

# East Midlands Innovation Case Study Review 2007/2008

A report by *emda*

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# east midlands innovation

bringing bright ideas to life



funded by

  
east midlands  
development agency

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## Acknowledgements

We would like to extend our sincere thanks to all the businesses who have provided valuable information for this first 'case study review'.



# Foreword

By Barry Stickings, Chair, East Midlands Innovation

**In recent years there has been a shift in our understanding of innovation. Rather than considering only technology-based processes, innovation is now seen as something much broader – a process that converts ideas into new products, new services, new ways of running a business or even new ways of doing business. These ideas can be based on new inventions, or equally, on taking existing ideas and finding new applications or markets. People all over the world make their buying decisions on what's new, what's innovative, what's never been done before. Modern businesses are only as successful as their latest product or service; the emphasis on innovation and staying one step ahead of the competition has never been greater. We need to recognise that innovation leads to an increase in wealth and prosperity for those who are prepared to take the risk.**

The publication of this 'case study review' is designed to demonstrate that innovation can truly be an everyday thing, a process or set of activities with the potential to bring bright ideas to life. The case studies profiled cover the breadth of the region's key sectors, highlighting innovation in the way technology is developed and used, in the development of new and exciting products and better services for us all. However, and most importantly of all, these case studies highlight how people from high and low technology backgrounds are able to profit from innovation.

The Regional Science and Industry Council, East Midlands Innovation, on behalf of East Midlands Development Agency (*emda*), is spearheading the implementation of the Regional Innovation Strategy. A key theme is to 'create the environment for innovation'; an environment in which organisations and individuals collaborate to recognise and celebrate innovation success in the East Midlands.

I hope this publication inspires you and gives you an insight into innovation in the East Midlands. We intend to distribute the review to many national and international organisations to increase awareness of the region's innovation.

My thanks go to those who have contributed to this first 'case study review' and I wish you all continued success in your innovation endeavours.





# Innovation overview

## Why is innovation important?

In the majority of cases, innovation is regarded as a process that helps a business stay one step ahead of the competition. By introducing new ideas and new ways of doing things, a business is able to adapt more quickly to changes in the markets they operate in. It also helps the people involved to demonstrate their ability to develop new and exciting products and apply the use of technology in different ways. With the emergence of 'new' economies, such as India and China, the ability to innovate is now regarded as fundamental to future prosperity and wealth.

**The Governments of the European Community have responded to this challenge and agreed to make Europe "the most competitive and dynamic knowledge based economy in the world by 2010". The UK Government has committed itself to this objective by launching the 10-year Science & Innovation Investment Framework, which states: "The nations that can thrive in a highly competitive global economy will be those that can compete on high technology and intellectual strength – attracting the highest-skilled people and the companies which have the potential to innovate and to turn innovation into commercial opportunity. These are the sources of the new prosperity."**

the network



the future

In most cases the ability to innovate and bring bright ideas to life requires help from many of the public sector institutes. Universities, for example, are a hotbed of new and exciting ideas, ideas that provide opportunities for collaborating with businesses. East Midlands Development Agency (*emda*) has recognised this as one of many opportunities to encourage collaboration between science and industry and are introducing a number of business support products to encourage this collaboration. In particular, the Agency provides financial assistance, as it manages the Grant for Research & Development for Department for Business, Enterprise and Regulatory Reform (formerly Department for Trade and Industry), to help businesses exploit their ideas further.

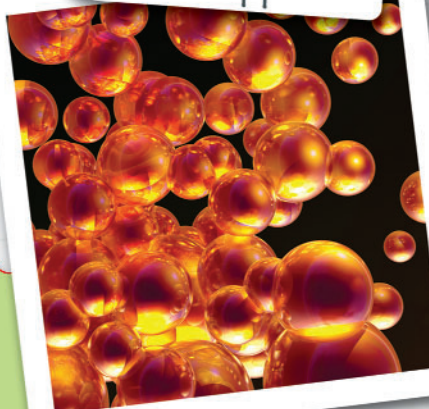
## Why a case study review is important

In order to attract new business opportunities it is important that we recognise, encourage and celebrate innovation across the region. The case studies provide a snapshot of the different types of innovation happening, in businesses large and small, across key sectors of the regional economy.

We hope this case study review provides you with the opportunity to:

- Collaborate with like-minded people and organisations
- Meet and establish new contacts
- Raise your profile and show your commitment to growing the level of innovation in the region

## the support



## the exchange



The Regional Innovation Strategy proposes a strategy focusing on the industrial and research strengths of the region. The case studies in this inaugural review are provided by businesses operating within key sectors and technology areas across the region.

The regional map illustrates the location of these businesses and the colour coding provides an easy reference point to their location within the booklet.



Healthcare  
New & Enabling Technologies

Food & Drink  
Transport Equipment

To help discover and support greater levels of innovation across the region a number of business-led innovation Networks (iNets) will be established, focusing on our regional industry and research strengths. These iNets bring together industry, research and other stakeholders from around the region with strengths in these priority sectors.

The iNets will help businesses across the priority sectors by providing support for:

- Stimulating demand for innovation skills
- Improving access to innovation finance
- Increasing business innovation

For further details about how you can raise the profile of your innovation visit [www.eminnovation.org.uk](http://www.eminnovation.org.uk) or call 0115 988 8300.



# Wound healing that gels

Sector:  
Healthcare

Company name:  
Advanced Protein Systems Ltd

What we do:  
Development of gel wound dressings  
that accelerate wound healing.

