

FutureStory

**Newcastle and
the North East**

Acknowledgements

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02 FutureStory Newcastle and the North East

Newcastle and the North East prospered as the engine of the industrial revolution. By supplying coal, harnessing steam, and building ships, the cities of the region powered the UK to become a major player in the global economy. Innovation and engineering – combined with a sense of entrepreneurial drive – grew big industries that spread all over the world and created thousands of jobs, bringing wealth to the North East. Today the North East must grasp the new opportunities presented by a new era of globalisation.

The heart of the region's economy was hit hard by the first wave of globalisation. Rapidly changing technologies and competition from other parts of the globe made the old big industries unviable. During the second half of the twentieth century, many businesses disappeared – including the iconic shipbuilders on the Tyne and Wear – and coal mines across the region closed down.

Since then, significant public investment has established internationally successful cultural centres on the banks of the Tyne and attracted cutting-edge scientists to the heart of the city. In the first wave of investment, what had previously been industrial sites, like the Quaysides, were revitalised and now draw visitors from all over region. The second wave established a centre for ground-breaking life sciences in the centre of Newcastle.

Today, in sectors as diverse as marine engineering, accountancy software and baby accessories, businesses which started locally have grown to serve customers worldwide. Alongside them now are increasing numbers of small entrepreneurial firms just starting out.

Education is adapting to build the talent and skills which will be needed for the jobs and industries of tomorrow – with schools, colleges and universities branching out into new subjects, from music to genetics and marine engineering.

A third wave of investment is bringing green industries to the North East coast, presenting an opportunity for the region to lead the way in the low carbon economy. With a renewed commitment to enterprise and innovation, the North East can succeed and grow.

So everywhere you look today, you begin to see the future story of Newcastle and the North East.

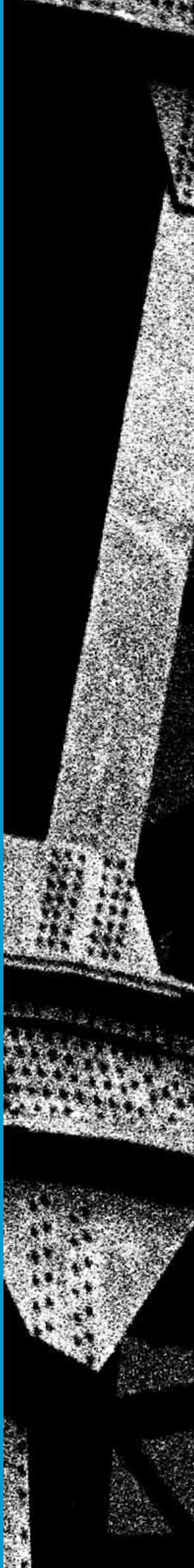
The North East has **5 Universities**, and **18 Further Education colleges**, with nearly **96,000 students**

Nearly **600 overseas companies**, from 32 countries **employ over 27,000 people** in the region

Although still behind the average for the UK, entrepreneurial activity in the North East is catching up... in 2008 **6% of people** said they expected to **start up a business** in the next 3 years

Engineering skills and enterprise have been the life blood of the North East in the past, and will be its life blood in the future.

Engineering and enterprise





06 Centuries of global industry

The North East is famous for big industries, coal mining and shipbuilding – which grew out of innovation and the enterprise of the people of the region. While these have gone now, new innovative industries and entrepreneurial businesses are starting to take their place.

17th Century



In the 17th century, a Royal Charter granted exclusive rights over the coal trade to the Hostmen of Newcastle. Using the city's position on the North East coast, the region grew rich on the back of the collieries across Northumberland and Durham exporting coal to Europe.

19th Century



In the 19th century, the shipyards which grew up in Newcastle, Sunderland, Teesside and Hartlepool, along the Tyne and Wear rivers, became power-houses of the industrial revolution.

20th Century

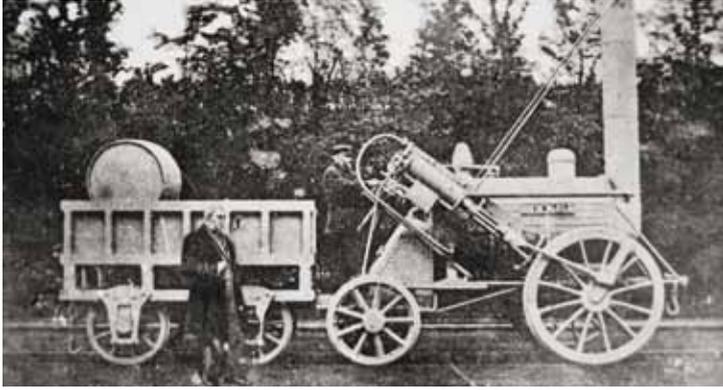


In the 20th century, as the world economy was hit by the great depression, the North East's heavy industries – coal, shipbuilding and traditional engineering – went into decline. In 1936, 200 men famously marched from Jarrow to Westminster in protest at the loss of jobs.

Coals from Newcastle were shipped from the North East all over Europe – and between **1565 and 1625** the coal trade **grew x12**

The **population of Newcastle** grew from 87,000 in 1851 to 266,000 in 1911 – **x3 in 60 years**

Between **1984** and **2007** the North East lost around **100,000 manufacturing jobs**



Beginning with small innovations and driven by an entrepreneurial spirit, the North East has a history of building industries that have spread worldwide and change people's everyday lives.

In the 7th century Sunderland was the first place in England to make stained glass. During the Industrial Revolution, in the 19th Century James Hartley patented his new technology for sheet glass, which was later used to build factories the world over. By the 1860's Sunderland produced one third of all sheet glass in England.

In 1823 the world's first locomotive engine factory was opened in Newcastle, by George and Robert Stephenson. It was where Stephenson's Rocket was built.

In 1878 Joseph Swan's light bulb was patented and his house in Gateshead was the first to be lit by an electric bulb.

The North East today



The era of the heavy industries has gone. In 2007, Swan Hunter Shipyards were bought by the Indian Bharati Shipyard, and the iconic cranes were dismantled and transported east.



New industries, built on modern science and engineering, are taking their place. In 2002, the New and Renewable Energy Centre was opened at Blyth. And once again using the seas off the North East coast, the region is looking for opportunities to build innovative industries.

Though the old industries are gone, there are new centres of creativity and enterprise. All sorts of businesses will help shape the future of the region – and the economy of the future is demanding different kinds of ‘know-how’.

Centres of the North East today





10 Newcastle Gateshead Quayside: the place for a night out in the North East

The Gateshead side of the river boasts two iconic cultural centres. One, the BALTIC, is a converted grain warehouse that now houses an ever changing programme of contemporary visual art. The second, The Sage Gateshead – a landmark building designed by Norman Foster – is dedicated to music.

Photo: Alex Telfer



In 1996 the site of The Sage Gateshead was just a plot of decaying industrial wasteland. The gleaming building which stands now between the Tyne Bridge and the Gateshead Millennium Bridge attracts visitors from the cities, from all across the North East and from all over the world.

Lucy Bird, Director of Marketing and Development, tells the story, “The traditional industries in Newcastle and Gateshead were coal mining, steel and ship building. Fifteen to twenty years ago, as those traditional industries disappeared, the plan was to regenerate the region through culture and creative

industries. The Foster designed building is a physical representation of the idea behind The Sage Gateshead: it’s enabling culture to lead regeneration”.

“We welcome international artists from all over the world. Stars like José Carreras, Elbow, Ibrahim Ferrer and James Brown have performed here, which is very important for us. It’s also about new and emerging bands, and it’s about local young people who take part in our programmes and might become the musicians of tomorrow. It’s an international cultural organisation in a place that fifteen years ago couldn’t have imagined this kind of opportunity happening here”.





From the outset The Sage Gateshead was set up to enable everyone to take part in music. “We run about 38,000 Learning and Participation sessions in the building every year,” explains Lucy, “and we employ musicians who work across the whole of the region in virtually every community. We have a wide reach: from music sessions for toddlers right through to a ‘silver programme’ for the over 50s, from those excluded from school to those preparing to enter the world of work through the Entry to Employment programme, and even a specially devised Trainee and Apprenticeship programme.”

“ We employ musicians across the whole of the region working in virtually every community. ”



“But we’re more than just an attractive venue. In 2005 an independent study into the economic benefit of The Sage Gateshead showed that for every £1 of public subsidy we received then, we put back £11 into the regional economy. So it’s become a very important part of the region’s economic strength and depth”.

“In a typical session for schools, some of the students may never have played any music before, so we create something that sounds like a ‘proper’ piece of music quite quickly with them so they get really engaged with that”, explains Michael Dollan, one of the project leaders. “The ultimate aim is to give people the skills so that, if they want to go on and do music in



Photo: Mark Savage

“The emergence of the creative industries is changing the workforce.”



Photo: Mark Savage

any way they choose to, they can. I'm a musician myself and I recently ended up supporting some young people that I'd worked with in a project seven years ago. They're now an up-and-coming band and I was the local support; it was great”.

“Local partnerships are essential to our work, with the eleven major arts organisations in the region working effectively together”, says Lucy Bird. “What The Sage Gateshead adds is another opportunity for the region to have a media hub, a focus for the work happening across Newcastle and Gateshead”.

“The Times said that we had become one of the world's most admired centres for music. That's not bad in under five years.”

To help people become practitioners in music, accredited programmes are part of what is on offer. The Sage Gateshead works in partnership with the University of Sunderland and Gateshead College on a Community Music degree and with Newcastle University on

a performance based degree for Folk and Traditional Music. The education offer includes a Weekend School for gifted and talented young people from 7 to 19, which is an audition-based programme.

