



Technology SMEs: The only hope for an ailing British economy?

Glimpse into a little-known world

**Technology Transfer Conference
University of Greenwich
4th April 2014**



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‘Heard of any of these SMEs?’

- **KP Technology**
- **Subacoustech Ltd**
- **TISICS Ltd**
- **Non-Linear Dynamics Ltd**
- **4cDesign Ltd**
- **Marlborough Engineering Ltd**
- **Limbs & Things**
- **Edinburgh Instruments Ltd**
- **Malvern Cosmeceutics**
- **Amsafe Bridport**
- **Next Generation Software Ltd**
- **Magma Global Ltd**
- **Damarel Systems**
- **High Voltage Partial Discharge Ltd**
- **Magna Parva Ltd**
- **Libaeration Ltd**
- **Monoidics UK Ltd**



‘OK, heard of any of these SMEs?’

- **Thomas Swan & Co**
- **Accuracy International Ltd**
- **Abcam plc**
- **Marine Current Turbines Ltd**
- **Brainboxes Ltd**
- **Tech-ni-Fold Ltd**
- **Ubisense plc**
- **Pictorial Meadows**
- **Applied Microengineering**
- **LUX Assure Ltd**
- **Zeeko Ltd**
- **Cipher Surgical Ltd**
- **Libaeration Ltd**
- **Damarel Systems Ltd**
- **Smart Metering Systems plc**
- **Victrex Ltd**
- **Magnomatics Ltd**
- **Cannon Tri-Laminates Ltd**
- **Deliverics Ltd**
- **Fern Communications Ltd**



‘..You *must* have heard of some of these SMEs?’

- **Nanosight Ltd**
- **Brewdog Ltd**
- **P2i Ltd**
- **Becrypt Ltd**
- **Ovation Systems Ltd**
- **Ultrafine Technologies Ltd**
- **TouchBionics Ltd**
- **Debbie & Andrew’s Sausages Ltd**
- **Bactec International**
- **Aberlink Ltd**
- **Metallisation Ltd**
- **Plextek Ltd**
- **Rolatube Technology Ltd**
- **DCS Europe Ltd**
- **LiquidLogic Ltd**
- **Digital Barriers plc**
- **Radox Laboratories plc**
- **Naneum Ltd**

Gibson Index Ltd – what we do..

- SME database of 49,000 firms across UK, in 50+ business sectors:
 - all SMEs researched, profiled and rated in terms of potential
 - 22,000 business interviews and meetings thus far
 - Clients: Shell UK, QinetiQ, Procter & Gamble, Dstl Porton Down
 - Institute of Physics, Royal Academy of Engineering
 - Univs: Greenwich, Birmingham, UCL Advances and Queen Mary UoL
 - Coventry University in London: UK's fastest-growing university, GI found internships for 500 of 1,000 one-year students in 2012-13
- Regular List of 'Emerging and Interesting' SMEs, to key spec..
- SME-PLC links research: 350 SMEs found for 2012 London Games events on behalf of BIS/UK Trade & Investment, August 2012
- Technology Reports: 'Future of Magnetic Technologies'; 'Unmanned Vehicles: UK capacity'; List: 'Top 250 UK SMEs'
- - Monthly Newsletter: 30 pages of news summaries/features on UK SMEs
- - Monthly Events Diary: detailed calendar of UK and international events and exhibitions



Twelve Ways to Search

Company Name	<input type="text"/>	Keyword Search	<input type="text"/>
Main Contact	<input type="text"/>	Technology Sector	Advanced Computing
Town	<input type="text"/>	Size of Company	All
Location	All	Rating	10
RDA Region	London Development Agency (LDA)	Staff Numbers	All
Accreditation & Certification	All	Primary Activity	All

SEARCH TIPS NEW SEARCH RUN SEARCH DOWNLOAD

Please note that a limit may be applied to the number of companies in your download.

Your search has brought up 2 companies.

Name of Company	Name of Main Contact	Company Website	Main Contact Email
Intelligent Financial Systems Ltd www.ifs.com	Sabine Toulson - co-founder	Adva	sabine@ifs.com
IFS is a small London-based software company which designs world-leading financial software.			
TW Research Ltd www.tw-research.com	Dr K D Ward	Adva	info@twres2.fs.com
The company has long-term dealings with QinetiQ plc, and it provides world-rated radar assessment and mathematical modelling.			
Professor E Jakeman FRS, who is employed part-time with the company, is international theoretical and applied physics, particularly in the areas of quantum and statistical optics. In the belief that such high level expertise, when backed up by the facilities of modern communication technologies, can provide timely and...			