Location:  
Nottingham

Area of innovation:  
Product

Overview:  
Based in BioCity Nottingham, APS  
has developed a novel protein-based  
gel for the treatment of chronic  
wounds that exhibits a number of  
beneficial wound healing  
characteristics.

Advanced Protein Systems Ltd (APS) was set up in June 2003 by Dr Roy Harris, whose early career as a protein chemist enabled him to work on the characterisation and use of the protein albumin in a range of clinical applications. He recognised that albumin has many therapeutic properties that could potentially help to heal chronic wounds such as leg ulcers.

Chronic wounds are difficult to treat, take a long time to heal, and can lead to major nerve and blood supply problems. They also have a huge impact on a patient's quality of life. Increasing levels of obesity and associated diseases such as heart and circulatory conditions mean that this is a growing problem.

Roy had recognised that albumin has unique binding properties, which means that it can be easily modified. The real innovation in the APS range of products is the inclusion of copper, which binds naturally to the albumin and provides a natural infective barrier to bacteria, including MRSA. Albumin is also able to carry copper and other agents to targets to promote angiogenesis, the restoration of blood supply being essential to the wound healing process.

APS received a Department for Trade and Industry grant in early 2004, after Roy recognised an opportunity to commercialise the range of healthcare technologies using albumin he had developed and patented over the previous four years. The grant allowed him to focus the business on the development of gel products for the treatment of chronic wounds.

Albigel-P, a copolymer formulation with pectin, is APS's lead product – a gel wound dressing that is about to enter clinical trials. Roy hopes that a successful outcome from these will lead to licensing opportunities with the major wound care companies. The Company is also developing a novel platelet substitute/enhancer for use in situations where natural platelet count is low, for example in patients undergoing chemotherapy or major surgery.



“There is a major opportunity for APS to provide innovative and cost-effective chronic wound care products that differentiate themselves from existing products on the market in terms of improved wound healing and additional clinical benefits/usefulness.”

Roy Harris, Chief Scientific Officer



# Remote monitoring to prevent falls

## Sector:

Healthcare

## Company name:

TeleMedCare Ltd

## What we do:

Electronic health management solutions.

## Location:

Lincoln

## Area of innovation:

Product

## Overview:

TeleMedCare Ltd supply systems for monitoring chronic diseases, medication management systems to improve drug compliance and reduce drug wastage and vital signs monitors, for use in care/community settings and occupational health applications. The company has 10 employees in the UK, with a further 40 in the Asia Pacific region.

The term 'telemedcare' describes any service that brings health and social care directly to a user, supported by information and communication technology. This may be in the form of social alarms, such as a warden call system, lifestyle monitoring in leisure and fitness (telecare), or remote monitoring of vital signs for assessment, diagnosis and prevention (telemedicine).

TeleMedCare Ltd is recognised for its leadership in research and innovation, and has pioneered a revolutionary falls prevention device, the PreventaFall Monitor, an intelligent wearable device that collects data on the user's posture, gait and stance. The monitor sends automated alarms when someone falls and uses sophisticated algorithms to predict a tendency to fall, allowing carers to take preventative action. The monitor is far more sensitive than currently available pendant monitors or panic alarms.

A web browser has been developed to allow clinicians 24-hour access to patient records and health data. The web portal can show data alerts, actual data recordings, patient medication records and patient diaries.



In April 2007, TeleMedCare opened their new 'Health Smart Home' testing facility for supporting the elderly and chronically ill in Lincoln. The project is a collaboration with United Health, an independent health provider for the elderly, and is the first purpose-built site purely for demonstrating and testing health equipment and solutions for self-monitoring and independent living.

TeleMedCare won the 'Partnership with the NHS' category in the 2007 Medilink Business Awards. The company was particularly rewarded for its technology designed to support the management of chronic diseases, and the way in which TeleMedCare enables the NHS to empower service users to become expert patients and self-manage their conditions, so reducing hospital admissions and NHS costs.

Our primary focus is on developing innovative products and web-based services that will encourage patients to effectively self-manage their health. The technology, used in conjunction with the entire healthcare team, will result in improved case management and the effective use of resources, both human and financial.

Saneth Wijayaratra, Business Manager



# Pennine leaning forward

Sector:  
Healthcare

Company name:  
Pennine Healthcare Ltd

What we do:  
Manufacture of medical devices.

Location:  
Derby

Area of innovation:  
Product

## Overview:

Pennine Healthcare Ltd is one of the UK's leading manufacturers of single-use medical devices, producing over 50 million sterile products every year for use in over 70 countries worldwide. The company has around 260 employees and an annual turnover of just over £16 million.

Pennine Healthcare Ltd has taken the lead from its near neighbour in Derby, Toyota, and introduced lean manufacturing techniques and ideas to enhance their range of mucus extractors, used to collect specimens for microbiological examination. The product requirements were for a transparent, strong, graduated container with a colour-coded cap.

Pennine assembled a team from different areas of the business and looked at product quality, manufacturing costs, process flow, ergonomics and visual communication. They also used creative thinking sessions to look at areas where waste could be eliminated. The adoption of lean manufacturing allowed them to take a step back and look objectively at their processes.

The team identified several areas for improvement, both in process flow and product design, and came up with a solution that delivered an improved product at a reduced manufacturing cost. The process was helped by having in-house mould design capabilities.

The new Lean Culture is directly responsible for an improvement in Pennine's results significantly increasing profitability. There are several lean projects running at any one time and the company is now also looking to embrace Six Sigma. Pennine has become a point of reference for other companies looking to embark on lean manufacturing and has hosted visits from businesses wanting to learn from Pennine's example.