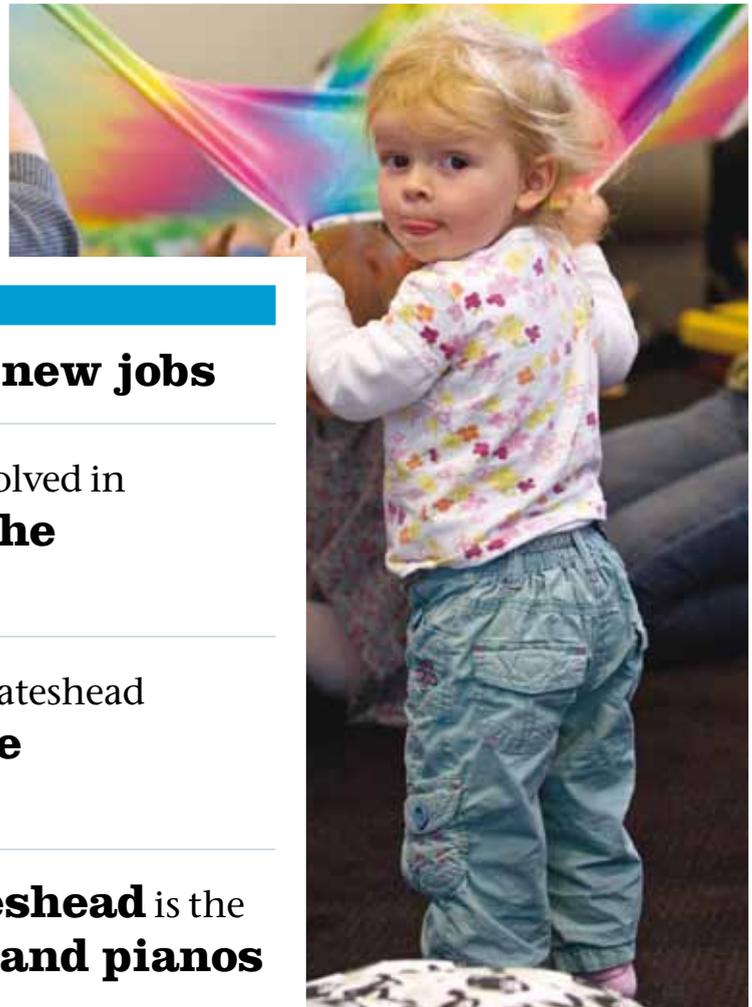
“There's been an investment of around £250m into cultural infrastructure in the region. The key thing about the emergence of the creative industries is that they are changing the workforce and creating the chance for people to train in new and emerging industries. We have an opportunity around tourism now, customer services, around culture and creative skills.

The Sage Gateshead is keen for the cities to be seen on a par with New York, Barcelona and London – cultural hubs where creativity is absolutely at their heart and centre.

“The Sage Gateshead recently came third in a national PRS poll of the top music venues in the UK,” says Lucy. “In 2008 The Times said that we had become “one of the world's most admired centres for music.” That's not bad in under five years!”.

Inspiring creativity from an early age

The Sage Gateshead works in partnership with Sure Start centres throughout the North East region. “As we all know, music is a great way to help children to learn, particularly children under five. It helps with language, with learning how to socialise, with confidence. A wealth of skills that can prepare a child for school,” says Julia Regan, Early Years and Family Learning Strand Leader at The Sage Gateshead. “In County Durham a lot of Sure Starts have recognised music as a great way to achieve their aim, but the staff don’t necessarily have the musical confidence to deliver that. So we don’t just supply the music for them, we provide lots of training and support to enable them to offer great musical activities themselves.”



The Sage Gateshead has created over **400 new jobs**

33 of the 54 subcontractors involved in building The Sage Gateshead were **from the North East**

For **every £1 invested** in The Sage Gateshead in its first year, it **returned £11 to the regional economy**

The **Concourse of the Sage Gateshead** is the same length as **611 violins** – or **15 grand pianos**



Photo: Colin Davison



The BALTIC Centre was opened in 2002 and has transformed the contemporary art and cultural offer in Newcastle Gateshead and the North East.

The building first opened as a grain warehouse in the 1950s, owned by one of the UK's leading millers, Rank Hovis. But it closed again in 1982, after just over thirty years, as the North East economy suffered in the 1980s.

But as part of the transformation of the Quaysides, BALTIC is now the biggest gallery of its kind in the world, attracting internationally renowned artists to the city, like Anish Kapoor and Anthony Gormley. Since opening, BALTIC has presented over 40 exhibitions and welcomed 2 million visitors.

16 Nissan in Sunderland – looking for a greener future

Over 20 years ago Nissan, the Japanese car manufacturer, opened a plant in Sunderland. At the time, in 1986, with skilled workers being made redundant by the closure of coal mines and shipyards, they were able to take advantage of the engineering and manufacturing expertise in the region. The plant went on to become the largest in the UK and one of the most productive in Europe.

But even that could not shelter the workforce from the global recession which has hit car workers hard the world over. In January 2009, the plant lost around one third of its workforce. But changes at the plant aren't just due to the recession, the longer-term realities of the international car market mean that, for Nissan, it is simply no longer profitable for cars such as the Micra to be built in Europe. Instead, the plant will adapt to produce a new, more complex model for the European market based on the Qazana concept car.

And Sunderland recently received a boost that could put it at the forefront of the future-looking segment of the auto industry, when the plant was chosen as a potential location for the Nissan European Mother Site

for advanced electric battery production. This would bring an investment of £200 million over 5 years to build a new battery plant, creating 350 new jobs in the process, producing up to 60,000 lithium-ion batteries a year – it would help put the plant in prime position as a contender to manufacture the company's new range of electric vehicles when they come to market in 2011.

Trevor Mann, Senior Vice-President of Manufacturing for Nissan Europe, said they had been attracted to make the investment because of initiatives, at both national and regional level, to establish low carbon transport as a viable option. The North East has been designated by the government as a Low Carbon Economic Area for the sector, which enabled the company to access to loan guarantees and grants. And, because new high-technology manufacturing skills will be needed to back up the inward investment in the region, the government is establishing a new training centre specialising in low carbon automotive technologies, a new R&D centre pulling together research from 5 universities and an open access test track for low carbon vehicles.

The first charging points are already being installed in Newcastle and Gateshead; the start of a roll-out of 750 across the region in locations from supermarkets to hospitals and businesses. One NorthEast, the Regional Development Agency, is exploring how to

Nissan in **Sunderland** produces **more cars per man than any other factory** in Europe

With **80% of cars sold outside the UK**, Sunderland is the country's **largest vehicle exporter**



“ The North East has been designated a Low Carbon Economic Area for the production of electric vehicles. ”

re-open all or part of the Leamside Rail Line to improve access to the Port of Tyne to boost imports and exports from the region.

So the initiative is important to Nissan's ambitions to become the world-leader in the mass production of zero emission vehicles – and important to the North East's ambitions to develop a high value manufacturing base in the new low carbon industries of the future.

Up-skilling for the future

The Automotive Centre of Excellence at Gateshead College has worked in partnership with Nissan for several years to train their new recruits. And through the recession they have been collaborating to make sure as many as possible of the workers in Sunderland have the skills to keep car manufacturing in the North East in the future. In courses tailor-made for Nissan, car workers have been studying Business Improvement Techniques, Skills for Life and Sustainable Development, to be ready to go back to work when people start buying cars again.

18 Tommee Tippee – a baby brand going global

From its base in the North East of England, Tommee Tippee has grown into the largest player in its industry in the UK, recently overtaking its competitors to become the fastest growing brand in the world for baby accessories.

Unless you have children, you may not have heard of Tommee Tippee.

If you have children, it's likely that you've not only heard of them, you probably have several of their products in your home. Tommee Tippee is the biggest brand in the UK for baby accessories, selling bottles, dummies, cups and nappy disposal systems. "We're living proof that you can start small and grow global," says Steve Parkin, the Managing Director of the business.

Tommee Tippee was brought to Blyth on the North East coast in 1965 by Graham McConnochie – the company's then MD. The headquarters moved to Cramlington in 1984 and the site is still the 'engine room' of the company, and where all the design, innovation and marketing happens.

One of the biggest employers in the area today, it still has a family feel. Indeed, a main reason for staying in the region is the people. "People here are very energetic, loyal and hardworking," says Parkin. It helps too that the city is well



“ 25% of our sales each year come from innovation, all of which come from the team in Newcastle. ”



connected – products, manufactured overseas, arrive at the nearby port, the road network is strong and the airport is ten minutes away.

The company has strong local ties, doing a lot of product testing with mums and toddler groups, and working with local health professionals on their designs. The showroom is packed with ingenious baby products: mats which stick to the table to stop the toddler throwing plates and bowls on the floor, plastic spoons that change colour as the temperature changes to help parents check if the food is cool enough to eat. 25% of their sales each year come from innovation, all of which springs from the team in the Newcastle site.

“The secret is to keep talking to your consumers”, says Tina Grey, Head of Global Design. “We thought we should ask mums, ‘Ideally, what would you like your baby’s bottle to look like and be like?’” And they said. ‘Very natural, and shaped more like a breast’. So we decided to make it like that’. As a result the Closer to Nature range was launched in

2006, revolutionising the way that mothers feed their babies. The whole range is now over 30 products – and it kick-started the global success of Tommee Tippee.

Originally trained as a fashion designer, Tina has been at Tommee Tippee for 17 years and loves it. “We are always looking at how our customers use our products; they way they use them in their homes, out of their homes, in their daily routine. You get great nuggets of information that allow you to improve design and innovate in areas where other haven’t”.

The business operates in 45 countries today – and with a strong presence already in Italy, Spain, France, Scandinavia, Poland, Japan and Australia, the team is preparing to take on the giant markets of the US and China.

At the moment, Tina Grey is preparing for the company’s US launch. “We’ve had to translate our marketing into American English, replacing ‘anti-colic’ with ‘anti spit up’; ‘teat’ with ‘nipple’, for instance. Tina



explains that understanding cultural sensitivities is all part of being a global brand: the colour purple represents death in some countries; pigs are unsuitable in marketing for Arab countries, and in Hong Kong ladybirds don't go down well, to take just a few examples. To create a seamless global team, she has conference calls with the Far East and the US everyday. "We work so closely together, we don't even need to travel any more," she says.

“We're living proof that you can start small and grow global.”

"Having a footprint across the globe is critical to get the brand to scale", says Steve Parkin. "It's critical to get the right talent to work for your organisation. And it's critical to have the right partnerships and supplier relationships to go on the journey with you."

