expansion grant from Wyre Forest District Council. Morrison added: "The potential is there for us to hit £2m sales in our first year and, thanks to the solid platform we have in place, we would anticipate this being the first step in our expansion into a UK leader."

Duncan Morrison is Organic Drive's engine expert – who ensures the fuels not only comply with any relevant certification, but also perform to customer's expectations when it comes to renewability, reliability, and performance.

Contact: **www.organicdrive.co.uk**

Hygiene specialists Chemex International unveils new weapon against superbugs

In September 2011 trials of a revolutionary, natural and cheap alternative to traditional hygiene practices from Chemex may spawn a completely new approach to the war against hospital superbugs.

The results show that harmful bacteria can be completely eliminated by using 'friendly' bacteria in a simple cleaning fluid – rather than toxic chemicals.

At the **Infection Protection Society** conference in Bournemouth, **Sean Derrig**, Scientific Director of Chemex presented the results. He said: "Since the days of Lister and Florence Nightingale science has put a lot of effort into killing bacteria. This approach certainly has its place but we have now proved that nature's methods can be more effective. But it does turn traditional wisdom on its head somewhat.

"Our research has proven that employing 'friendly' bacteria in a cleaning product rather than harsh chemicals drove out the bacteria that can be harmful to humans present at the start of the trial. The 'bad' bugs were completely eradicated – and the good ones did a very good job of eating dirt and grime as well. It's fighting fire with fire."

Chemex International is Europe's leading franchised distributor of specialist cleaning and hygiene products. Chemex have trialled this approach with a 'very forward-thinking NHS Trust', and their scientists saw more than just a visible improvement in cleanliness. Its high-level biocides are powerful enough to kill 'difficult' organisms such as Clostridium difficile spores and Norovirus against which traditional chemicals are ineffective and are in use in multiple NHS Trusts and other situations where scrupulous hygiene is paramount.

Contact: **www.chemexuk.com** – 0121 565 6300.

Pavegen Systems wins £360,000 investment for kinetic energy equipment

Pavegen Systems, a clean tech business founded by a **Loughborough University** graduate has closed its first external funding round, resulting in £360,000 investment from partners including **Renaissance Capital Partners** and a syndicate from **London Business Angels**.

Pavegen Systems, founded in 2009 by industrial designer **Laurence Kemball-Cook**, has developed an off-grid technology which converts the kinetic energy from footsteps into electricity to be stored in batteries, or used to power applications such as lighting and signage. Pavegen has already won a contract for an installation at **Westfield's** new headline Olympic site in **Stratford City** – to be the largest urban shopping centre in Europe.

Pavegen plans to exploit this patented technology on roads and is working on a prototype system that will 'harvest the energy' from lorries and cars on motorways and in cities to power street furniture such as lighting and LED information boards.

Mr Kemball-Cook said "This funding comes at a crucial time as we scale-up production and work with our corporate partners to supply their sites with the capacity to generate renewable energy."

Pavegen Systems has a small manufacturing site in Newhaven. It is seeking an experienced chief operating officer to join its eight-strong team. Student Enterprise Manager, **Marina Pickles** said: "129 business ventures were launched by our students and graduates in 2009/2010. Pavegen is a shining example of graduate enterprise."

Contact: **www.pavegen.co.uk**

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New ceramic body armour developed by Sheffield Hallam University scientists

New light-weight body armour which could be used on the frontline by British troops or police, has been developed by **Dr Hywel Jones** at Sheffield Hallam University's **Materials and Engineering Research Institute** (MERI) and **Dr Anthony Pick**, a ceramic consultant from Barnsley who runs a materials consultancy, **KeramTech**. The pair recently won the £25,000 Venture Prize awarded by the **Worshipful Company of Armourers and Brasiers**.

The new material is made using a combination of several ceramic systems, a carbide, a nitride and a number of oxides, forming a novel, strong, hard but light ceramic composite. It combines the advantages of lower weight, lower cost of production and the ability to be made in different sizes and shapes – while still having the ballistic performance required by the armed forces.

Currently the ceramic composite demonstrates a 30 per cent weight saving compared with an armour plate of the same size made of alumina ceramics and is 15% lighter than another widely used ceramic armour, silicon carbide.

The team of researchers will use the funds to develop a pilot manufacturing facility in South Yorkshire, before eventually launching a full production facility using a novel furnace design. Prototype armour components made from the material are currently undergoing full ballistic trials at the **Ministry of Defence**. The early development work has been funded by the MoD through its **Centre for Defence Enterprise** (CDE).

Contact: KeramTech: 01226 202 305.

Aquamarine Power agrees a £3.4 million loan with Barclays Corporate

The company is the first UK marine energy company to secure bank debt – and it hopes the ground-breaking deal will act as a blueprint for further such investments in a sector that has traditionally struggled to attract bank finance.

However, Barclays said it had "confidence" in Aquamarine's business model. The first of the company's Oyster wave devices was successfully installed at the **European Marine Energy Centre** in Orkney in August, and is expected to be connected to the grid and be generating electricity by the end of the year.

The firm plans to install two further Oyster devices in 2012 and 2013, which will give it an array capable of generating 2.4MW of power. The income from this will be used to re-pay the five-year loan.

Aquamarine chief executive **Martin McAdam** said: "It shows Barclays has the confidence and flexibility to fund the right marine energy project – with a return based on future energy production. For us this opens the door to securing debt finance for our first pre-commercial 10MW project which will commence in 2014."

Last autumn, Aquamarine raised £11m through a combination of existing shareholders, including **Scottish & Southern Energy's** (SEE) venture capital business, and **ABB Technology Ventures**, an engineering group headquartered in Zurich. The investment took SSE Venture Capital's holding in the company to 45 per cent.