The principle of lean manufacturing has been adopted by many companies but few manage to sustain it – where Pennine has been successful is in integrating lean manufacturing into the culture of the organisation so that it is now employee-driven.



In order to compete we need to be the best at what we do, and by using lean manufacturing techniques and the experience of our employees, we were able to take a step back and see whether we were doing things the right way.

Steve Fisher, Lean Manufacturing Expert



Princess Anne visited the site as a result of Pennine's success in the Derbyshire Business Awards

# Adding a splash of colour to food

## Sector:

Food & Drink

## Company name:

MAP Technologies Ltd

## What we do:

Supplier of food colourants.

## Location:

Spalding, Lincolnshire

## Area of innovation:

Product

## Overview:

MAP Technologies Ltd supply synthetic and naturally derived food colours ranging from powder blends, granular blends, liquids and dispersions, to emulsions, together with a range of natural colouring extracts that impart colour to foods without having to be labelled as an additive. The company has 12 staff and a turnover of £1.4 million.

It is generally acknowledged that consumers make their initial judgements about food products based on their appearance – including colour – so first impressions count. It is only when a food product has met with visual approval that the other senses come into play. The old saying that people buy with their eyes has never been truer than with food.

MAP Technologies Ltd (MAP) was started in 2002 with the aim of providing food manufacturers and product developers with a comprehensive range of innovative food colourants. There is a commitment within MAP to always strive for new product innovations and to challenge the senses. Many novel products have been developed that offer customers an advantage when launching a new product into the marketplace, which in many cases has to fight for shelf space with often long-established products.

As the product range is so extensive, MAP has developed the Maptech Selector, available via their website, to speed up the selection process at the initial stages. MAP can then either offer a standard product from its extensive product range or develop a tailor-made product to suit the customer's individual requirements.

The support received from East Midlands Development Agency (emda) enabled us to upgrade the despatch area of the factory to accommodate container lorries, and has meant that we can now focus on engaging with customers in the confidence that we can get their product to them when they want it.

Peter Shaw, Managing Director



The export market is more and more important to MAP as manufacturing continues to move out of the UK into central European markets. MAP is now in a position to service this demand thanks in part to its upgraded despatch area, and the company has seen turnover increase by 35% during 2006/07.

MAP recently achieved British Retail Consortium accreditation from EFSIS, a global inspection and certification used throughout the food industry, to Grade A, the highest possible grade.



# Flying the flag for East Midlands food and drink

Sector:  
Food & Drink

Company name:  
Transfresh

What we do:  
Distribution of frozen, chilled or ambient temperature foods throughout the East Midlands.

Location:  
Nottingham

Area of innovation:  
Process

Overview:  
Transfresh operates as a local sourcing initiative for local food suppliers and producers, helping them to distribute their products to local retailers and build relationships with supermarkets and other outlets.

Clive Hallam and Nick Davies set up Transfresh in February 2006 to act as a central point of contact for local food suppliers in the East Midlands. Both had experience of the food industry, and they identified an opportunity in the recent and growing interest in local foods.

One of the company's earliest successes was to get local products into 10 Budgens stores in the region. The initiative, which was set up in conjunction with East Midlands Fine Foods (EMFF), began in August 2006 and ensures that products from local suppliers around the East Midlands – from bacon to ice cream – are retailed under the EMFF banner. The scheme has been a huge success, and Budgens now stock over 200 product lines from 60 suppliers, compared to 80 products from 20 suppliers when the scheme began.

It's often very difficult for small, specialist producers to get their products to retailers, but we have developed a system that overcomes this hurdle. The producers will be making just one weekly trip to our base, and then we will be distributing the products to local supermarkets in the region – making it simpler for both supplier and retailer.

Clive Hallam, Director

The company has recently won a contract with Center Parcs to supply fresh meat and desserts to its shops and restaurants, and another with Asda, who will initially stock local products supplied by Transfresh in 16 stores in Nottingham. For companies and retailers like Center Parcs and Asda, this means the convenience of one delivery rather than many small ones and a more environmentally friendly service, with reduced food miles – an area of growing importance to the supermarkets.

Transfresh moved to Southglade Food Park at the beginning of 2006 and into 2000sq ft hatchery unit in December 2006. Southglade Food Park, a development of 10 food manufacturing units and an associated business centre in Nottingham, funded by *emda* and managed by European funds and Nottingham City Council.

Many products that come to Transfresh are not shelf-ready and Transfresh offers a bar coding service to help with this. They also work closely with the Food and Drink Forum to ensure products are ready for retail.



# Bread boat on the crest of a wave

## Sector:

Food & Drink

## Company name:

Butt Foods Ltd

## What we do:

Speciality bakery products.

## Location:

Lenton, Nottingham

## Area of innovation:

Product

## Overview:

Butt Foods Ltd produces speciality bakery products for the sandwich, snack bar and catering industries, for retailers and food service companies. It supplies some of the major supermarket chains.

We were looking to develop an innovative range of products that could create tasty, quick and less formal meals. We've had really strong interest in both products, from the food service industry and retailers. Caterers are particularly keen because it brings something new and different to the table.

David Williams, Managing Director

Butt Foods Ltd was founded in Basford, Nottingham, in 1990 by Mazhar Butt, known for making outstanding naan breads in his Nottingham restaurant. The company moved to a new purpose-built 50,000 ft<sup>2</sup> factory in 1996, and now bakes up to 60 million products every year.

The company has created an innovative bakery product – the bread boat – recently chosen as one of 13 'truly innovative' products at the UK's largest food and drink fair. They also produce bread bowls – both products are baked in a special way to help them retain their shape and texture, and are being hailed as two of the most innovative products to hit the market recently. The bread containers are sturdy enough to hold meals, yet soft and tasty enough to eat.