The growth of the business provides opportunities for their suppliers as well – so everyone benefits, from the logistics and freight operators on the Port of Tyne, to the recruitment agencies which help to bring talent into the organisation and the providers of print for packaging and marketing. And they are finding that one of the benefits of their success is that some of the major retailers, like Tesco, Boots or Mothercare, now turn to them as ambassadors for their sector.

Tommee Tippee has become a recognised 'super brand', with a market share in the UK around twice that of its nearest competitor and many awards for innovation – voted for by mums and industry experts alike. But they are not resting on their laurels. Steve says, "We don't do complacency here. We're competing to be the leading brand in our sector in the world".





Tommee Tippee **sells one product every three seconds** in the UK

Most **UK households** with a child under two years old **own 15** Tommee Tippee products

22 Sage – from local entrepreneur to world-class service provider

One of the city's most successful companies today, begun by two local entrepreneurs in 1981, has grown into a world leading provider of business management software and services for small and medium sized businesses.

David Goldman, who had worked in the printing business for 20 years, found that one of the real challenges he faced was the time it took to generate quotations for prospective customers. He teamed up with Dr Paul Muller, a computer expert at Newcastle University – who had previously been one of the four key NASA navigators for the first Apollo mission to land on the moon. Muller was exploring ways to streamline business processes, including a book keeping package to help a local accountancy firm. His team wrote an innovative accounting software programme which could more accurately estimate the cost of the company's printing jobs, as well as manage their basic accounting procedures.

Having seen the impact on his business, David's entrepreneurial instincts spotted the opportunity to sell the idea to a wider market. So it was that Sage was created.

Today Sage is the only FTSE 100 company in the North East, and a flagship for the region. Even though it's become a global company, it's still rooted in the North East, with its head quarters in Newcastle where around 1,500 people work.

When Sage started out, IT was far from being the mainstay of business life that it is today. But the company grew by recognising the opportunity for new ideas at the right time. Sage's sales were ticking over nicely but, when Amstrad brought out the first real desktop PC, it kicked-started their growth and sales soared. Further developments followed – including establishing a network of partners across the country to sell and support Sage products.



David and Paul's innovation has revolutionised how many small and medium-sized businesses do business. 5.8 million companies around the world now use Sage products and services – and the vast majority of them are entrepreneurs themselves. Ralph Charlton, Corporate Public Relations Manager, comments, "84% of our customers have less than twenty five employees. The core has always been small businesses. Although we've expanded beyond accountancy and payroll,



and now also provide software and services for larger organisations.

Part of Sage’s success is the recognition of how different doing business is in different countries. In 1991 the company entered the US market, followed by France in 1992 and Germany in 1997, leading up to India in 2004 and China in 2006. While the business model is the same the products are often different. “We’re very decentralised. And we’re market leader in small business accountancy in most of the 26 countries we’re in.

“ It’s different from 20 years ago, a lot of very small companies are now ‘global’ – it’s far easier to trade globally. And clever use of technology is key to success. ”

Our success is built on understanding market needs, developing local products for local customers, and supporting them locally,” explains Ralph.

Just as with the old industries of the region, innovation has proved vital to Sage’s growth. And, in today’s globally competitive market place, it’s more important than ever to meet customers’ changing needs. Ralph says, “We’re as much a services organisation as a software company. We use new technology where it has a customer benefit. So about 20% of our employees are in R&D, but 40% are in customer service and support. We look for people with great people skills, and who can learn quickly

and interact with customers. Having 5 universities in the region provides a great talent pool for Sage, and other companies, to tap into”.

When Ralph returned to the North East after 10 years, he could not believe how much it had changed. “It’s different from 20 years ago, a lot of very small companies are now ‘global’ – it’s far easier to trade globally. And clever use of technology is key to success”.

Significant public sector investment has helped the North East recover from its post-industrial slump, and there are many small and medium sized businesses growing up in a variety of sectors. The question now is whether the region as a whole can replicate the Sage story, and harness the entrepreneurial drive needed to grow those businesses to scale and build up the talent base to sustain them locally.

Sage now serves **5.8 million** companies **worldwide**

It operates in **26 countries**

And handles over **40,000** customer calls each day

24 Newcastle Business School – preparing young people for a global future

The students who study at Newcastle Business School are part of Northumbria University – but they are also part of a much wider network across the world. It's clear to the young people who study here that the global economy is already part of their future.

Elliot Heward, who is studying Business with Economics at the School, feels the international approach has opened up his horizons, “The University is very multi-cultural. We have many people from different cultures in our lectures and seminars. And when I go into the labour market

“The 3,800 students on the new campus in the centre of Newcastle have more than 2,000 fellow students across the world.”

I expect it to be the same.” Chris Rutter, a fellow student in his second year on the course, is selecting his overseas placement at the moment, “One of the companies that I’m looking to apply to operates in 170 countries. So it’s important to get prepared for that; you’ve got to be able to go global.”

Along with Newcastle University’s well-established Business School, Northumbria University is preparing young people for the new realities of the twenty first century. Ian Shell, Associate Dean of the Business School, thinks all businesses today are being affected by the globalised economy, which is why it is so important to have an international perspective running through all the programmes the School delivers. “We encourage all our undergraduates to do a placement abroad. One of the challenges facing the UK is getting more UK students to look outside.”

Like many globally successful businesses, the School itself has set up overseas operations. “We feel that if we are teaching international business, we should also be practising international business, so our partnerships fulfil that goal,” explains Ian.



“The region has moved on from coal, shipbuilding and heavy industry. You just have to walk around the city to see how it’s changing.”



They were the first to offer a joint degree in Russia in 1993. Today, operating a franchise, the School has students, teaching staff and a broad range of courses in France, Germany, China, Singapore and India and a number of other countries. So the 3,800 students on the new campus in the centre of Newcastle have more than 2,000 fellow students across the world. Ian thinks that the trend is increasingly towards internationalism as just a part of life, “Some of our students see this as a huge opportunity; it’s not a ‘threat’ as it would have been seen a few years ago.”

The school will soon introduce a ‘Global Citizenship Award’ to recognise those who have done outstanding work with the international student community or global partners of the Business School. “The award is to encourage students to take on board cultural differences and build up a cultural intelligence. We have to take our students into that arena because this is what the future is about.”

“ One of the companies that I’m looking to apply to operates in 170 countries. So it’s important to get prepared for that; you’ve got to be able to go global. ”

The courses at the Business School – such as International Business Management or Business Creation – are based on the realities of the commercial world, which are changing all the time. “The region has moved on from coal, shipbuilding and heavy industry. You just have to walk around the city to see how it’s changing,” says Ian. “We can definitely also see a shift towards entrepreneurship. I expect the next step is that we’ll see a lot more small businesses emerge over the next 5 to 10 years.”



Newcastle and the universities of the North East are attracting world-class scientists to work on discoveries in the life sciences and genetics that can change people's lives.

New science in the city centre



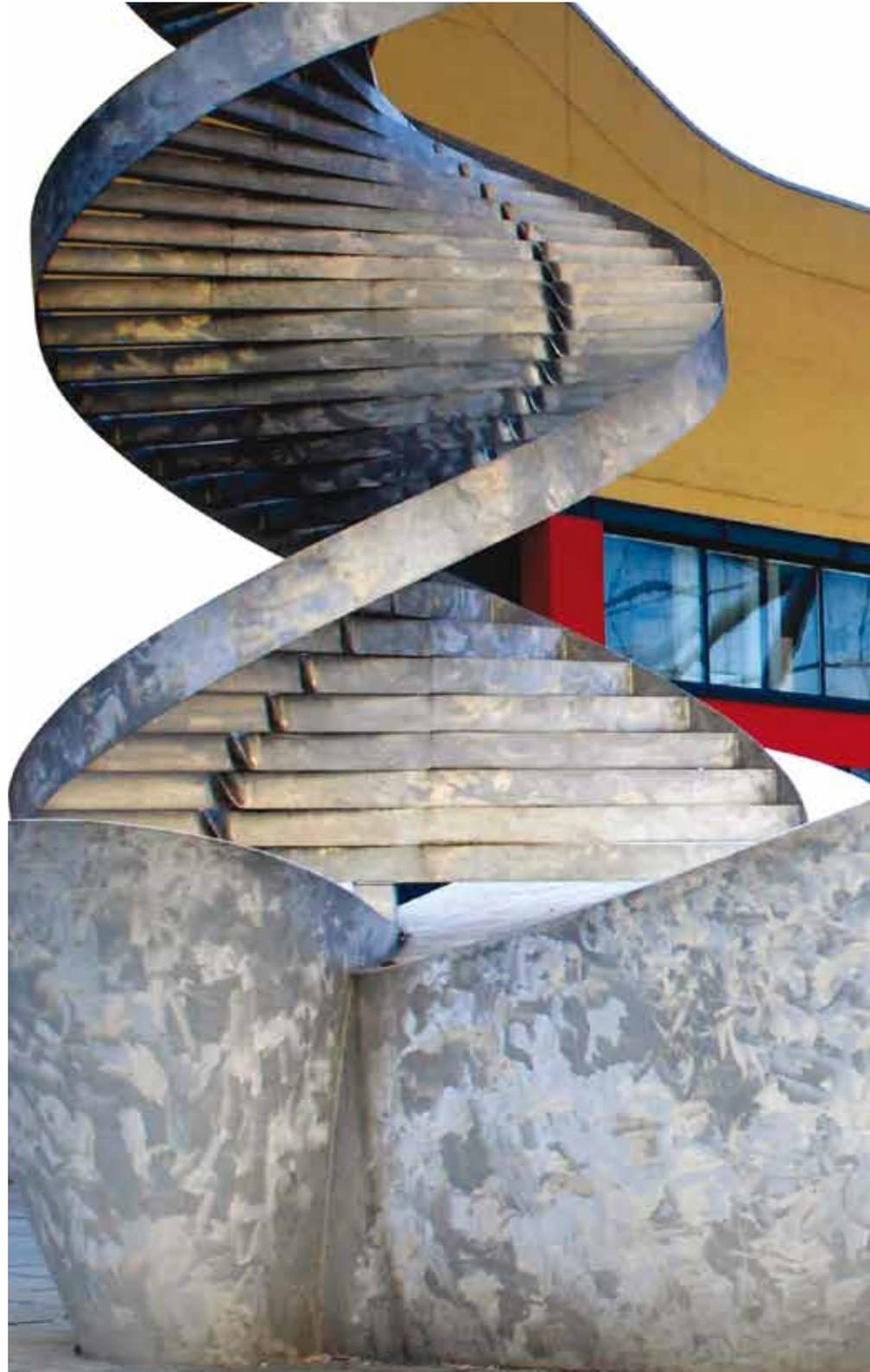
28 Centre for Life – pioneering life science