Full Profile

Company Name	Address
AD Aerospace Ltd www.ad-aero.com	Abbots Park
Main Contact: Mike Horne - MD	City/Town: Runcorn
Email Address: mhorne@ad-aero.co.uk	Location: Cheshire
Technology Sector: Aerospace	Country: England
Annual Revenue: 9	Postcode: WA7 3GH
Rating: 9	Phone: 0870 442 4520
Size of Company: Subsidiary	Fax: 08704 424 524
RDA Region: North West Development Agency (NWDA)	Staff Numbers: 6-10 employees
Accreditation & Certification: Farnborough Attendee: 2004-2010	Primary Activity: Design & Engineering Design

Overview
Urgent requirements for airplane monitoring systems since 9/11 have boosted this firm.

Company Summary
AD Aerospace is based near Manchester, and it designs and manufactures a range of aerospace video camera products, including state-of-the-art video security systems. In addition to general airplane security applications such as threat detection, physical security and access control, these systems are used for monitoring activity in the cockpit, passenger cabin and cargo hold. CabinVu, the latest video camera system in AD Aerospace's successful FlightVu range of airborne security/safety video camera products, offers the flight deck crew an opportunity to assess the situation outside the cockpit door and identify people before allowing them access.

This has become increasingly more important following the DDT, FAA and ICAO rulings on the fitting of intruder resistant cockpit doors and provides a basis for decision making in critical and life threatening situations. AD Aerospace is a CAA/JAA approved designer and manufacturer of video camera systems for commercial aerospace. AD Aerospace is a wholly-owned subsidiary of AD Holdings plc, a transcontinental group with over 400 staff worldwide.

Other companies in the group include RemGuard - Visual Management, which provide a complete site security service, AD Compliance Services, an electro magnetic test center and AD Aviation is an aircraft private charter company. The company produced the world's first aerospace certified video server in 1999. AD Holdings Group is the world leader in multi channel digital video recorders.

The company is a CAA/EASA approved designer and manufacturer of video camera systems for commercial aerospace and an approved supplier to the Boeing Company. It has facilities in Manchester UK, Atlanta & Seattle USA, Toulouse, France and Singapore. In 2005, Manchester-based AD Aerospace was selected by Boeing supply a cargo hold viewing system for the main deck cargo compartment of the forthcoming Boeing 747-400 LCF (Large Cargo Freighter) aircraft.

This will enable the crew to view the main deck cargo compartment from the flight deck. The system will consist of a series of environmentally protected cameras and a series of LED illuminators, strategically positioned within the main deck cargo area, linked via a camera interface unit to the Electronic Flight Bag (EFBs) used by the flight deck crew. Each pilot will be able to individually select a group of cameras on their EFB display and view the image from a selected camera.

Mike Horne, Managing Director, AD Aerospace said "Video capability enables the flight crew of a cargo aircraft to view the cargo area without leaving their seats, especially important when as in this case the cargo compartment is unpressurised and not accessible during flight." The B747-400 LCF will be used to transport key components of Boeing's B787 Dreamliner for final assembly in Seattle. The B747-400 LCF is the most feat of engineering with a cargo compartment that by volume is three times larger than that of standard 747-400s. The video system will enable the entire area to be viewed during flight.

A typical FlightVu application has a series of cameras linked directly to a display on the flightdeck, enabling the pilots to visually check the identity of someone who has requested entry to the cockpit. This means they can confirm that the person outside is a known member of the cabin crew and that they are not acting under duress before they unlock the cockpit door. Such systems from AD Aerospace are now fitted to a growing number of airlines worldwide including easyJet, Thomsonfly, JetBlue and Air Asia.

Nigel Petrie, Chairman of AD Group said: "The AD Group company's industry-leading approach has been recognised by The National Business Awards and with AD Aerospace every success as they move on to the final stage of the judging process."

BACK NEW SEARCH

Twelve Ways to Search

Company Name	<input type="text"/>	Keyword Search	<input type="text"/>
Main Contact	<input type="text"/>	Technology Sector	Aerospace
Town	<input type="text"/>	Size of Company	All
Location	All	Rating	9
RDA Region	North West Development Agency (N	Staff Numbers	All
Accreditation & Certification	All	Primary Activity	All

SEARCH TIPS NEW SEARCH RUN SEARCH DOWNLOAD

Please note that a limit may be applied to the number of companies in your download.

Your search has brought up 12 companies.