Contact: **www.aquamarinepower.com**

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SME NEWS – IT, SOFTWARE, SERVICES & INTERNET

Alquist launches high-tech device to cut energy costs in data centres

Cambridge company **Alquist** has launched its product Celsius, a high-tech temperature monitoring device which could 'help UK firms cut millions of pounds off their energy bills'.

The device has attracted particular interest from data centres, the facilities that house banks of computer servers and which currently consume 3% of total energy used in the

UK. **Andrew Jones**, founder and MD of Alquist, which is based at ideaSpace on **Cambridge University's** West Cambridge site, said "data centres are set to double their energy use by 2015. No other industry consumes as much power. The high energy use by data centres is due to the air conditioning required to prevent the computer equipment from overheating. Such facilities currently operate at between 18-20°C. It is believed much higher temperatures could be tolerated, allowing energy use to be reduced – but the slightest risk of damaging the equipment has to be avoided.

Celsius is being used to gradually allow temperatures to rise in a tightly controlled manner, so that potential risks are minimized. "We are providing a monitoring infrastructure that enables them to gradually make the journey with confidence," said Andrew. "For every 1°C degree the temperature is increased savings of around 5% per year can be achieved."

Unlike earlier temperature monitoring systems which take spot measurements using individual sensors, Celsius uses fibre optic cable, up to 5km in length, to continuously measure temperature at thousands of points. It offers accuracy levels down to 0.01°C. A 5km cable can provide as many as 5000 continuous measurements. Alquist's product is a finalist in the UK IT Industry Awards 2011, sponsored by the **British Computer Society**, in the category of Infrastructure Innovation of the Year.

Contact: **www.alquist.co.uk**

Blue Zinc IT invests £675,000 to expand its operation in Northern Ireland

The software company, which currently employs 21, specialises in practice management software for private medical clinics, hospitals and businesses. Local RDA Invest NI has offered £97,500 to support the creation of 13 new jobs over the next three years in sales, software development and support. This will help Blue Zinc IT to accelerate growth in export markets, particularly in the UK, the Republic of Ireland and Australia, and to capitalise on opportunities identified in a recent strategic planning exercise.

Kyle Lunn, Blue Zinc's commercial director, said: "Invest NI's support has been crucial to helping us position Blue Zinc for further growth. We are confident that the opportunities we have identified will yield substantial sales, and the recruitment of 13 new staff will strengthen our team and allow us to build our profile both within Northern Ireland and in key markets around the world."

Blue Zinc IT's clients currently include some 790 clinical practices and 2,000 users worldwide. It plans to double sales over the next three years and is actively targeting new markets outside its core physiotherapy market.

Stephen Wightman, Invest NI's Acting Director of Life Sciences and Creative Industries, said: "Blue Zinc is an innovative and ambitious company that has identified a niche market within the software sector. Its core products have global potential and with our support the company is now expanding its workforce to exploit the new opportunities identified though market research."

Contact: **www.tm2online.com** – Kyle Lunn – commercial director – 0845 833 1816.

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Software firm Craneware cements its role as a darling of the Scottish technology

The Edinburgh-based company – which carries out all of its business in the US providing finance software for hospitals – increased sales by 19 per cent to $8.7 million (£5.3m) in the year to 30 June.

Profits were boosted by the takeover in February of US rival **ClaimTrust** and the rise in the surplus triggered a 10 per cent increase in the total dividend to 8.8p a share.

Additional revenue from the combined Craneware and ClaimTrust business helped to boost turnover by 34 per cent to $38.1m, with three-year visibility for repeat business at $105m, up from $83m in 2010 and including $16m from ClaimTrust.

Analysts are predicting further growth ahead. The work undertaken by recovery audit contractors (RACs), which are sent in to hospitals by the US government to make sure the right bills are being charged to its Medicare and Mediaid programmes.

Keith Neilson, Craneware's chief executive, said: "The RACs found $90m of over-charges during 2010 and the 2011 total has already reached $590m, with the RACs fining the hospitals a percentage of the total." Hospitals turn to software such as that developed by Craneware to make sure they bill patients, healthcare insurers or the US government for the correct amounts and to avoid fines.

Neilson added: "We're already in about 26 per cent of hospitals in the US and, at the moment, the average hospital only uses one-and-a-half of our nine software packages. So, for those with which we already do business, we've got seven-and-a-half to sell and, for the others, we've got nine to sell to them – and the total market is worth about $1.8 billion a year."

Contact: **www.craneware.com**

Foreign currency broker TransferWise sees steep rise in custom

London-based peer to peer website www.TransferWise.com provides a platform that gives anyone access to the same mid-market exchange rates that banks get on their interbank market, with TransferWise charging a flat fee of £1 for each transaction regardless of the amount being exchanged. TransferWise allows customers to avoid any public or hidden bank fees.

This has, unsurprisingly, been popular with customers, and word of its utility has spread. Taavet Hinrikus of TransferWise said: "TransferWise are specialist brokers, so we can provide expert advice on current exchange rates and can send your money quickly and easily most importantly cheaply."

TransferWise was founded in London in March 2010. Their mission is to offer fair and transparent innovative financial services. The company was started by two Estonian entrepreneurs Taavet Hinrikus and Kristo Kaarmann. Taavet was part of the small team that started Skype in 2003. Kristo's background is in financial services having worked with Deloitte and PricewaterhouseCoopers. TransferWise is registered as Exchange Solutions Ltd and is licensed by the UK Financial Services Authority.

Mr Hinrikus continued: "It all began when we were living in London and we had the issue of transferring money to/from Estonia. It was always very expensive in terms of the rip-off exchange rates and fees. Initially we started by exercising this model with friends – if someone needed money in Estonia they would ask friends if anyone has excess money in Estonia and needs it in London. If the answer was yes they would just make the exchanges locally."