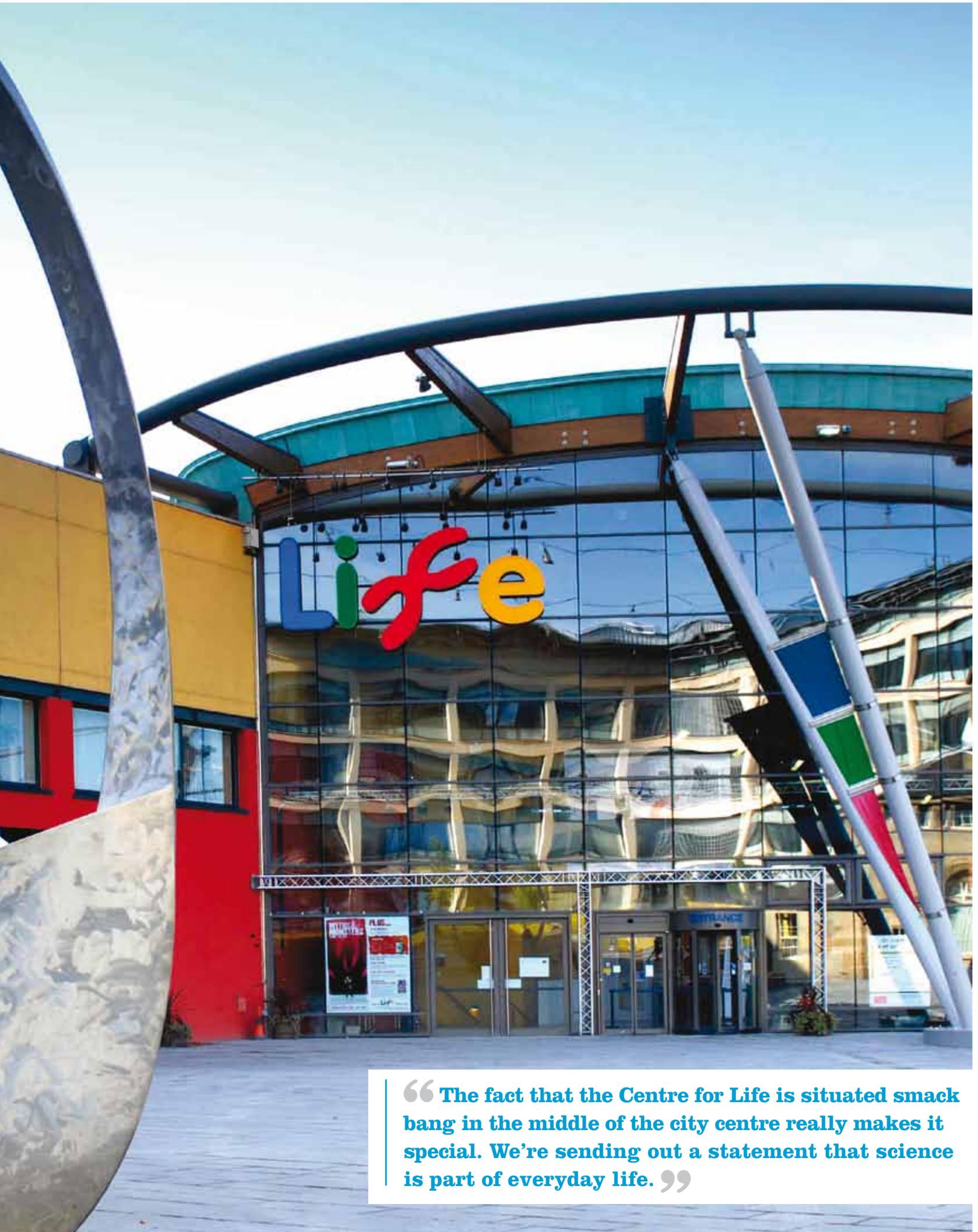
Just as the Gateshead Quayside has created a vibrant centre of culture, an investment in the heart of Newcastle has put the city on the map for science.

The Centre for Life was opened in 2000. The vision was to regenerate an area of derelict land – previously the site of a cattle market, and before then an infirmary for infectious diseases – and to provide facilities which would attract cutting-edge science to the city.

Linda Conlon, Chief Executive of the Centre, was part of the team who drew up that original vision. “The impetus behind it was to create something which would promote the excellence of genetic science we have in Newcastle – and at the same time explain to people what this science means to them and their lives.

The Centre for Life offers state-of-the-art laboratories and clean room facilities for research scientists, as well as the very best manufacturing conditions possible, and incubator units for fledgling companies.





“ The fact that the Centre for Life is situated smack bang in the middle of the city centre really makes it special. We’re sending out a statement that science is part of everyday life. ”



The NHS is a principal partner, with around 150 NHS people working on site alongside the academic research scientists. So if you have a genetically related condition you might come to that clinic, or receive fertility treatment at another NHS centre on the site.

“Local people are really proud of the Centre for Life.”

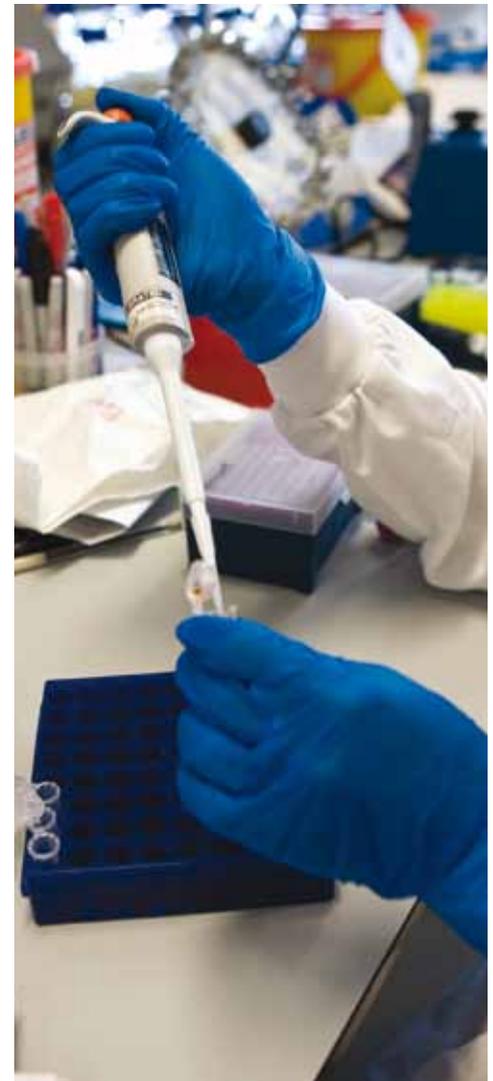
So, as Linda Conlon explains, it's bringing together different people, different institutions, united in one common aim and that is to promote advancements in the life sciences. “What's unusual is that you've got people who used to work in the University campus, alongside people who used to work in hospitals, with entrepreneurial people who perhaps were working previously on an outer-city greenfield site. They've all come together – and at the very heart of it is a public science centre which is accessible to everybody”.

“The fact that the Centre for Life is situated right smack bang in the middle of the city centre really

makes it quite special. People walk through it. People catch their buses and trains here. We're right next to Newcastle College, and 30,000 students pour through the public square and so it's really exciting. We're sending out a statement that science is part of everyday life. Because whether you're a scientist or not, a lot of what's happening in science today will have an impact on your life and you need to know about it”.

Around 230,000 people visit the public exhibitions every year, including 35,000 of the region's school children coming in to the LifeLab for science workshops, everything from basic science for 5 year olds, all the way through to forensic CSI experiments with mouth swabs for the 16 year olds. “Our school science results still lag behind the national average. But our science teams can help smash the stereotypes that science is for geeks,” says Linda. “We would like to think that we're an inspiration for young people who might turn out to be scientists in the future”.

The Life Bioscience Centre provides the facilities for start-up biotechnology companies to create commercial success from scientific discoveries. “We're very keen to



reduce the period of time it takes to turn ideas from the laboratory bench in to real applications in the hospital,” explains Linda.

The world-class facilities are a magnet for leading international scientists. So the 500 people who work on the site come from around 40 nations. “All our research tells us that local people are really proud of the Centre for Life,” says Linda. “When we first started, over 10 years ago, it was controversial. There was a degree of unease about what genetic science meant and what exactly would be going on at the site. But over a period of time I think we’ve managed to allay those concerns, so that people understand that what is happening here is of benefit to the community and could benefit them”.

“Newcastle has to rediscover itself. It has to be a player amongst cities of comparable size on the world stage and that future is not going to rest on the industries of yesterday. It’s going to rely on a handful of areas where we can grow our skills and expertise. We really do have the opportunity to make something of ourselves in the field of health sciences”.