Name of Company	Name of Main Contact	Sector	Rating
A&G Precision Toolmakers www.agprecision.co.uk	Arthur Pinder - MD sales@agprecision.co.uk	Aerospace	9
A&G Precision completed a £400,000 factory expansion with funding from NatWest in March 2008.			
Poulton-based manufacturer of precision components for the aerospace industry, the company employs 38 people and has a turnover of £2m. Arthur Pinder, managing director at A&G Precision, said: "The old premises no longer provided room for expansion and had started to impinge on the effectiveness of our manufacturing process. It was essential to create additional space." In July 2009 five axes mach...			
AD Aerospace Ltd www.ad-aero.com	Mike Horne - MD mhorne@ad-aero.co.uk	Aerospace	9
Urgent requirements for airplane monitoring systems since 9/11 have boosted this firm.			
AD Aerospace is based near Manchester, and it designs and manufactures a range of aerospace video camera products, including state-of-the-art video security systems. In addition to general airplane security applications such as threat detection, physical security and access control, these systems are used for monitoring activity in the cockpit, passenger cabin and cargo hold. CabinVu, the latest...			
Adelaide Engineering Co Ltd www.adelaideengineering.com	Owen Sharples - general manager owen@adelaideengineering.com	Aerospace	9
In April 2010 this ambitious engineering firmore than doubled its turnover after buying a Lancashire business in a deal which marks its entry into the nuclear sector.			
Adelaide Engineering, based in Heywood, acquired Leopold Grove Engineering, of Blackpool, for an undisclosed sum. Adelaide has a war chest for further takeovers through the backing of its owner, Oxford-based entrepreneur Robert Parks, who bought the business 13 years ago. The firm, which turns over £1.5m and has 15 staff, will re-brand Leopold, which has three employees and revenues of £1.9m, unde...			
APPH (Bolton) Ltd www.apph.co.uk	Dave Haslam - MD dhaslam@apphdt.co.uk	Aerospace	9
Every minute of every day, an aircraft fitted with "APPH equipment takes off or lands," says Dave Haslam, MD.			
The APFH Group of companies are aerospace integrators of landing gear systems, hydraulic systems, including steering and retract actuators, reservoirs, accumulators, dampers; pressure relief and maintaining valves, locks, emergency hand pumps, power packs and aero-engine fittings. Logistics support includes repair and overhaul, and spare parts distribution, supported by the UK and North American...			
CTS Group www.ctsgroupuk.com	David Moss - Business Development Manager dave6@ctsgroupuk.com	Aerospace	9
CTS Group are the recruitment consultancy services within aerospace industry.			
CTS Group specialises in a wide range of services such as avionics system engineers and consultants; real-time software engineers and consultants; design and structural designers, and consultants; reliability, maintainability and testability engineers, and consultants as well as the distribution of Process Control Instrumentation equipment...			
Delmia Ltd www.delmia.co.uk	Alex Wright - Marketing alex_wright@delmia.co.uk	Aerospace	9
Delmia Ltd (part of Dassault Systems) is the leading provider of digital manufacturing solutions to the aerospace industry.			
Dassault Systèmes recently announced the availability of its new Delmia Automation product line, which enables control engineers in all automation industries to digitally define, control and monitor automated systems entirely in a 3D virtual environment. Based upon a unique Logic Control Modeler (LCM) technology, Delmia Automation provides a digital model of control logic for an automated system...			
Edward Dewhurst Ltd www.edewhurst.com	Derek Bannister - Sales Manager derekb@edewhurst.com	Aerospace	9
Edward Dewhurst Ltd specialises in electrical contracting, aeronautical ground lighting, supply installation, commissioning and support.			
The company is a HV and stand-by power supplier as well as specialises in UPS systems, air conditioning systems, fire and security systems as well as high mast lighting installation and maintenance...			
Hycrome (Europe) Ltd www.hycrome.com	Eric Smith - Technical Manager eric.smith@core-group.com	Aerospace	9
Specialists in complete surface treatments, detail manufacturing and machining facility.			
The company has considerable expertise such services as chromic, sulphuric and hard anodising; chromate conversion; paint application and stoving as well as heat treatment, vapour, shot and vacu-blasting; shot peening; HVDF thermal spray; tungsten carbide coating and silicone carbide coating (HYC20). In addition, it offers electroless nickel plating, manual & CNC machining, mill...			
Invotec Group Ltd www.invotecgroup.com	Jeremy Brook jbrook@invotecgroup.com	Aerospace	9
Specialist in high tech printed circuit board manufacture, servicing military and aerospace companies.			
Invotec manufacture high quality PTH, Multilayer, Backplane and Flex-Rigid printed circuit boards, in a wide range of advanced materials. Finishes and technologies to exacting industry and customer specific specifications. The company offers a quality of service within the minimum of delivery times and at internationally competitive prices. Invotec holds 3rd party accreditation by BSI for the Q...			