Both products were developed in response to today's eating habits, and are aimed at 18 to 45 year old consumers looking for convenient meal solutions – research has shown consumers are eating more meals, but these tend to be light meals and snacks.

The idea of bread as a dish has been around for many years, with the United States dish clam chowder often served in sourdough loaves and stews served in bread rolls in Eastern Europe, but Butt Foods Ltd has taken the idea to a new level with the bread bowl range. The range comes in four flavours – white, Indian naan, wholemeal and Mediterranean herb.

Butt Foods Ltd is currently developing retail packs in response to demand from supermarkets, which will be launched by the end of 2007. It expects the range to clock up sales of £2 million by 2008 – the equivalent of a 1% share of the UK speciality bread market.





# Overtaking the opposition

## Sector:

New & Enabling Technologies

## Company name:

Renfrew Group

## What we do:

Industrial and Automotive Design.

## Location:

Leicester

## Area of innovation:

New Design Process

## Overview:

For the last 20 years, Renfrew has designed, engineered and styled a spectrum of products for all industry sectors, from consumer products to capital goods and safety wear to motorcycles. Clients include Michelin, Suzuki and Triumph. The company has 27 staff and a turnover of around £2 million.

Renfrew Group has specialist teams in product design, retail development, medical innovations and automotive design. The company believes that good innovative design is more than a mere cosmetic effect, and in its many transport projects one of the key considerations is how an audience interacts with a product. In public transport, for example, they take into account the effect a new design might have on the social interaction between fellow passengers.

Renfrew's innovative approach to automotive design centres on the CAD model data, which begins right after initial styling and packaging studies have been signed off. Designers and engineers work together to compile data on all the major chassis, bodywork or power train parts in a virtual CAD environment – well before any physical model-making takes place.

Renfrew Group is almost unique in Europe in terms of our deployment of a CAD master model driven process for automotive design assignments. In this arena our innovative skills have been used to hone the technique rather than the product, and in the process we've achieved a marked increase in quality and a significant reduction in timescale and cost.

Bruce Renfrew, Managing Director

Unlike traditional processes, where a physical model is hand-fashioned and then scanned, the data in their process is correct from the outset, having been built to accommodate packaging, ergonomics and dynamic specifications. This master data also forms the basis of all engineering analysis, physical surface definition or rapid prototype parts production for physical assessment of the design.

Renfrew's current methods reduce typical automotive development time by at least a third and allow simultaneous activities to take place far earlier in the programme. Overall costs are also cut – by the same amount or more – and so the time to market is significantly reduced.

The company is one of a handful of design organisations with a full automotive studio. Installed in May 2000, the facility can accommodate full-size vehicle projects with a maximum head height of 2.8 metres.





# Games in the making

Sector:

New & Enabling Technologies

Company name:

Strawdog Studios Ltd

What we do:

Develop video games.

Location:

Derby

Area of innovation:

Product

Overview:

Strawdog Studios Ltd is an independent games development studio, developing video game content for Sony PlayStation 2 and 3 and Microsoft's Xbox360, as well as creating products from concept to approval for the new generation of handheld devices like the Sony PSP and Nintendo DS. The team is also currently working on several 'casual' games projects, to be distributed digitally via the Internet and next-generation consoles.

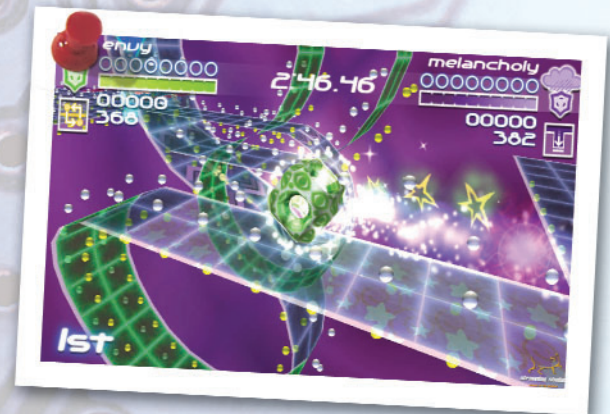
Strawdog Studios Ltd is to launch its first original game this year: 'geon - emotions', a fast-paced arcade action hybrid sports/collect 'em up game. It's a simple game, with limited text and no dialogue or story to follow, and takes only a few minutes to play. The game is played on a semi-transparent geometric grid and players must choose which emotion they want to play. On each side of the grid are hundreds of 'emotes' – small spherical pellets of emotional energy – together with larger colour-coded spherical 'Powerballs'. Each emotion has a special 'Powerball' that can be used against opponents to gain a tactical advantage. The aim of the game is to guide the emotionally themed cubes around the grid and collect all the 'emotes'. Once fully charged these fuse into a glowing 'ORA', which must be deposited in the opponent's goal. The first player to collect all the 'emotes' and score five goals is the winner.

The clear innovation with this project is the digital download element – basically there is no 'physical' product, box or manual. This effectively removes any retail involvement (which normally accounts for 50% of all revenues) and means that Strawdog Studios Ltd can deliver a product that is considerably cheaper, while receiving a larger chunk of the royalties. This is a new and growing area of the market, where gamers select and pay for the games they want via an Internet portal or next-generation console – they can also connect with other users and play them online, anywhere in the world.

“Nobody said it would be easy, and designing and producing an original game has certainly been a roller-coaster ride, but the whole process from design to production has been a very rewarding experience.”