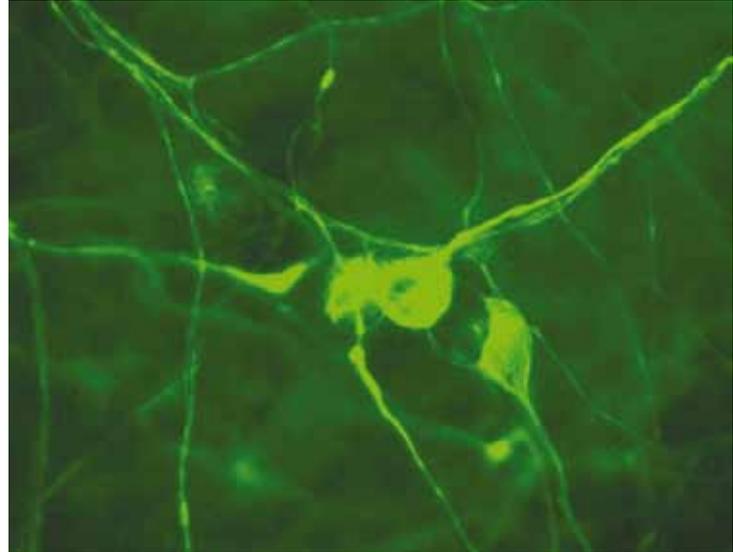
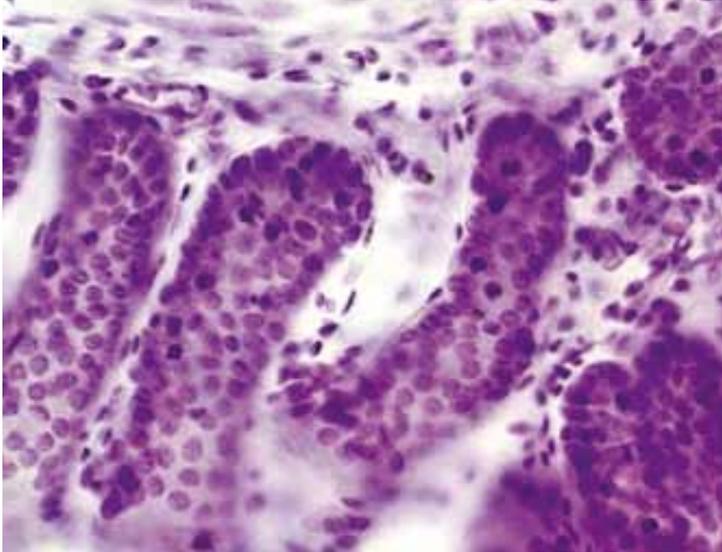
The Centre for Life is the result of a **£70 million investment** in a derelict site

More than **200,000 people a year** visit the exhibitions – and more than **1.2 million** have visited **since the Centre opened in 2000**

The **healthcare and life sciences industries** in the North East has an **annual turnover of £4 billion**

32 Ground-breaking research in the centre of Newcastle

The scientists based at the Centre for Life are involved in life-changing research.



Institute of Human Genetics: first in the world to achieve a human cloning procedure

“Back in the early 90s I was invited to give a lecture by the American College of Cardiology and I went to visit Houston, which has a very well respected genetics institute. And I thought, Well, if they can build a world-class research institute in Houston, why can’t we do the same?”

And – inspired by Professor John Burns – that is exactly what happened. “So from starting with ten successful scientists in 2000, we’ve now got 36 principal investigators, including 17 professors. And putting together our university and our NHS team, there are about 350 of us.

“I think that there’s great danger in places like the North East to settle for being a sort of ‘branch economy’; to regard ourselves as second best to London or Cambridge or whatever. And I’ve never felt like that. I’ve always felt that we should be aspiring to match the best in the world. And if you start out with that in mind, then you build on that basis and we’ve succeeded in doing so.

“At one end of our work, we have 14,000 people a year seen by our clinical team, to discuss problems in their families. At the other end of the spectrum, we have, what we call, basic scientists investigating the most fundamental elements of how human beings are put together and how the genes that we inherit from our parents control our physical traits and our predisposition to disease. It’s teasing apart why 24,000 genes can be combined to make a human being.

“What we’re probably most famous for though is developing stem cell research. Five years ago, we were the first in the world to achieve a human cloning procedure, where we took a nucleus from an adult cell and put it into an embryonic cell and grew another ball of embryonic cells, genetically identical to the donor.

“We’ve attracted a truly international community of stem cell scientists, from more than 20 countries, including Germany, Switzerland and Iran. And we’re now trying to bring together a group of stem cell biologists, because that’s really one of the most exciting areas for the future; looking at how our body repairs itself with stem cells.

“The life sciences open up a whole potential industry in terms of manufacturing – things like monoclonal antibodies, that are making headlines nowadays. They’ve got to be manufactured somewhere, why not here? If you want to



“ If they can build a world-class research institute in Houston, why can't we do the same? ”

have a transplant, if you want to have someone repair your liver or your heart, or your cornea, our hospital in Newcastle is the only place in the UK where you can get every type of transplant. You can see how people would want to come from all over the world to Newcastle. Our hospital alone employs 10,000 people, so it's actually big industry. And if we can major on that, then we can attract work from across the planet.

“ If we look at our place in the world now, when we're not a superpower, this is probably one of our best suits. We should be a home base for the cutting-edge of life sciences. ”

“Britain is very good at the life sciences, we actually are a place where many of the discoveries are made, but we haven't always made best use of those discoveries commercially. I think there is an opportunity – and, in a sense, a necessity – to do that now.

“If we look at our place in the world now, when we're not a superpower, this is probably one of our best suits. We should be a home base for the cutting-edge of life sciences – and constantly have an eye on how that can be turned into an economic opportunity for the country.

“We're often asked what our latest break-through is, and it's quite difficult to answer because, with such a big team, there is so much going on: work on gene therapy to treat muscular dystrophy, and corneal scarring, and hopefully also to repair damaged spines. Lots of our research is now driving in that direction, not just telling you you've got a problem, but working out ways of making it better.”



The Fertility Centre: innovations in IVF

Alison Murdoch has led the development of the Fertility Centre, which helps 1,000 couples a year across the region to have children. When the Centre for Life was built, she moved in to take advantage of the space and facilities it offers and has been treating couples and heading up the break-through research ever since. Vitrosafe is a new technology that was designed by her team, led by Mary Herbert and built in Newcastle. It's a world first.

Alison explains how it works, "With traditional IVF you would look at the embryo in a dish under a microscope in a hood that's got clean air coming through it, but then you would pick up the dish and walk across the room to put it in an incubator, so it would change temperature, for instance, as it crosses the room."

“ Vitrosafe is a world first. It's improved the success rate for IVF overall by 30%. ”

"Vitrosafe is a completely enclosed system. So the sperm and the egg go in at the beginning of the procedure, they pass through a series of incubators and isolators and come out at the end as an embryo – never having been in contact with the outside air. Consequently, we have complete control of the environment in which they're grown at all times. And we're pleased to say that it's improved the success rate for IVF overall by 30%".

Like so much successful innovation, the team has had to defy the scepticism of others. "Everyone previously had said it can't be done, but we've

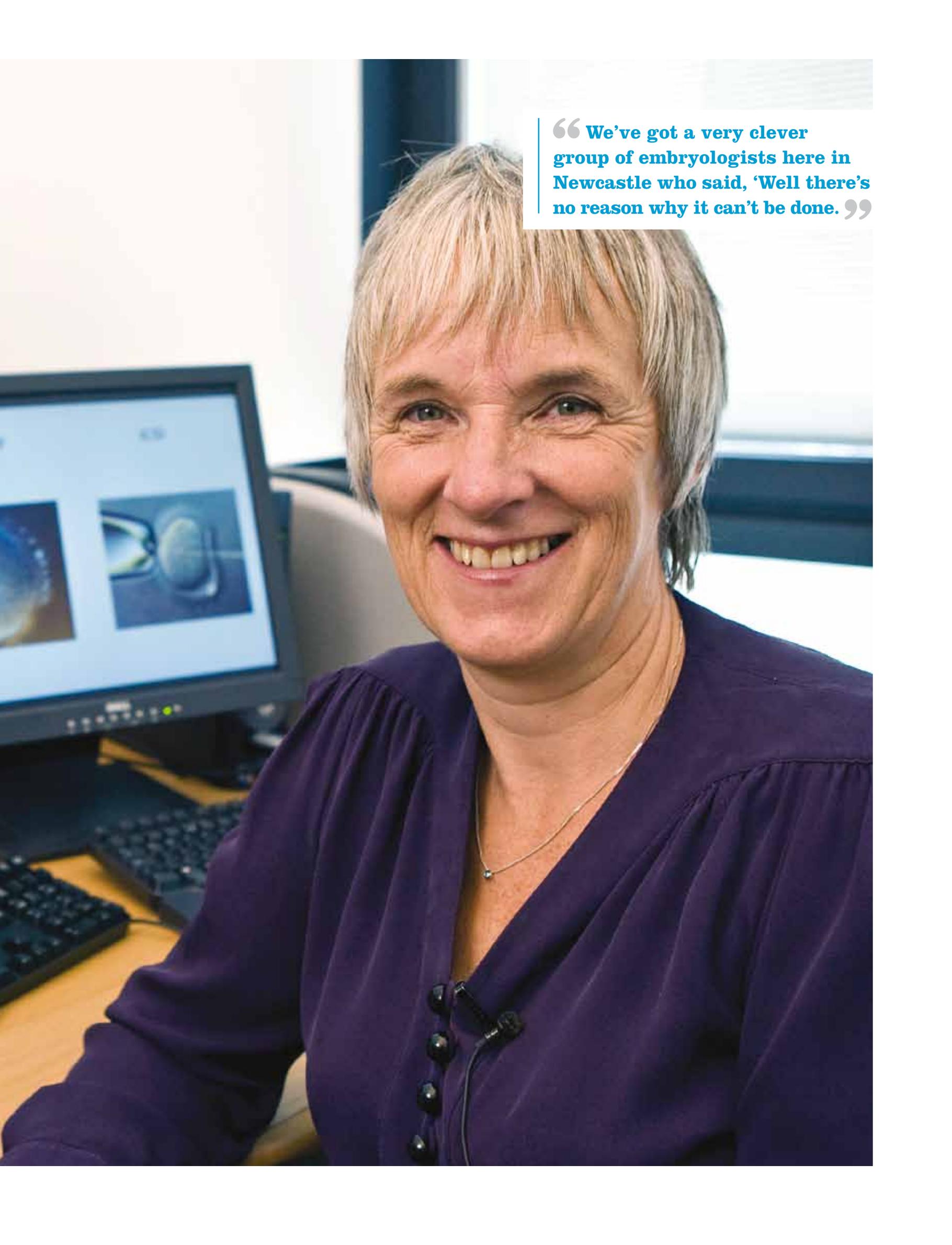
got a very clever group of embryologists here in Newcastle who said, 'Well there's no reason why it can't be done'. They worked with a company, Walkers Cabinets, who all said, 'We can do it, why can't we do it?' We were very fortunate to get sponsorship from the Regional Development Agency for the Northeast, who said, 'Go ahead, have a go with it.' And so we got it going."