Contact: **www.transferwise.com**

Adzuna Ltd – a firm that aggregates job search engines and social media sites

Search is changing. **Google's** domination is under threat from **Facebook** and its vast wealth of user data, while niche search engines that bring together key information on dedicated areas, such as **Skyscanner** for cheap flights, are hugely popular.

Adzuna was launched in late July 2011 by former employees of local advert site **Gumtree** and social review site **Qype**. The firm indexes job listings from large aggregators like **Monster** and niche employers like Buckingham Palace on one site.

The unique element, according to the firm's co-founder **Andrew Hunter**, is that Adzuna also brings in information from social sites like Facebook and, most importantly, **LinkedIn** to provide a social context for the jobs it finds.

He said "There's all this information out there linking people in the job market. If you're searching for a job you don't want to broadcast it on Twitter or Facebook, but LinkedIn has all these connections that could prove useful.

"You can see connections and secondary connections showing who works where and in what roles to learn more about a company, what it's like to work there, what's bad about the place, and maybe get an introduction to a hiring manager."

Job search is a big market, Hunter explains, because there are so many listings for jobs in all types of industry. By using LinkedIn data he believes Adzuna offers something different to other dedicated job search portals.

He said "On our site we index 200 sites for accountancy and finance jobs alone. Obviously people won't look on every site for a job. Indexing these jobs together is not unique, but bringing in social elements is."

The firm already has its sights on new areas to cover. This will see the addition of property and cars, and Adzuna is also looking to move into new markets across Europe and South America, where Hunter has worked before.

Contact: **www.adzuna.com**

Founder of Knowledge Management Software Ltd starts another venture

Serial entrepreneur **Graham Whistance** is the founder of **Meme**, a system which can be used to create business apps that work on different types of mobile devices on various operating systems. He said his latest venture provides the solution to a problem that software developers have been struggling with for years.

Graham's first enterprise was Manchester-based business software developer Knowledge Management Software, a university spinout he founded in 1995 and which grew to employ 250 staff.

He left the business in 2000 and, after a career break, set up Newton-le-Willows business **Momote** in 2003. Momote creates bespoke software for mobile devices to manage delivery drivers and other remote workers, with clients including **Autoglass, Comet** and **Harveys Furniture.**

Graham said: "One of the key realisations that we had early on at Momote was that there were lots of different mobile technology platforms, such as Apple and Android. It seemed unreasonable for developers to have to decide which platform they were going to operate on. Using Meme, you can create a mobile application which works on all platforms. It is quicker – there is around 90 per cent less code that has to be written – and therefore cheaper. It is a tool targeted at developers writing business applications for mobile devices, which might mean a smartphone or the other more rugged hand-held devices used by mobile

workers. No other tool will do that."

Graham believes Meme, which has taken 18 months and £250,000 investment to develop, will create up to 15 jobs within 12 months, mostly software developers and technical support. He is working to establish an online community of developers which will act as a global market place for apps built using Meme, like an **Apple App Store** for business apps. He said: "There are more than 1m mobile workers in the UK, including couriers, logistics and construction. We are reaching out to the developer community and giving them an easy tool to target that market."

Users pay a subscription to use Meme. So far, 500 developers have signed up to use Meme, mostly from outside the UK, and their feedback has let the company tweak the product prior to launch later in the year

Contact: **www.memeapps.com**

SME NEWS – BIOTECH, PHARMA & MEDICAL SCIENCES

Oxford Multi Spectral Ltd (OMS) develops forensic paper-scanner device

In September 2011 new technology developed by **Oxford University's** classics department could help reveal the secrets of historical documents. OMS, a new spinout firm, is commercialising the scanning device, which uses different wavelengths of light to detect faded or erased ink, for analysing manuscripts and archived documents, as well as modern forgeries.

The company has secured an investment of £250,000 from a Chinese investor – **Changsha Yaodong Investment Consulting Co** – and its UK-based partner **RTC Innovations**, and received £47,600 from the **University Challenge Seed Fund** last year for prototyping work

Dr Dirk Obbink, head of the research group that developed the scanner, said "The technical leaps we made mean many ancient documents that were previously unreadable can now be scanned and read.

"We can set the equipment to interrogate a feature we are interested in: the surface structure, fibres, stains, watermarks, fingerprints, or alterations. We can detect an artist or writer's signature under multiple layers of paint or the pencil sketch under a watercolour."

It could also be used to analyse altered or counterfeit documents such as forged passports, bank notes or forensic evidence. The flat-bed scanner works by capturing a series of images using different wavelength light sources from infrared to ultraviolet.

A computer program then combines them to emphasise the specific colour light absorbed by the faded ink in order to make it appear more clearly. **Mike Broderick**, CEO of Oxford Multi Spectral, said the technique was originally developed using a high-resolution camera positioned over a copy stand. He said "You have to use a camera in a dark room, it's quite big and quite expensive, and manipulating delicate documents in a dark room is not the easiest thing to do," he said. "Once you close the lid on [the scanner] you trap the document so you keep all the extraneous light away and you maintain perfect registration [alignment]."

OMS is now developing the scanner for commercial launch at the end of the year, using proprietary technology specially fitted with different light sources and mounted in a metal enclosure to make it more robust.

Contact: **www.mikebroderick.co.uk**

MGB Biopharma on track to develop 'powerful new antibiotic treatment'

Biopharmaceutical company **MGB Biopharma** has licensed technology from the **University of Strathclyde**, and it is developing a powerful new antibiotic treatment for resistant infections including the deadly MRSA and Clostridium difficile (C Diff.) bugs.