Paul Smith, Managing Director

- The game is being published by Eidos, and was released on the Xbox360 Live Arcade (and available for PC download) in summer 2007. A download will cost around ten US Dollars.
- ORA is designed to be accessible to as wide an audience as possible. It can be played alone, against the computer or against another person via a portal. A VoIP facility means that players can talk to one another via headphones and it can be played using a keyboard or a console.
- The game is now at the beta stage; it will then go through a pre-certification stage with Microsoft using their test teams. Focus group feedback has been very positive, and once the game is released via digital methods it will also be available on other, more traditional platforms later in 2007.





# Nottingham to London to Brighton?

## Sector:

New & Enabling Technologies

## Company name:

Wellington Films Ltd

## What we do:

Produce feature films.

## Location:

Nottingham

## Area of innovation:

Operational

## Overview:

Wellington Films Ltd was founded in 2000 by producers Rachel Robey and Alastair Clark. Their first feature film *London to Brighton* was the most critically acclaimed British film of 2006. The company began by producing and developing short films, and are currently in post-production on their second feature *Better Things*.

Wellington Films Ltd shot their debut feature film, *London to Brighton*, in October 2005. It premiered at the 2006 Edinburgh International Film Festival, where it won the Skillset New Director's Award, and was nominated for a BAFTA. The film was released by Vertigo Films in the UK in December 2006 and is now being sold internationally by Independent.

Alastair Clark and Rachel Robey the producers of *London to Brighton* met the director of the film, Paul Andrew Williams, when working with him on a short film. *London to Brighton* is based on two of the characters (and cast) from that film. Paul contacted Wellington Films Ltd with the script, and within four months the film was in production, taking only nineteen days to shoot – an incredibly quick turnaround. The shoot was planned like a military campaign because of the tight budget.

*London to Brighton* was produced in a very innovative way. Wellington Films Ltd did not seek any funding for the shoot, as they wanted to make the film quickly and 'under the wire'. Everyone worked on a deferred payment and shared profits arrangement – neither the cast nor crew received any money during the shoot. The UK Film Council came on board later, having seen a cut of the film. Cast and crew will be paid a proportion of the film's profits – which, thanks to all the awards and plaudits the film has received, look like being healthy!



Feature film production is a constantly changing industry that requires innovation and ingenuity in order to successfully progress.

Alastair Clark, Producer



- Wellington Films Ltd is one of only a handful of film production companies in the East Midlands, and few of those make feature films – and to make two feature films in two years is very unusual.
- *London to Brighton* came out on DVD in April 2007 and Sony has released the soundtrack. It's a great coup for Wellington Films Ltd that it will be available in the shops.
- The shoot and edit budget for *London to Brighton* was only £80,000 – less than the catering budget on most feature films. Wellington Films Ltd's second feature, *Better Things* by Duane Hopkins – very different to their first – had a £1 million budget.

# Horror movies are getting new blood!

## Sector:

New & Enabling Technologies

## Company name:

Threshold Studios

## What we do:

Bespoke training for the creative industries.

## Location:

Northampton

## Area of innovation:

People

## Overview:

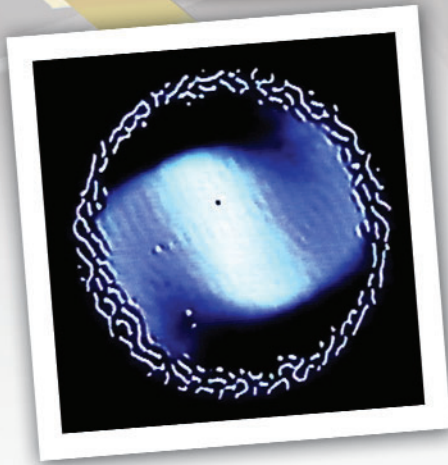
Threshold Studios was set up in 2003 by media professionals in Northamptonshire to share resources, engage young people in creative learning through media, and improve access to the creative industries for under-represented sectors of the community. There are currently three full-time and one part-time employee with around 10 freelance associates.

Research from Skillset and the UK Film Council has shown that more women than men are now watching horror films – in particular young women under 25 – so why are there still so few women directing them? This finding led to Threshold Studios launching a unique and innovative training and production initiative to encourage women directors to reinvent the horror genre for the 21st century.

With funding support from Skillset's Film Skills Fund, 'Darklight: Women Direct Horror' provides an opportunity for female directors to develop their horror ideas through residential workshops and with specialised script editing and mentoring support. At least two of the ideas developed through the programme will be produced by Warp X, the UK low-budget digital film studio set up by the UK Film Council's New Cinema Fund and Film4 with partners EM Media, Screen Yorkshire and Optimum Releasing.

The Darklight project has given Threshold Studios a national stage to showcase our bespoke approach to providing training and development solutions for the media industries sector – it will certainly provide a firm foundation for us to take a tailor-made hammer to another glass ceiling.

Uzma Choudhry, Creative Director



Darklight showcases the professional development role Threshold Studios take within the creative industries sector. It was launched at the Edinburgh Film Festival in 2006, and at festivals in Bristol, Bradford and London.

From 76 applications, 10 female directors have been selected for Darklight, with a diverse wealth of experience ranging from BAFTA-nominated shorts to art installations to television documentary.

The directors will work with actors, sound recordists, lighting and camera talent during master-class weekends, and engage in a period of one-to-one story development. Darklight will culminate in the commissioning of four of the directors to develop their ideas into full treatments. Warp X aim to green light two of these as feature films for production in 2008.



# Check in with Checkprint

Sector:  
New & Enabling Technologies

Company name:  
Checkprint Ltd

What we do:  
Secure payment solutions.