The Fertility Centre has already had a couple of orders from elsewhere in Europe and they believe that when people find how much pregnancy rates are improved their break-through innovation will be picked up everywhere.

Alison Murdoch appreciates what the Centre has to offer, "The advantage of being in the Centre for Life is that you're connected to the scientists that are working here. And for the couples we treat, it's not like going into a hospital environment. When you come into this building you feel like you're in the 21st century".

The issues surrounding reproductive technologies are very sensitive and there are people who are opposed to it. But Alison Murdoch thinks the worst thing you can do is shut it away from people. "Here at the Centre for Life, we're right in the middle of the city. People walk past us all the time. It's part of the culture; it's part of the environment. So people don't see it as something to be afraid of."

"We work with school teachers to empower them to explain it to their students. And we find that when you talk to young people about the purpose of it, they don't have the same baggage that older people have. They are more accepting and that's the way this technology will be fully accepted in the future".



“ We’ve got a very clever group of embryologists here in Newcastle who said, ‘Well there’s no reason why it can’t be done.’ ”

The scope for innovation today is enormous. New technologies, new scientific discoveries, new manufacturing and a growing demand for renewable energy create a platform for entrepreneurial businesses, large and small, to compete in worldwide markets.

Innovation and entrepreneurship





38 Making the earth move underwater – IHC Engineering Business

IHC Engineering Business delivers equipment to the off-shore oil and gas industry. While most of the heavy engineering that used to dominate the region has declined, Tony Trapp has grown the business from a start-up in 1997 to become a world leader in its area. “Our kit is huge. We have pipeline systems the size of the Tyne Bridge,” he says. “Many ships are built in China and Korea today, but the innovative specialist equipment is built here.”

“We have a huge heritage of marine industry skills and knowledge in the North East in relation to the marine industry, and we try to use that in our business.”



When Tony started out, the industry didn't exist. He initially came to the North East to study agricultural engineering at Newcastle University, and worked for a while in the universities as a lecturer. But with the North Sea oil boom, new opportunities were created as companies became interested in how you could make trenches for pipes along the sea floor. Tony joined Soil Machine Dynamics, a local business which grew to be a leader in laying pipelines and trenching cables. As Tony says, the timing could not have been better. "We developed the first pipeline and cable trenching system in 1982, just as two big industrial developments were happening which needed our experience – North Sea oil and fibre optics. So we were creating new technology which transferred existing earth-moving knowledge underwater."

In 1997 Tony and three others decided to set up on their own. For the first nine months they worked out of his home, until they found premises in the small village of Riding Mill. The company rode the wave of the dot.com boom, digging trenches all over the world for

opportunity we pounce on it," explains Tony. "And we're good at persuading people that we can solve a problem because that is what we are really: problem solvers."

The firm is drawing on the region's considerable engineering skills base and using it to adapt to new market demands, "We have a huge heritage of marine industry skills and knowledge in the North East in relation to the marine industry, and we try to use that in our business. It's not ship building but it's large technology and it uses a lot of the skills which existed in that industry."

Of course, it's also about attracting the next generation of talent coming up. There is a huge demand for trained engineers and the academic institutions in the region are gearing up to do more. This year a new Foundation Degree in Subsea Engineering has been established at Newcastle College and a Masters Degree at Newcastle University.

The impact of IHC Engineering Business on the region goes wider than the 190-strong workforce because they attract big contracts into the region, and the delivery of the work is distributed through their local supply chain. "One thing businesses do is create communities. It was evident in the North East mining

“ For a company doing off-shore engineering today the North East is the best place in Britain to be. ”

the fibre optic cable being demanded by the telecomms industry, to reach a turnover of £8 million in four years. "If you make a phone call abroad, it goes through fibre cables under the sea bed. Wherever in the world you're calling, you're probably going through a cable buried by one of our trenchers," says Tony.

But then the dot.com crash happened, wiping out the whole industry almost immediately. Suddenly over 90% of their business ceased to exist – but, very rapidly, they switched their focus to another new industry – off-shore renewable energy, and back to the company's origins in oil and gas pipelines. "We've always been opportunistic. When we see an





Newcastle University Business School

The Newcastle University Business School is a key driver to the spirit of innovation and entrepreneurship in the region. Dr. Tony Trapp holds the prestigious post of the David Goldman Visiting Professorship of Business Innovation and the School links leading businesses with the next generation of entrepreneurs.

communities,” says Tony. “We’ve created a community of our own, which is very important to the people who work in it. So it’s a really worthwhile activity, quite apart from the fact that you can make money and grow a successful business.”

Thanks in part to IHC Engineering Business, the North East is now a major centre for specialised marine engineering. “From that funny beginning 30 years ago – in a small agricultural engineering department at Newcastle University that doesn’t even exist any more – two companies have grown into

Even in new areas such as wind energy, where the need to respond to climate change is driving demand for new engineering solutions and the North East has a shot at being a major player, Tony is clear that there are other places, both in the UK and Continental Europe, competing for that opportunity. “It’s not going to be easy. We have to keep moving ahead more quickly than others. We have to be aggressively opportunistic. Our niche has to be being clever, well trained, energetic and entrepreneurial.”

“We have to be aggressively opportunistic. Our niche has to be being clever, well trained, energetic and entrepreneurial.”

world leaders. Now there are six active companies, with probably an annual turnover of £200 million between them, probably around 700 employees between them. You’ve got at least 8 multimillionaires, you’ve got a collection of flourishing enterprises and some unique technologies that are now being used worldwide. For a company doing off-shore engineering today the North East is the best place in Britain to be.”

But Tony has a warning too. “The UK can’t compete on production alone anymore. If you have a simple ship to build today, it’s hard to see how that will happen anywhere but the Far East because it’s cheaper. So for us in this country, the key is cutting edge technologies. We need to stay ahead of the game in innovation.”

The fundamentals of the regional economy present a challenge however. As Tony puts it bluntly, “We are still too reliant on the tax payer’s pocket for so many of our jobs. The answer for people in North East has to be to make and sell products commercial customers want; that’s what we should focus on. Customers all over the world have money for the kinds of products we could create. We have to instil the idea that this is a really good place to grow a business. And we are starting to see a resurgence of entrepreneurs in the region, so we’re moving in the right direction. There’s a long way to go, but there’s a big opportunity too if we can grasp it.”



“ We are starting to see a resurgence of entrepreneurs in the region, so we’re moving in the right direction. ”



42 Engineering for the future – St Cuthbert's Catholic High School

St. Cuthbert's is a specialist science college and Dr. Terry Harbinson, the head of science, has made that much more than a label. The school has built up links with industry to extend classroom learning into real world applications.

Siemens is one of the city's big employers and St. Cuthbert's have got involved with their 'Generation 21' programme, through which the company supports science education around the world. Their three year programme is integrated into the life of the school so, for example, graduate engineers come in to support physics lessons, Year 10

“Our students are able to see how science is applied in the workplace and how they can use their skills in real-life situations.”



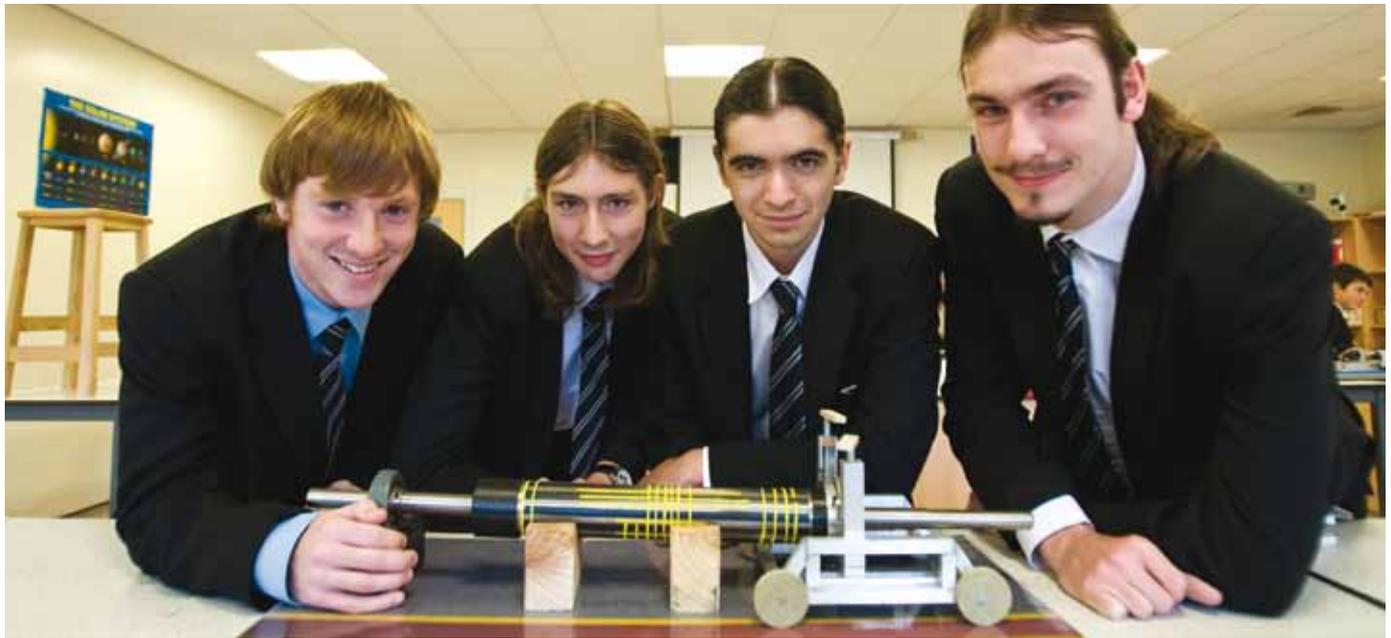
boys can do work experience in the company's training centre in nearby Byker – and one of the new initiatives being planned involves Siemens coming in to talk to parents to help them help their children.