The company is working on a new compound which has proved to be more effective in killing and preventing C Diff. than **vancomycin**, currently one of the most widely used treatments against this bacterium. The company has selected the compound, MGB BP-3, as a drug candidate for formal pre-clinical development, with clinical trials now scheduled for 2012.

The compound acts in minor grooves, found within DNA structures, and has potential to act as an agent against bacteria including C Diff. and MRSA. C.difficile was involved in more than 3,000 deaths in the UK in 2010.

Dr Miroslav Ravic, CEO of MGB Biopharma, said: "It seems we are hearing too much about Clostridium difficile infections these days in the press, especially those acquired in hospital by elderly patients in whom the infection can be fatal. This is clearly an area of high unmet need as a result of the rise of resistant bacteria which are threatening to outpace the availability of new drugs able to successfully treat these life-threatening infections. We are very excited that MGB BP-3 shows such a promising response against this troublesome and difficult to treat infection."

Professor Colin Suckling, of the University of Strathclyde's Department of Pure and Applied Chemistry, is Principal Investigator in the DNA minor groove binder technology. He said: "C Diff. infections can kill and patients can face prolonged courses of treatment to deal with them. We have come up with strong compounds which are capable not only of clearing the infections but also of stopping them. We believe this could be a significant step forward in tackling these dangerous infections."

Professor Curtis Gemmell, Consultant Microbiologist, Research Professor at the Strathclyde Institute of Pharmacy and Biomedical Sciences and Emeritus Professor at the University of Glasgow, is a senior member of the research team. He said: "The fact that our drug candidate shows greater efficacy than vancomycin is extremely promising for its future. The fact we are making this presentation at ICAAC underscores the importance that our scientific peers attach to our findings."

Contact: **www.mgb-biopharma.com**

Scottish medical diagnostics firm AccuNostics secures £4m investment

From its base in Forres, Scotland, the firm is working at the cutting edge in the design of self monitoring devices. The funding round, led by Delta Partners of Ireland with the Scottish Investment Bank, includes £2.5m of capital and a £1.5m grant package from Highlands and Islands Enterprise (HIE).

AccuNostics has made a number of appointments already, and is actively recruiting for a further 15 staff. It is anticipated that this first phase of hiring will create over 30 jobs in Forres in the coming year.

The founders of AccuNostics have a track record in the development of game-changing medical device products. Olly Davies was responsible for the co-development of the 'One Touch Ultra', a revolutionary diabetes monitoring system that has made a big difference to the health of millions of people worldwide, while Giles Hamilton was previously CEO of Glysure, developers of glucose sensors for use in intensive care medicine.

Contact: **www.accunostics.co.uk**

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Magna Parva develops novel first responder field laboratory

A completely new type of hand portable laboratory suite is being shown for the first time by Magna Parva, a Midlands-based company that specialises in engineering for hostile environments. Dubbed a 'laboratory in a box', the **Exolab** system enables repeatable, rapid, low cost preparation of a wide range of solid or liquid samples in field locations such as military theatre operations, as well as forensic scenes and general environmental monitoring.

Exolab is a portable system, easily carried by one person, and offers the benefits of faster, lower cost analysis. Expected to open up the use of sophisticated analytical techniques in more difficult locations, it integrates all of the sample preparation processes necessary for complex measurement (eg for DNA analysis or immunoassays – processes normally requiring highly trained personnel using specialist laboratory facilities).

The modular system can be adapted according to the sample preparation required. Stages can be plugged in or out and samples re-routed through the system, whose stages might typically include reagent addition, mixing, thermal cycling, centrifugation and incubation.

Exolab was developed by Magna Parva in collaboration with the **University of Leicester** and stemmed from work carried out with the University's **Space Research Centre**, on the **Life Marker Chip Instrument** intended for use in space missions.

Specific applications being developed for Exolab include medical (disease detection analysis and DNA testing), environmental (soil and water sampling), defence (biological and chemical warfare detection) and agricultural (soil sampling).

Contact: **www.magnaparva.com**

Demise of Bristol University's Colloid Centre spawns Formumetrics Ltd

The recent closure of the university's specialist chemistry research lab has resulted in the foundation by two academics of a new biotech consultancy, Formumetrics Ltd.

The entity is developing treatments for autoimmune diseases – and it is among the first companies to move to the Bristol & Bath Science Park, whose Innovation Centre opened its doors to businesses in mid-September.

Formumetrics – a scientific consultancy that helps formulate new and improved products. **Dr Keith Bean**, MD at Formumetrics, said: "The Science Park will be a great place to work and do business. On the first morning we bumped into another tenant over coffee that happens to work with the same client base as us and as a result we have already found ways to work together in the future."

Apitope, a company which focuses on the discovery and development of treatments for autoimmune and allergic diseases, including multiple sclerosis and Graves' disease, will be moving into the Innovation Centre in October. Partner companies to the new N**ational Composites Centre** are also beginning to come on site and this will expand the scientific and business community.

Bonnie Dean, chief executive at the Bristol & Bath Science Park, said: "These first occupiers characterise the diverse and rich mix of companies and organisations that we intend to attract to the Science Park." **BPE Solicitors, YFM Equity Partners and Science City Bristol** are the first to move into their new offices.

Contact: **www.bristol.ac.uk/bcc/welcome**

FUNDING & INVESTMENTS

Fusion IP chalks up yet more university spinout successes

Fusion IP, the university IP commercialisation company that turns research into business has announced an end of year update for some of its portfolio companies.

Simcyp, Fusion's simulation platform company for the pharmaceutical and biotechnology market, continued to grow strongly in 2010/11. Simcyp expects to exceed its forecasts for the seventh year in a row, with an expected 25 per cent increase in turnover and 35 per cent increase in profit before tax.