So why are SMEs ‘our only hope’?

- Only 136 manufacturing firms with 1000+ staff in UK
- America has 2,074 large firms with 1000+ staff
- Just 6% of SMEs create 54% of all new jobs in UK
- Nearly all true innovation happens in smaller firms
- Most big UK firms are sharply cutting staff numbers
- UK’s hi-tech SME community: ‘Jewel in the Crown’
- Global reputation for excellence, quality, innovation
- Huge un-tapped export potential of top 50,000 SMEs
- PLCs are systems integrators – rarely pure innovators
- UK has 100,000+ high quality, high potential smaller companies cf. Germany: 10,000; Fr: 5,000
- The ‘Olympic gold medal’ in business: the achievement of starting, growing and sustaining a hi-tech SME



The Gap: Small Firms v. Big Government

- Policies from 1997 onwards – utterly disastrous for SMEs
- 95% of light manufacturing firms closed mid-1990s
- Catastrophic bias towards property boom and services
- Property boom crushed much vital SME infrastructure
- Exaggerated focus on IT and digital media sectors
- Obsession with bizarre ‘trophy’ projects by politicians
- Widely held belief: ‘China manufacturing is unbeatable’
- Widely held belief: ‘UK production musn’t be supported’
- DTI/TSB Smart Award programme: a pittance in funding
- Far too many academics in SME decision-making (TSB)
- Far too many scientists – far too few engineers in post
- US, Germany, France and Japan are engineer-led economies – how unlike that of the UK?



‘Technologies with *near-zero* potential’?

- **UK Government’s ‘Industrial Strategy Report’:**
 - .. Those eight ‘key technologies Britain must adopt’..
 - Big data and energy-efficient computing;
 - Satellites and commercial applications of space;
 - Robotics and autonomous systems;
 - Synthetic biology, Regenerative medicine;
 - Agri-science; Advanced materials and nanotechnology;
 - Energy and its storage..
- Graphene - £70m invested – yet ‘stanene’ on horizon
- Space techs –these are just comms and small satellites
- ‘Cloud’ telecoms – just remote working re-named?
- Renewable energy ‘research’: expensive and wasteful



Politicians obsessed with 'trophy projects'

- Crick Institute, London v. 1,000 SME Business Hub?
- Cambridge-MIT Institute = £65.1m total failure?
- £50m Energy Technologies Institute – big boy's club
- £16bn Crossrail v. £3.8bn multi-tier, surface artery
- £40m National Composites Centre, Bristol
- HS2: ultimate railway folly: total spending of £90 billion?
- Centre for Translational/Experimental Medicine, ICL
- £3m Enterprise Research Centre, Warwick/Aston
- 2012 Olympics: stadium design 'worst possible' legacy
- £800m Edinburgh tram system – simply a disaster
- £17m Margate Art Gallery v. seafront for local traders
- City centre 'regeneration' crushes small business hopes

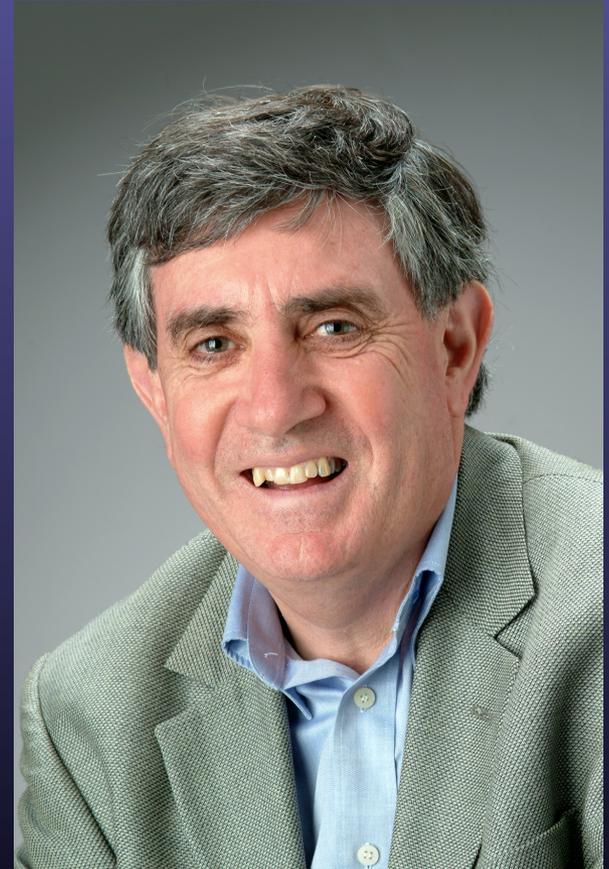


‘The Ones that Got Away’..