‘Siemens was a good fit for us because they are a forward-looking company and support us in what we are trying to do, which is transformational learning; that’s what it’s about for us,’ says Dr. Harbinson.

“The work that we are doing with them is wonderful because our students are able to see how science is applied in the workplace and how they can use their skills in real-life situations.”

In 2008 Siemens set the Year 12 students a real life challenge: to design a device which could get end caps off their generators for servicing. It might sound simple, but the process involves cranes and can take up to nine shifts with two men per shift. Over the school year, Martyn Dixon, Adam Field, James Fishwick and Yuriy Grabovsky came up with designs they believed could solve the problem. “Our idea was based on the concept of jar openers, so essentially it’s like a giant wrench”, say the students. “If it works it could be a much faster and more economical process than the rigmarole they go through now.”

Not only is the team of four boys going to present their designs to the Siemens board, but they came first out of 50 teams to win



“ With Newcastle becoming a science city, it’s very exciting to think we’ll be working in the future with many different projects from all over the world to introduce new technologies. ”

the Nissan Rose Bowl, in the prestigious ‘Engineering Education Scheme’ run by the Royal Academy of Engineering.

“Winning the Nissan rose bowl, was a wonderful honour and it was great for the lads, it really was” says Dr. Harbinson. “In rising to the challenge, they also realised that they had to meet deadlines, they had to work as a team, they had to be innovative, they had to be able to present and articulate ideas to a critical audience. And they had to be very flexible. I think those are the sorts of qualities that are required in a 21st century workplace.”

One of St. Cuthbert’s most innovative ventures is the development of open air labs, which Siemens is also backing, along with the United Nations University through the Regional Centre of Excellence at Newcastle University. “It’s about sustainability and will allow us to interact directly with the environment through renewable energy projects, for example, and will enrich the learning here tremendously”, explains Dr. Harbinson.

The school’s ground-breaking and practical approach has most definitely whetted the students’ appetites for science and technology subjects. “With Newcastle becoming a science city, it’s very exciting to think we’ll be working in the future with many different projects from all over the world to introduce new technologies,” says Adam. “We’re increasingly living in a global village. You’re going to have many people, many cultures, many languages, coming to Newcastle to study and research. So it’s going to improve cultural diversity here – and our jobs may even take us around the world”.



44 From science to enterprise – Complement Genomics

Louise Allcroft had an idea, and following her Masters degree in Medical Genetics at Newcastle University, she had the skills. With a lot of hard work and determination, she has built a successful business in the complex and fast changing world of genetic science.

Complement Genomics is based on a business park on the outskirts of Sunderland, set up by Louise and her co-founder, Neil Sullivan, “It was one of those cases where you’ve got an idea, you want to do it, so don’t let anyone else stop you. If you believe in it, just go for it. And that’s what we did.”

“We weren’t a spin-out from a university, so we had to make money straight away,” explains Louise. “I was 28 and it was a steep learning curve. A lot of the clients we were selling to were my Dad’s age, so I had to be able to show them quickly that I knew what I was talking about.”

“For a small company like ours, our ability to innovate is absolutely essential to our survival.”

There are three very different seeming businesses in Complement Genomics: paternity testing, jewellery and scientific research. “The wonderful thing is they are all science and DNA based, just wrapped up in different ways for different purposes,” explains Louise.



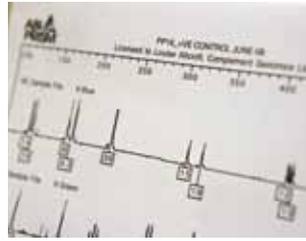
dadcheck® – paternity testing

dadcheck® is a serious player in the growing market for paternity testing – and it aims to be the leading service of its kind in the North of England, and then internationally. The client could be a lawyer with an immigration case or social worker with a child in care, a family re-uniting across generations or even just a man off the street.

“It’s a fantastic brand. It says what it does on the tin” claims Louise. dadcheck® cannot beat their big industry competitors on cost, so their strategy has been to excel in personal service. “What we’ve found over the years is it’s important just to treat all your clients as people. Don’t be judgemental – especially in the paternity testing business – take everyone at face value and offer them the service you would expect yourself. I’m really proud of what the team has achieved over the last few years. We recently won a customer service award because we simply offer a better service; we care about our clients.”

DesigNA® – decorative designs from DNA

“Your DNA profile is unique to you. You are a unique, off-off design”, says Louise. So based on someone’s individual DNA profile, DesigNA® has grown a business based on turning that individual pattern into the creative design for a tie or a necklace or, maybe even, a stain glass window. The idea has proved popular as gifts for special occasions, such as weddings – and the next stage is to step up the sales and marketing expertise to push the business forward.



Geneblitz® – inventing new solutions

Geneblitz® provides commercial testing services to clients in pharmaceutical or biotech companies, biomanufacturing or healthcare, academics or even forensic scientists. Anyone who might want to find the sequence of a new gene or explore the genetic changes that could lead to a particular disease.

In collaboration with Medicines for Malaria, based in Switzerland, the team is just getting started on a project on new medicines for Malaria, the killer disease of the tropics which is responsible for the death of a child every 30 seconds. As part of this project, Complement Genomics is already developing accredited assays for drug testing, so they see the 2012 Olympic Games as a real opportunity for them in the next few years.

Louise has been in the North East for over 15 years, “I came up here to do a degree because there are fantastic universities here, with world-renowned departments in stem cell research and genetics. So we’ve got the talent and the research base here. It’s been identified by the Regional Development Agency as a growth sector, but now we need a critical mass of small life science companies, creating jobs and encouraging the talent to stay in the region. People need to know that it’s a great place to be.”

“We need a critical mass of small life science companies, creating jobs and encouraging the talent to stay in the region.”

Through a research project funded by the Technology Strategy Board, they are currently developing new methods for what is called ‘intelligent wound care’ for hard to heal wounds, such as diabetic ulcers. “The drive is always towards quicker, better ways of doing things,” explains Louise. “In this research project, we’re hoping to develop new products and services and exploit the intellectual property we generate from that. For a small company like ours, our ability to innovate is absolutely essential to our survival.”

Life science entrepreneurs in a global market place

“These days with the internet, potentially all businesses are global – even small ones like ours,” explains Louise. “In dadcheck® we’re often working on immigration cases with Pakistan or Iran, and countries all over the world. In our research business, we’re working with people in Canada and Sweden, for example. At the end of the day, the product we generate is data. It’s transferred electronically anyway, so geography is no longer an issue. Our market is global.”

“So I hope there will be a lot more scientific entrepreneurs in the region. We’ve got some cracking little firms growing up here. And the universities are better now at helping academics to spin-out commercial ventures. It’s true that if you start up your own business you’ve got to be prepared to take a risk and jump. You’ve got to put your life and soul into it, but the rewards are fantastic.”

46 Starting out, stepping up – Mes Footwork

About 18 months ago, Matt Scott came up with an idea for his girlfriend's birthday present. He personalised a pair of trainers – and from there he's grown it into a business.

He makes it sound simple. “I looked on the internet and bought 600 pairs of shoes from a supplier in China. With my student overdraft and money borrowed from my parents, I bought a sewing machine and set up a website. I started taking orders from friends and family and it just started growing from there”. He left his course in Marketing Management at Newcastle University to set up on a professional level and now has his own manufacturing facility and distribution outlets.

Matt's unique selling point is allowing people to design their own footwear, uploading photos onto his site and receiving a personalised, high quality pair of shoes in the post a few days later.

It has taken a lot of personal commitment to get this far. “I've cut my own spending right back, I've moved back in with my parents and it's been difficult to have a 'life' at all. But if you're going to do something, I think you've got to do it 100%. I've always been enterprise minded.”

“I bought a sewing machine and set up a website, and started taking orders.”

From making shoes on the floor of his student bedroom, Matt now employs three people and expects to have five more on the payroll within the year, “It's tough paying wages, but it's good. I like the idea that I'm hiring people and giving people employment”.

Matt admits that the cost of producing in the UK are high but he is always looking for ways to bring it down. If he gets enough business, he aims to bring all the production in-house and into the North East. Even though many people consider the shoe business to be moving irreversibly to the Far East, Mes Footwork thinks custom-made design-based products like theirs will continue to find a niche in the region.

“To start up, I got a £25,000 investment from a government funded agency which has helped us really push forward into what we have now; with new products and more people – without that we wouldn't be here today”.

He is now branching out into a new environmentally-friendly product – ‘recycled shoes’, personalised by using fabric from charity shop clothes. And having started online, he's getting his products out into well-known street markets in Manchester, Leeds and London.

“I think everywhere could do with more entrepreneurial businesses, not just the North East”, says Matt. “But I've met a lot of entrepreneurs in the North East, and their energy and enthusiasm for their businesses and giving people employment, growing the economy, is great. And I feel the same, that's what I really want to do”.

Matt is excited about how the future looks, “There are lots of opportunities at the minute with retailers and collaborations with artists and with bigger websites. It's about getting the product name out there, getting the brand name out there and seeing how people take to it”.



“ I like the idea that I’m hiring people and giving people employment. ”

48 Smith Electric Vehicles – from local milk floats to world leader in electric vehicles

“When I started the business, our first year’s turnover was £50,000. In 2008 it was £146 million”, says Roy Stanley, Chairman of the Tanfield Group. “From 2 people in 1996, we employed 1,400 people, at our height, just before the recession”.

Early in his entrepreneurial career, Roy became involved in the automotive industry through a component supply business. But it quickly became clear that it wasn’t a sustainable market, because so much of the manufacturing was moving out to the low-cost economies. “So the holy grail for us was to find a product that we could make for ourselves. And over a period of time, that’s what we did”.