Location:  
Hinckley, Leicestershire

Area of innovation:  
Product

## Overview:

Checkprint Ltd, a member of the TALL Group, is the UK's leading provider of secure print and payment solutions for banks, building societies, financial institutions and over 20,000 businesses including 70% of the FTSE top 100. The company employs 56 people at their site in Hinckley and has an annual turnover of approximately £4.5 million.

Specially printed cheques and credits, such as those featured on the "Who Wants to be a Millionaire" television programme, form the core of Checkprint's activity. The company has built on this foundation in recent years and brought to market a range of innovative software solutions to help businesses overcome their payment systems challenges.

Their software systems include the CHECKPRINT Banking Assistant – a cheque image capture and archive solution that scans cheques and links the information to a database, which can be integrated with a company's own accounting system. The system uses a combined magnetic ink character recognition reader and image scanner to capture all the details from the cheques being deposited. This improves financial efficiency by reducing the need to manually record cheque details and uses less paper.

Checkprint recognised the dramatic fall in the use of cheques, but its innovative approach to payment systems has enabled the company to succeed in what is a difficult and challenging marketplace – so much so that in 2005 the company was awarded the Queen's Award for Enterprise for outstanding achievement in innovation.

Other Checkprint products include an e-remittance advice module that confirms successful BACS transmission and distributes an advice note by email, fax or print; secure digital print-on-demand software and a unique stock management/replenishment programme.

Since being awarded the Queen's Award for Enterprise in 2005, Checkprint has seen demand for their payment solutions increase considerably and turnover has increased by around £750,000. The contribution from these products is on track to reach £1m in 2007.

Starting from scratch we have created a range of products and services for banks, building societies and other businesses, to receive payments in a secure, auditable and cost-effective environment. As customers move from paper to electronic payment methods we are able to move with them rather than lose their business.

Martin Ruda, Managing Director



# Roadside detectives

## Sector:

New & Enabling Technologies

## Company name:

Vehicle Occupancy Ltd

## What we do:

Automated vehicle occupancy detection technology.

## Location:

Loughborough

## Area of innovation:

Product

## Overview:

Vehicle Occupancy Ltd is a world leader in the development, manufacture and support of equipment that counts the occupants in moving road vehicles. The company is due to start production in late 2007 and currently has eight staff.

Vehicle Occupancy Ltd has launched dtect, an automated system to count the number of people in a moving vehicle. dtect can be used for applications such as congestion charging, road tolling, and detecting cars with multiple occupants in car-sharing lanes. The complete dtect system is contained within a single weather/vandal-proof housing and can be installed either by the side of the road or on overhead gantries. Once installed and configured dtect can be controlled via an encrypted internet link.

When it receives a signal from the vehicle position detection system, dtect illuminates the windscreen area with two different wavelengths of infrared light. Two specialised digital infrared pictures are taken of the windscreen at the instant of illumination. These pictures are processed using unique algorithms to determine the number of occupants. dtect completes its processing within a fraction of a second of the original trigger signal. The output, in the form of the occupancy count and the pictures used to determine that count, is transmitted using the dtect encrypted internet interface.

"The next year will be an exciting time for Vehicle Occupancy Ltd - dtect will go into production and we need to develop a worldwide sales and support network."

Tim Ballantyne,  
Business Development Manager

The output from dtect can either be integrated into a larger automated traffic management system or transmitted to a remote terminal for human post-processing. For privacy reasons the picture output from dtect is modified to disguise the identity of the people in the vehicle.

dtect only requires a suitable support structure, a power supply, a cable or wireless interface to the internet and a vehicle position detection system to trigger its operation.

The system has been tested near Edinburgh and between Leeds and Bradford, and will be on the market by the end of 2007.



Test installation at Loughborough University gatehouse



The Vehicle Occupancy dtect unit



# Lestercast 'lifts off' to double turnover

Sector:

New & Enabling Technologies

Company name:

Lestercast Ltd

What we do:

Manufacturer of high quality, precision investment castings in a range of metals and alloys.

Location:

Leicester

Area of innovation:

Process

Overview:

Lestercast Ltd produces investment castings for a wide range of applications – everything from aerospace components and specialised lock parts to golf club heads and prestige car marques for high profile and international companies.

Based on a technique dating back to Ancient Egypt, Lestercast Ltd manufactures bespoke cast components for industrial and commercial purposes in a range of metals and alloys including stainless steel, mild steel, high nickel chrome, aluminium, inconel and hastalloy X. To support its manufacturing capability, Lestercast Ltd has sought to develop and extend its range of services, including the use of new technology and rapid prototyping, and has established a successful working relationship with an investment casting foundry in China to produce its high-volume orders – all part of a total solutions package offered to customers by the Investment Casting Centre.

Support from the LiftOff scheme has enabled Lestercast Ltd to source innovative production software – specifically designed for the investment casting process – to increase efficiency and expand its markets. The software enables customer, technical and production data to be automatically updated as a casting travels through the manufacturing process, and utilises barcodes to access photographic images of the part during the production cycle, so that operators can quickly identify components and determine the next stage.



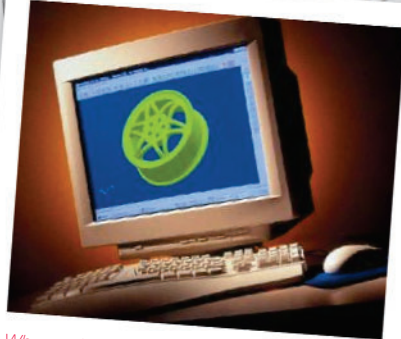
The LiftOff scheme is delivered by the MAS EM, which helps regional aerospace-related companies boost their profits

LiftOff has helped us fund the specialist IT support we needed to take our company to the next level. Without it, development costs would have been prohibitive.