In July, **Phase Focus Ltd**, Fusion's microscopy and imagining company, raised £865,000 in equity investment to expand its operations, grow sales and conclude commercial deals with its commercial partners. As a result Fusion's stake will be reduced by 49.1 per cent on an undiluted basis.

In August **Diurnal**, a drug development company, completed a £335,000 funding round to allow for a continuation of some clinical rounds. Also that month, **Mesuro**, a radio frequency technology firm, also made its first sales during the year and raised a further £440,000 to support its growing sales activity.

Magnomatics, the magnetic motor company, continues to grow strongly and won new clients in the automotive, aerospace and defence sectors. Turnover is expected to grow by 70 per cent for the period ending December 2011 as product development continues. In addition, **Seren Photonics**, Fusion's LED business, is closing its first commercial deals. Lastly, **Asalus**, a medical device company, has generated interest in its Innervision product as it continues to satisfy expectations. These activities, along with other events in the financial year are expected to lead to a significant uplift in the valuation of Fusion's portfolio companies. Preliminary results for the year end July 2011 are expected the week beginning 10th October.

Contact: **www.fusionip.co.uk**

Short-term loan firm Wonga discovers jet stream of venture funding

Wonga has completed a major new round of funding that will enable it to continue 'growing strong consumer demand for small, short-term loans'.

The £73m round of funding was led by **Oak Investment Partners**, **Meritech Capital Partners**, another leading venture capital firm behind the likes of Facebook, and even **Wellcome Trust**, the UK's largest charity and health-funding organisation, also invested. Existing backers including **Accel Partners, Balderton Capital, Dawn Capital, Greylock Partners** and **TAG.**

Errol Damelin, founder and CEO of Wonga, said applications for funding via the website or a smartphone can use its 'sliders' on screen to select the cash amount required – Early repayment is available 24-7. Wonga describes itself as 'the world's only fully automated and straight-through loan processing system'. It can analyse thousands of pieces of publicly-available data in less than a second, providing real-time decisions and payments while using the best information available to assess the credit-worthiness of both potential and existing customers.

They use regular surveys, focus groups, its Wonga forum, Facebook page and other media to listen and respond to customers' views. We also track our net promoter score (NPS) and regularly record scores of more than 70% which is on par with some of the world's most innovative brands.

Contact: **www.wonga.com**

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Little-known Kudos Blends spends £750,000 on milling facility

Kudos Blends provides bakers with technically driven raising agents that optimise the quality, texture, taste and shelf life of baked products. Combining chemistry with baking, Kudos Blends is leading the worldwide development of alternative raising agents. Founded in 1999 with the vision to provide continuous innovation in the baking industry

It has an extensive range of standard products and the ability to create custom blends for any application. They have in-house scientists and baking experts who understand the complete baking process from mixing to the oven.

In September at their offices in Cleobury Mortimer, they hosted a **Salt Reduction Conference**. Salt reduction is something that 'they are passionate about', and **Dinnie Jordan**, MD, is a thought leader on the subject, providing insight into worldwide trends.

The small company, which supplies raising agents for the baking industry, has already created three new jobs with five more in the pipeline for 2012. The new expansion was unveiled by **Philip Dunne**, MP for Ludlow. It was required to meet growing demand following the launch of a new product range designed to cut salt levels in baked foods.

It was coupled with the launch of a patented product for salt reduction. They offer cake tasting sessions for reduced salt products to show how potassium bicarbonate performs against sodium bicarbonate when incorporated into a baking powder blend.

Dinnie Jordan, who founded the company in 1999, said: "Kudos Blends is now having a significant impact on the international markets with its reduced salt products. Not only are we putting our business on the international stage, we're also putting Cleobury Mortimer there." Earlier in 2011 the company showcased its **Kudos Potassium Bicarbonate** product in the US with the hope of securing major customers overseas.

Contact: **www.kudosblends.com**

Merseyside start-up Med ePad secures £50,000 Pathfinder Investment

The £25m **North West Fund for Biomedical** has made its first investment in the telemedical sector – Med ePad – which has developed a cost-effective interactive touch-screen mobile internet device for healthcare service providers.

The 7in tablet has been designed to come loaded with condition-specific apps created in conjunction with NHS healthcare professionals. Its functions include the ability to record medication regimes and daily living patterns, send appointment reminders, conduct online consultations and access specific information relating to a particular condition.

The £50,000 Pathfinder investment from The North West Fund for Biomedical will be used to fund the development of initial apps and run a number of real trials with healthcare services in both primary and secondary care.

Dr Penny Attridge, manager of the North West Fund for Biomedical, said: 'The adoption of digital, wireless and handheld devices to improve communication and efficiency is really only in its infancy, but we hope Med ePad can help to change this.'

The North West Fund for Biomedical is a sub-fund of the £185m North West Fund, which is financed by the **European Regional Development Fund** and the **European Investment Bank.**

Contact: **www.med-epad.com**

Edinburgh-based software firm MiiCard wins £550,000 of seed funding

Developing a 'digital passport' for online shopping – MiiCard, which is expected to launch a prototype in the run up to Christmas, aims to help shoppers prove their identity when making purchases over the internet.

Chief executive **James Varga** said the passport would be useful when applying for credit cards online, buying larger items such as sofas or using social networks. Varga said the seed-funding round had been "significantly over-subscribed" and had taken just six weeks to close.

Angel syndicate **Par Equity**, venture capital group **IQ Capital** and the Scottish Investment Bank's **Scottish Seed Fund** all invested in the company. Varga added: "We often need to be able to prove our identity online and in real time. MiiCard will do that by offering an alternative to the traditional offline checks of driver's licence, passport or utility bill.

"There is nothing else on the market today that does this, giving MiiCard a massive opportunity. That is why this funding round has been so well supported."