- DNA fingerprinting: genius of Prof Sir Alec Jeffreys, 1984 - worth £1bn in annual revenue, Leicester University.
- Technophone Ltd: develops first hand-held mobile phone – but sells to Nokia when no UK funder can be found, 1984.
- Fibre Optic Amplifier: Prof Sir David Payne, £1.5bn lost?
- Gene profiling and DNA microarrays: Sir Edwin Southern, Oxford Gene Technology Ltd v. Affymetrix Inc. of the US.
- Active Navigation Ltd - Southampton; universal search software that could have been ‘Google.. 10 years earlier’
- Magnetic Resonance Imaging - Nottingham; hard work of Sir Peter Mansfield, worth £millions per annum.
- Development of Ultrasound - Glasgow, Prof Ian Donald, 1950s, “the most important paper on medical diagnostic ultrasound ever published”.

Sir Paul Callaghan, keynote address at 'StrategyNZ – mapping our Future 2011'

- Lessons from New Zealand SME economy..
- - Top 10 tech NZ SMEs create \$3.9bn total turnover – year after year..
- - 'We need just 100 more SMEs = \$45bn'
- - Hi-tech SME income *only* makes NZ rich
- - Biggest exporter in NZ is manufacturing, bigger than agriculture
- - 'We' re really good at weird stuff' – high margin niche products, by entrepreneurs
- - eg Fisher & Paykel Pharma, Datacom, Tait Electronics, Magritek
- - 'These companies are invisible' ..
 'They don' t sponsor children' s football'
- - 'We don' t have visionary leaders'
- - Avoid fads: 'Cleantech' , 'Smart foods' –
 "These are complete and utter nonsense"





‘Solution: Focus on SMEs with potential

- Geo-Innovations Ltd: leader in terrain mapping graphics
- MCL Ltd: nano-teched chemicals in 1 tonne quantities
- Ceravision Ltd: plasma-based light source
- Aquafuel Research: glycerine fuel production
- Magnomatics Ltd: contactless gear system
- Dolomite Ltd: product family of micro-fluidics units
- Azotic Techs Ltd: nitrogen-fixing for plant cells
- Subacoustech Ltd: world leading plasma expertise
- Simpleware Ltd: 3D images converted to models
- RealVNC Ltd: remote monitoring from smartphones
- Repknight Ltd: world’s fastest open source data platform
- SwiftKey Ltd: eponymous keyboard app designer



Solution: Switch on to SME needs..

- Each University to establish own network of 3000+ SMEs
- eg. 1st year students to bring link to one SME with them..
- Transform Tech Transfer into a ‘top pay’ profession’.
- Start a ‘KCP’ scheme, where ‘C’ stands for Commercial?
- Expand UTC network as quickly as practicable – vital
- Make research *relevant* to SME products and processes
- Majority of UK manufacturing, of course, is not ‘High Value’
- HVM Catapults can help: avoid history of Nanoforce, QMUL
- Shift priority from research to *procurement* from SMEs
- Back high growth sectors where UK has real expertise
- Follow the successful serial entrepreneur (*not* ‘TV pundits’!)

Solution: 'Let's listen to Real People..'



Dr Colin Smithers
Plextek Ltd and Telensa Ltd



Nils Martensson
Technophone Ltd (1984)



Denys Shortt
DCS Group



Sir Peter Michael CBE
Quantel, UEI Plc, Classic FM



What are the best spinouts today'?

- Phase Focus Ltd: microscopy: University of Sheffield
- Smart Antenna Techs: micro-antenna: Birmingham Univ
- XO1 Ltd: drug for thrombosis, Cambridge University
- Actual Experience plc: IT analytics: QMUL spinout
- Attomarker Ltd: biomarker arrays: University of Exeter
- Provision Ltd: HDTV receiver: University of Bristol
- Avacta Group plc: diagnostics: University of Leeds
- Synthace Ltd: synthetic biology: Univ College London
- Voicekey Ltd: security recognition, Nottingham Trent
- Native Antigen Company: antigens, Oxford University
- Toximet: food toxin locator: University of Greenwich



**Tech SMEs: The only hope
for ailing British economy?**

‘Questions & Comments’

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