Chris Batty, Managing Director



Lestercast makes castings for anything from automotive parts to golf club heads!



Who would have thought that a casting technique invented by the Ancient Egyptians would be the basis of world-beating technology?

The software provides an automatic link with the company's financial system and has sophisticated reporting capabilities to enable the company to extract valuable data for sales and marketing purposes.

- The company is set to double its turnover to £6 million in 2007.
- A further five employees have been recruited as part of the expansion programme.
- Although too early to put an exact figure on how much the company has saved by its increased efficiency, there's no doubt that the new technology is helping to attract lucrative new customers and expand its markets.



# Engineering revolutionary solutions

Sector:  
New & Enabling Technologies

Company name:  
BGB Innovation

What we do:  
Develop electrical slip ring systems for rotary applications.

Location:  
Grantham

Area of innovation:  
Product

Overview:  
BGB Innovation incorporates BGB Engineering, BGB Marine and BGB Digilinc. Major markets include wind turbine control and power transfer; water and sewage treatment; underwater lighting and camera systems; and wireless Ethernet monitoring systems. Turnover is currently around £8.5 million, and the company has 70 employees.

BGB Innovation (BGB) continually strives to innovate and adapt its products for niche markets. They are the European Leader in Wind Turbine slip ring technology and keep at the forefront of any innovations through partnerships with such companies as Vestas, Siemens and ABB.

The company uses an innovative design process – in some cases BGB designers have effectively become an extension to the customer's Research & Development department. Designers work on a one-to-one basis with their customer and adopt a holistic approach to each project, being responsible for costing/estimating, quoting, organising prototype manufacture and testing, as well as design concepts and detailing. Constant exchange of designs and ideas has led to strong long-term partnerships.

The development of hub control and power supply slip ring systems has been key in contributing to company growth over the last 10 years. In 2006 these product applications accounted for 19.8% of BGB's operating revenue and the company now has a high percentage of the world's wind energy slip ring market. BGB is either trading with or is in discussion to supply the majority of major wind turbine manufacturers.

BGB Innovation has grown considerably in the last five years, with turnover growing at an average rate of 26% per annum. This increase is expected to continue for the foreseeable future. Over 90% of turnover is now achieved through exports.

The company has won several awards recently as a result of its innovative and progressive approach to manufacturing – the IMECHE MX2006 Award for People Effectiveness and the Edge Employer of the Year award – and has been a finalist in the National Business Awards.

BGB Innovation manages to stay at the forefront of the wind turbine industry by constantly innovating, improving on processes and building strong collaborative partnerships.

David T Holt, Managing Director



MD David T Holt and Marketing & IT Systems Manager James Tupper collect the IMechE Award for People Effectiveness from Rt Hon William Hague MP



Cellular team working – Green team manufacturing Brush Assemblies



# Good connections at 30,000 feet

## Sector:

Transport Equipment

## Company name:

Bulwell Precision Engineers

## What we do:

Manufacture of aerospace components and assemblies.

## Location:

Pinxton, Nottinghamshire

## Area of innovation:

Product

## Overview:

Bulwell Precision Engineers is a world leader in the manufacture of machined parts, kits and complex assemblies for the aerospace industry. Customers include Rolls-Royce, Umeco, Hawker Beechcraft and Airbus. The company is part of the Nasmyth Group, employs 270 people, and has a turnover of around £23 million.

The company was formed in Bulwell in Nottingham, but relocated to Pinxton around 30 years ago. Its activities break down into the machining of components that are either supplied direct or as part of a kit, and critical performance assemblies and kits. Vulnerable to offshoring and outsourcing, Bulwell Precision Engineers has had to improve its service offering, adding value in more complex products and offering a more integrated range of products.

Bulwell Precision Engineers has recently worked with a partner to develop connectors for the fuel and hydraulic systems in Airbus A380 wings. These connectors are larger and more complex than those on other aircraft, and require more sophisticated engineering and materials. Problems were encountered during the design phase of the A380, requiring huge changes to the configuration of the fuel connectors. Such parts are usually made from metal castings, and any design changes mean having to produce an entirely new casting – which in turn requires a new tool and a new die – a costly process that can take up to 20 weeks.

Bulwell Precision Engineers has developed a 'machine from solid' technique to produce these components, which does away with the whole casting process – parts are made from a solid piece of metal using high-speed milling. This has several advantages; changes can be made quickly and easily simply by making changes to the software; parts can be made with reduced wall thicknesses, so reducing the overall weight, an important consideration in an aircraft as large as the Airbus A380; and because the parts are made from solid metal, porosity is reduced and the risk of leaks is much lower.

After the parts have been machined, they have to be anodised to prevent corrosion and painted. Bulwell Precision Engineers has set up a new joint venture business, GEB Surface Treatments, to do just this. These processes are carried out on the same site, providing an overall supply chain to the customer, improving turnaround times and speeding up the product development cycle.

Airbus has just launched a military aircraft. Bulwell Precision Engineers and their partner have identified that all the connectors can be machined from solid billets.



Three years of investment in developing our manufacturing methodology, programming capabilities and 5 axis machining has now given us the leading edge in machining complex components. Our team now know anything can be machined from solid!

Simon Beech, Managing Director

# Every pipe has a plastic lining?

## Sector:

Transport Equipment

## Company name:

EPL Composite Solutions Ltd

## What we do:

Specialised applications of polymer composites.