Varga has also led the management buy-out of the firm from The One Place Capital, which owns Edinburgh-based personal finance software outfit Money Dashboard.

Chris Traynor, acting chairman of **The One Place Capital**, said: "MiiCard has attracted a great deal of industry interest and we wanted to ensure it had the space to focus on developing a robust product and getting to market quickly."

Contact: **www.miicard.com**

GENERAL NEWS

Technology Strategy Board unveils Topdrawer project for new LED development

The Topdrawer project, which began two months ago, is building on the work of the £3.3m Topless project, which has been investigating organic polymer LEDs since 2007.

The Government has backed the Topdrawer project by funding half of the cost through the **Technology Strategy Board.**

Lighting pioneer **Dr Geoff Williams**, who is leading a consortium of university and business experts in the bid to explore the potential of energy-efficient printable electric lighting.

Dr Williams was investigating the potential of organic lighting in an academic capacity back in the 1990s as part of his PhD at Durham University, and has been pushing for more research into such technologies for much of his time at County Durham lighting manufacturer Thorn Lighting.

Dr Williams is leading a team that consists of **Thorn Lighting, Cambridge Display Technology, Tridonic, Pilkington and Conductive Inkjet Technologies**, as well as **Durham University** researchers.

The part-government-funded initiative, known as the Topdrawer project, is a £4.3m, two-year plan to study the potential of manufacturing printed lighting in Britain.

A large-scale demonstration model for the panels could be built in early 2012, and the project has already won the Environmental Technology Collaboration award at the Engineer's Technology and Innovation Awards.

Dr Williams is apparently in discussions with companies and **European Commission** representatives in Brussels about projects to push energy-efficient lighting worldwide.

While Dr Williams said the location of any manufacturing facility would be a business decision, it is a strong possibility that the North East would be at the front of the queue, thanks to the work of centres such as Sedgefield's **Printable Electronics Technology Centre**, Thorn's close relationship with Durham University and County Durham's status as the company's UK headquarters.

Contact: **www.uk-cpi.com**

HP 'might use Autonomy to build a search engine' – for everything

Paul Marks at *New Scientist* reports that Hewlett-Packard's recent acquisition of UK-based software firm **Autonomy Corp** might be leading towards an interesting new product – a search engine.

According to the report, Autonomy hopes to develop an engine that works in tandem with HP's text-based search system and their pattern-recognition search system. The end goal would be a step beyond normal search, where data that's typically hard to organize and relate to each other, like voicemails, emails, and other documents is made much more searchable.

One example given by the report is the ability to point your phone at an image and having it return web links, documents, and other information. Other applications might be more robust internal database search for e-discovery or for scientific analysis of large datasets.

Although hard information is difficult to find about these plans at the moment, it is obvious that HP sees this as a prime opportunity of creating a viable competitor to **Google** – a Google without the adverts, without the incessantly American search results, presented in a much more consumer-friendly way. Knowledge without the adverts.

UNIVERSITY NEWS

An electric motor without rare metals – University of Newcastle stakes its claim

Researchers at Newcastle University have developed an EV motor that generates almost as much torque as existing models, but without rare earth metals such as neodymium and dysprosium that are increasingly costly and difficult to mine.

The **Technology Strategy Board** has awarded the university, along with **Cummins Generator Technologies** and motor control manufacturer **Sevcon**, a grant of £518,000 to scale up the motor for use in hybrid electric trucks.

The project aims to replace expensive and environmentally damaging rare earth metals in electric vehicles with steel. James Widmer of Newcastle's Centre for Advanced Electrical Drives said "The term "rare earth" is a bit misleading but the problem is they're very difficult to extract – it's the sort of thing where they take the tops off mountains.

"One of the most abundant elements on the planet is iron so the more we can use the better. This technology does away with the [rare earth] magnets completely and just uses electrical steels to produce the force."

Existing EV motors use rare earth metals as very strong permanent magnets that force the rotor to spin when an electric current is applied to it. Newcastle's design makes use of a switched reluctance motor where the magnetic force is created by running current through a series of wire coils that form a circle

around a steel rotor. As each coil is turned on and off, the rotor realigns itself with the new magnetic field, causing it to spin.

The team has drawn on its previous research into segmented rotors and simpler electronic control systems to increase the motor's torque by between 50 and 70% compared to the original technology. It now needs to package it ready for use in electric vehicles, beginning with a hybrid truck by 2014.

"The challenge is to do it in a way that doesn't end up creating a lot more loss through heat than you would with a permanent magnet," said Widmer. "We need to scale this up in a way that is really robust. As you scale up, the forces involved become much greater so you've got to make sure it's mechanically up to the job."

Because the switched reluctance technology can get hotter than permanent magnet-based motors without demagnetising, the team also hopes to use the same cooling system for the motor as for the engine and the electronics, instead of needing three separate systems.

Demand for rare earth metals has soared over the last decade as they form a key part of current green technologies such as EV motors and wind turbines, as well as many electronic devices including laptops, smartphones and flat-screen TVs.

This has led to huge price rises, with some elements increasing up to 10 times in cost between 2009 and 2010, partly because China produces up to 97 per cent of the world's supply of rare earth metals and is restricting their supply.

Contact: **www.ncl.ac.uk/eece/research/groups/drives/caed**

Additive manufacturing centre opens at the University of Exeter

The Centre for Additive Layer Manufacturing (CALM) houses a number of machines for additive layer manufacturing including the UK's only EOSINT 800 machine. This piece of equipment can build parts at temperatures up to 385°C and is the world's first system that allows production using high performance polymers.

The £2.6m facility will be the first in the UK to offer EOS-enabled, high temperature polymer additive manufacturing. EOS manufacturing technology allows complex or bespoke parts and complete products to be created by building them up one layer at a time via laser-sintering. The technology can be used in prototyping and product manufacture as the process can dramatically reduce the amount of time it takes for a product to get to market.

Dr Hans J Langer, founder and CEO of EOS said: "Partnering with the University of Exeter to provide additive manufacturing facilities for the Southwest of the UK will further help to raise awareness for a technology that is currently shifting paradigms in design and manufacturing.

"We are also looking forward to expanding the use of the PEEK material, which is being processed on the P800, in the aerospace, medical and motorsports arena. With another plastic system from EOS, the EOSINT P 100, the University can offer even more options for plastic laser-sintering.

PEEK is mechanically strong and wear resistant in tough operating environments and parts made of the material are being developed as alternatives to metal.

CALM is supported by the **European Aeronautic Defence and Space Company Innovation Works** (EADS) and is part financed by the European Union with £1.5 million from the European Regional Development Fund 2007-2013, under the competitiveness operating programme.

Contact: **www.emps.exeter.ac.uk**

Polymath Professor Ian Ward FRS invents yet another polymer product

The veteran materials scientist at the University of Leeds – who has pioneered many a new commercial product in the field of polymers since the 1970s – has invented a new type of polymer gel that can be used to manufacture cheaper lithium batteries without compromising performance.

The technology has been licensed to the American company **Polystor Energy Corporation**, which is conducting trials to commercialise cells for portable consumer electronics.

Ward believes the new material could replace the liquid electrolytes currently used in rechargeable lithium cells. Furthermore, the gel can be made into a thin, flexible film via a fully automated process that is fast, efficient and potentially inexpensive.

Rechargeable lithium-ion batteries are the preferred power source for a wide range of portable consumer electronics such as laptops, digital cameras, mobile phones and MP3 players.

The traditional configuration for the batteries is based on cells (sealed containers) which contain a liquid chemical filler and a porous polymer film separator. Lithium ions carry an electrical charge between the two battery electrodes, while the separator holds the electrodes apart to prevent short-circuiting.

The polymer gel developed by Ward and his team removes the need for the separator. They have also developed a patented manufacturing process called extrusion/lamination which sandwiches the gel between an anode and cathode at high speed (10m per minute) to create a highly conductive strip only nanometres thick.

The resulting polymer gel film can be cut to any size, permitting a fully-automated process which is cited as both cost effective and safe. The lamination process also seals the electrodes together so that there is no excess flammable solvent or free liquid electrolyte.

“The polymer gel looks like a solid film, but it actually contains about 70% liquid electrolyte” said **Professor Ward**. “It’s made using the same principles as producing an edible jelly: you add lots of hot water to a polymer/electrolyte mix, rather than gelatine. As the solution cools it sets to form a solid but flexible mass”.

Contact: Ian Ward – 0113 343 3808 **i.m.ward@leeds.ac.uk**

Aston Business School to carry out Goldman Sachs scheme for SMEs

In September 2011 Aston Business School was selected to conduct the Goldman Sachs 10,000 Small Businesses programme, which is being implemented on an international basis, including the UK.

Mark Hart, professor of small business and entrepreneurship at the school, will lead the research project, which aims to determine the economic and job creation potential of small businesses and social enterprises operating in the UK. Between 25 and 30 selected businesses from the Midlands will take part in the fully-funded programme over 12 weeks.

The scheme will focus on developing the practical skills and knowledge that small business and social enterprise leaders require as they grow their businesses. Four preview evenings will be held in the West Midlands prior to the launch of the 10,000 Small Businesses programme.

Contact: **www.abs.aston.ac.uk**

Dolomite Ltd teams with the Cavendish Laboratory to launch microfluidic device

In collaboration with Cavendish Laboratory, at the Department of Physics at the **University of Cambridge**, Dolomite, a world leader in the design and manufacture of microfluidic solutions, has designed a glass microfluidic device for a novel laser tool that allows the study of mechanical properties of cells using optical stretching on a single cell basis.

This new device can be used to trap and deform individual biological cells benefiting a wide range of application areas including cancer diagnosis, stem cell analysis and cell sorting.

Working closely with **Dr Jochen Guck** and his team from the **Cavendish Laboratory** Dolomite developed a multi-layered glass microfluidic chip featuring 3 inlets.

Its unique design integrates both fluidic and optical fibre channels allowing the chip to be used as a two beam laser optical trap for cell mechanical measurements.

One of the fabrication challenges was to ensure the optical fibres were aligned to micron accuracy so that the two laser beams met in a microchannel allowing the cells to be captured. After aligning, the fluid-borne cells are exposed to laser beams, which stretch them to probe their elasticity. Thus, cancerous cells, for example, can be detected as they are softer than healthy cells.

The optical stretcher offers a very cost effective and time efficient solution which compares favourably to traditional methods used to measure cell mechanics.

Contact: Dr Jochen Guck – **www.phy.cam.ac.uk** – **www.dolomite-microfluidics.com**

Top tips from the University of Cambridge's annual Dept of Engineering Design Show

Although the press office at the **University of Cambridge's** Dept of Engineering is not the smartest in the pack – it rarely sends out advance info on events – its annual **Design Show**, although now long passed, is worth considering for next year.

One tip: Best of all, apply via the sponsor **Shearline Engineering**, not the department.

Although the press office sought to highlight an utterly meaningless project involving an automated belay device for indoor climbing walls, the two highlights were undoubtedly **'Refruitalize'**, a tropical fruit dryer to provide dried fruit for growers (David Clark, Jean Paul Delport, Daniel Ho), and **'Epione'**, an MLD device for self-treatment of Lymphoedema (Alan Cruickshank, Mart Nitibhon, Emily Wakeford). Of passing interest is **'Foilfly'**, a face-down, surface water skimmer platform for beach lovers and surfers.