## Location:

Loughborough

## Area of innovation:

Technology

## Overview:

EPL Composite Solutions Ltd spans the entire development cycle from applied research through design to process characterisation and low-volume manufacture, with the aim of reducing weight, reducing cost, and substituting cleaner and sustainable manufacturing processes for the automotive, marine, rail and construction sectors.

EPL Composite Solutions Ltd (EPL) specialises in applying advanced polymer composite materials to applications such as wind turbine blades, composite crash barriers, bodies and decking for vans and trucks, and emergency accommodation units and housing.

The company worked with Severn Trent Water, Anglian Water, Yorkshire Water and NCC Denmark to develop an innovative and fully patented pipe lining technology, known as the Aqualiner process, for the water and sewerage markets. Aqualiner is a trenchless refurbishment technique for relining corroded and worn out water pipes, to prevent water leaks and conserve future water supplies.

The self-contained Aqualiner equipment lines the water or sewerage pipe with a thin but extremely strong thermoplastic polymer composite in situ, doing away with the need to dig up roads and making the whole process very cost-effective.

The ability to form a new water mains pipe within the old corroding pipe, without digging the road up, is seen as a major technical breakthrough – with potential applications all over the world.

Gerry Boyce, Managing Director



The state of some existing water pipes

There is an estimated 120,000 km of water pipes needing repair in the UK alone, most of which are more than 50 years old. The cast iron is corroded and salts have been deposited on the interior, leading to reduced water flows and leaks. To put this in context, Thames Water alone are estimated to lose 70 billion gallons of water every year through leaks.

The Aqualiner process uses a 'heated pig system', which heats, forms and fuses a mixture of glass fibre and reinforced polypropylene as it passes through the pipe, pushing it against the interior of the pipe to form a smooth, thin homogeneous lining.

Aqualiner was field tested in August 2007, followed by a period of product development involving a refined prototype; and final trials will take place in March 2008. Final water authority approvals at this stage will allow product launch in June 2008.





# Setting the standard for tomorrow's composite professionals

Sector:

Transport Equipment

Company name:

Advanced Composites Group Ltd

What we do:

Manufacture of high-performance pre-impregnated (prepreg) fibre-reinforced composites.

Location:

Heanor, Derbyshire

Area of innovation:

People

Overview:

The Advanced Composites Group Ltd, part of Umeco plc's Composites Division, provides a unique combination of composite materials, design and manufacturing expertise. The Group employs 500 staff worldwide, with a UK workforce of around 270, has a turnover of £60 million and produces nearly 3.5 million m<sup>2</sup> of prepreg per year.

Since The Advanced Composites Group Ltd (ACG) was established in the early 1970s, it has been at the forefront of composites technology development, and has always provided training to its customers. In January 2007, ACG launched a new range of training courses for customers and staff, which can be tailored to suit individual requirements. These courses are aimed at composites designers, engineers, laminators and fitters.

Although ACG had always provided training to companies purchasing their products, little formal in-depth training was available in the region. The Midlands Aerospace Alliance (MAA) identified a potential skills gap, and contacted ACG with a view to putting their courses on a more formal footing.

With a comprehensively trained workforce, innovation becomes an easier process, enabling a company to gain commercial advantage.

Steve Shepherd, Project Leader



The idea proposed by the MAA is that ACG will become a Centre of Vocational Excellence for Composites. Initially, this centre will provide a service to aerospace companies and students in the region, but the ultimate aim is to extend this to other market sectors.

The objective is to match the needs of the aerospace industry by providing appropriate, targeted training. ACG will become recognised as an innovator in the delivery of high-class training services to support its materials and their end-use applications.

Although ACG's early years focused on the automotive industry, particularly motorsport and Formula One, its prepreps are now widely used by major aerospace companies for large-scale tooling. For example, the Virgin Atlantic Global Flyer, which used ACG materials, completed the first non-stop flight around the world for a jet aircraft in 2005.



# Strength lies upon firm foundations

## Sector:

Transport Equipment

## Company name:

Paul Fabrications Ltd

## What we do:

Produce value-added fabricated and machined assemblies.

## Location:

Castle Donington, Derbyshire

## Area of innovation:

Technology

## Overview:

Paul Fabrications Ltd is a major manufacturer of quality precision fabricated and machined assemblies for the aerospace, nuclear, power generation and defence industries using materials such as titanium, nimonic alloys, aluminium and stainless steel. The company has 125 staff, and turnover for 2007 will be c.£8.2 million.

The company has changed dramatically since moving to the new facility, with the introduction of improved manufacturing processes, and customer and product-focused work groups. These step changes were a fundamental factor in Meggitt placing their contract.

Ingard Sagstad, Managing Director

Paul Fabrications Ltd was founded in 1937 and since then has been involved with the development of many major engine programmes for both civil and military applications, and is an approved supplier to Rolls-Royce plc, Goodrich Aerostructures Group, BAe Systems and Unison Engine Components.

The company is committed to developing partnerships with its customers using leading edge technology and innovative solutions. Capabilities include laser cutting, drilling and welding, surface finishing and metallurgical testing.

Paul Fabrications Ltd has recently signed an exclusive five-year supply agreement with Meggitt Thermal Systems for a programme of titanium fabricated components for the S92 Sikorsky helicopter.

The company has recently moved to a new 40,000 ft<sup>2</sup> facility, enabling it to further develop its business with its major aerospace customers. It exhibited at the 2007 Paris air show to demonstrate its expansion plans to the industry.

Expansion is also under way for its sister company, Precision Laser Processing Ltd, which has recently invested £500,000 in new capital equipment. This will be used to service several new contracts, including the production of complex aerospace brackets.







**East Midlands Innovation**

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