Contact: **www.eng.cam.ac.uk/news/stories/2011/design_show**

LATE DATES FOR SEPTEMBER 2011

26 September 2011 – Friends of Imperial College Visit – Professor Neil Alford.

The Department is one of the top three in the world and the oldest and largest department of its kind in the UK. It has leading research programmes in the synthesis, processing, and modelling of a broad range of materials directed to diverse applications such as nuclear, solid oxide fuel cells, aerospace, biomedical, automotive, communications and electronics. It promises to be a great visit. Numbers are restricted to 40 and members may bring one guest.

Contact: **www.friendsofimperial.org.uk**

27 September 2011 – Start Up & Entrepreneurs Business Exhibition
Basepoint Innovation Centre – Stopsley, Luton LU2 8DL.

An extensive range of 27 business exhibitors giving free specialist advice including funding, along with a fine selection of 11 varied and interesting business speakers providing 'Bite Size Business Tips Workshops'. A competition is being held for start up / young businesses entrepreneurs to submit their business proposal for an opportunity to present their business pitch to a panel of 5 judges, all Managers of regional businesses.

Contact: **luton@basepoint.co.uk**

29 September 2011 – London Regenerative Medicine Network Event
G04 in the Dept. of Civil, Environmental & Geomatic Engineering, Chadwick Building, University College London.

The September meeting of the London Regenerative Medicine Network, which will be a joint LRMN-Oxford Biotech Network (OBN) event: 'A UK Cell Therapy and Regenerative Medicine Company Showcase' to be held at University College London. Speakers include Dr Joanna Miller – Scientific Director, VetCell & MedCell, Dr Yen Choo – CEO, Plasticell & Progenitor Labs; Michael Hunt – CEO, ReNeuron Group; Gregg Sando – CEO, Cell Medica.

Contact: **www.obn.org.uk** – **www.lrmn.com**

Advance Notice – 24 November 2011 – Times Higher Awards
London.

The quality and innovation at universities across the UK shows the sector's resolute commitment to excellence in the face of a difficult and unpredictable climate. The shortlist for the 2011 Times Higher Education Awards showcases the sector's standouts. The winners will be announced at a gala ceremony at the Grosvenor House Hotel, London. The shortlist for the University of the Year includes University of Dundee, Edge Hill University, University of Nottingham, University of Sheffield, University of Southampton, and the University of Sussex.

Contact: **http://bit.ly/kOszX8**

AND FINALLY...

>> With regard to **Libya's fight for freedom** from a ghastly regime – it is interesting to note how often the commercial city of a nation is the first to lead the revolution against despotism. It was **Timisoara** in Romania in 1990 and not Bucharest which led the charge, and in Libya it was the citizens of the civilised city of **Benghazi** not Tripoli, who sparked the revolt. In East Germany in the 1989 the anti-Communist revolution started with mass protests in **Leipzig**, not Berlin. Sadly, in 1917, **St Petersburg** – the most westernised and cultured city in Russia – failed to make the best of the anti-Tsarist revolution, and even though its sailors fought bravely against the Communist party thugs later on to restore some semblance of human rights, the city lost out to Muscovites – and the wrong city came to control Russian history.

>> With most of us recently returning from holiday – **Debenhams** reports that a particular jacket – with lots of pockets – has been popular with would-be travellers.

Sales of Debenhams J by Jasper Conran jacket with seven pockets have gone up by 135% and the **Maine New England parka jacket** which has six pockets has also seen sales leap by 29%. **Vicky**

Hewitt, spokeswoman for Debenhams, said: “Our sales assistants have even reported some customers coming in with specific items like net-books and paperbacks, to check if they will fit in the pockets before they buy the coat or jacket.

“With the right jacket and trouser combo you can gain up to 11 handy pockets to tuck away holiday essentials; but beware when reaching into pockets so those extra undies aren’t spotted on the floor of Terminal 5.”

Rather than pay expensive charges for stowing suitcases in the hold of the plane, canny holidaymakers are using their free hand luggage allowance and “wearing” the rest of their baggage. After cramming what would be excess baggage into pockets, customers could gain a whopping 10lbs to their original body weight; saving themselves from the extortionate fees.

Customers prefer to pack heavier items such as books, cameras and electronic net books, into large pocketed garments, rather than pay fees up to £40 return, charged by some low-cost airlines for cases stowed in the hold. Passengers can pay dearly for going over the luggage weight limits, for instance **BMI** charges £7 per kg, **Thomson** up to £15 per kg and **Ryanair** £20 per kg, for excess baggage.

Contact: **www.debenhams.com/men/j-by-jasper-conran**

>> Users of the excellent **Meetup** community, which allows anyone to publicise and organize meetings of like-minded people anywhere in the world, will be surprised to know that the network was born through disaster of 9/11.

The founder **Scott Heiferman** was living a couple miles from the Twin Towers, and when the towers fell, he found myself talking to more neighbours in the days after 9/11 than ever before. People said hello to people whom they’d normally ignore.

‘Maybe 9/11 could bring people together in a lasting way,’ he thought, so the idea for Meetup was born: Could we use the internet to get off the internet – and grow local communities? He asked.

A small team – now there are 80 people at the New York HQ – launched Meetup nine months after 9/11. Today, almost 10 years and 10 million Meetuppers later, it’s working. Every day, thousands of Meetups happen. Moms Meetups, Small Business Meetups, Fitness Meetups... a wild variety of 100,000 Meetup Groups with not much in common – except one thing. Scott says: “The towers fell, but we rise up. And we’re just getting started with these Meetups.”

Contact: **www.meetups.com/cities/ny/new_york**