Roy says that the North East is a great place to do business because the people are very energetic, dynamic and enthusiastic – and they learn quickly. “So in our Powered Access business, which provides equipment to get people up to a high position safely and efficiently, we decided to keep all the design capability – what I call the real value of the business – in the North East. We source components from low-cost economies, such as China and Eastern Europe, and bring them in kit form in to this country for assembly”.

It’s been a fast growing market in recent years, valued at \$1 billion in 2000 and at \$8 billion in 2007. “We’ve now got manufacturing facilities in Australia, New Zealand, the United States and we have a presence, although it’s small, in Japan as well. So we’re now truly global”.

The other, division of the Tanfield Group is Smith Electric Vehicles. Originally it was a local milk float manufacturer on Tyneside, a family business set up in 1929, which Tanfield bought in 2004. Today Sainsburys, the Royal Mail, DHL





and TNT all drive their zero emission vans and trucks. “When you look at congestion in an urban environment, using electric vehicles makes so much sense. You reduce pollution and it’s quiet. And, because the average mileage across London, say, for a commercial vehicle is probably only about 30 miles a day, you don’t need an internal combustion engine; electric technology is good enough”.

“If you really want to grow your business you have to look to big markets. A businessman is like a fish; you can only grow as large as your pond.”

Smith’s Electric Vehicles invests a lot in design. And though they had to lose some employees in this recession – as with the Powered Access operation – Roy took the deliberate decision to keep all their design engineers. “We’ve been very focused on re-engineering the product, improving the manufacturing processes, improving the supply chain. So that, when the economic upturn comes – which we believe it will – we can be in a great position to take full advantage of it because we’ve made our product that much more profitable”.

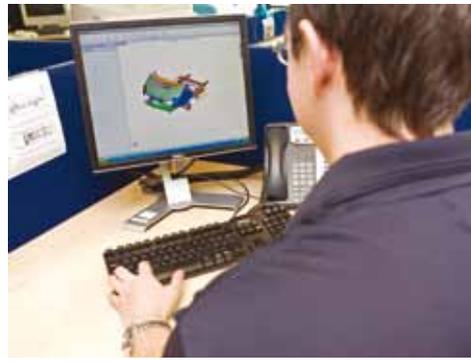
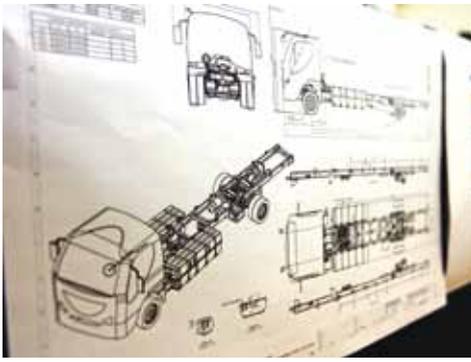
In the early ‘90s, Roy was a Business Studies teacher in a school. But when he was turned down for Headship – on the basis that he needed more leadership experience – he decided to break out on his own and become an entrepreneur. His views on how to succeed in business are very clear, “It’s simple; you’ve just got to have a better product than anybody else. And it’s all the things that go round the product: it’s service, maintenance; it’s the provision of spares, it’s the whole service offering that you provide for the customer. Then obviously, and especially when the economy is in a depressed state, you’ve got to be price competitive”.

“There are three elements to a business: people, money and markets. On people, I don’t look so much for skill or competence. I take that as a given. I’m more interested in attitude. Aptitude you can develop; attitude is really fundamental. So I look for, what I call, ‘self vision’; because my experience is that the higher the level of vision a person has for themselves, the higher the level of vision they’ll have for your business”.



SMITH
ELECTRIC VEHICLES





Given the issues that we all face around climate change, Roy doubts that electric vehicles are going to provide the one total solution; “There will be a number of solutions – but I think that electric vehicles will be right there in the mix. Look at the level of investment going into this area right now: in the last three months the Americans have put billions of dollars into this industry. So we’re going

“ We’ve just got to provide support for people to be enterprising and, if we do that the future for this region is just fantastic. ”

to see some rapid changes. To give you a good example, the level of investment going into battery technology in the last two years is greater than it has been for the previous fifty”.

He believes the whole mentality towards the economy is changing. “Today we talk about the ‘green economy’, but I think there’ll be a time when we won’t even refer to it. It’ll just become the norm”.

There are a number of successful inward investments in the region; Nissan being the main one. But Roy warns of the danger of becoming fixated by that. “In the North East, we’ve got to really focus on backing indigenous businesses. We’ve got to be looking out for where our opportunities are for the future – and remove the fear of failure. I mean if you get a hundred people all wanting to get into business for themselves – and we get, let’s say, 50% succeeding, that’s great, as far as I’m concerned”.

“If you really want to grow your business – which is what we’re talking about – you have to look to big markets. A business man is like a fish: you can only grow as large as your pond. And the North East is a small pond, so to grow your business substantially, you’ve got to step out of the region – and then out of the country into other countries”.

“The issues we have as a region are not complicated. We’ve just got to provide support for people to be enterprising and, if we do that, the future for this region is just fantastic”.

52 Narec – new energy to stimulate new business

“Narec attracts a lot of young talent because renewable energy is very fast growing and it’s considered sexy. It’s a new industry, it offers long term opportunities, and we’re fortunate to be blessed with a strong talent pool in the region,” says Andy Williamson, Business Development Director at the New and Renewable Energy Centre in Blyth, Northumberland.

Narec is a specialist technology research centre set up by the government in 2002 to help the UK develop the expertise it needs to create a renewable energy industry – wind, wave, tidal and solar power.

“The decline of our big industries, particularly on the rivers, left something of a vacuum in the North East economy,” explains Andy.

“The development of renewable energy represents a major renaissance for next generation power and manufacturing industries. The North East, and the UK as a whole, have a huge opportunity to stimulate the economy through it.”

Blyth, near Newcastle, was the perfect spot: the east of the region has 160 miles of windswept coastline, creating the ideal conditions to test wind turbines and marine power, while the rivers make it easy to transport heavy equipment.

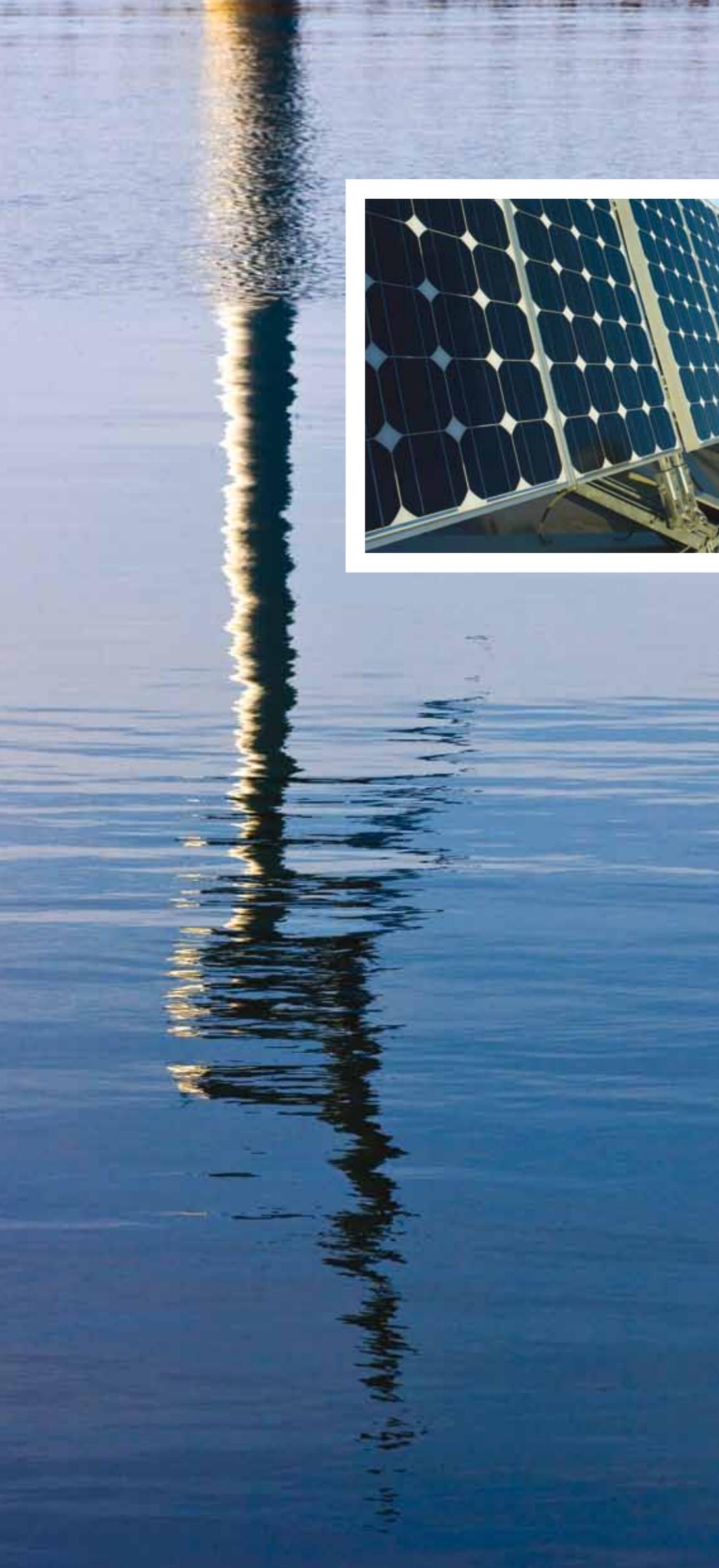
The industrial heritage of the North East also makes it a great place for the development of renewable energy, testing and manufacturing. “The expertise we had in the ship yards, heavy engineering and power generation are

“**The pioneers of our heritage in the North East would be proud of what’s happening today.**”

all the skills required for the next generation of power. The skills we are using in Narec come out of the earlier industries, and they will continue to play a big part in building up the supply chain in the UK for a long time,” says Andy. “We used to build very complex things – warships and oil and gas rigs. We need to evolve those skills to today’s opportunities.”

Adapting those talents and skills to the new opportunities is the key. For instance, the emerging renewables industry has many parallels with oil and gas, which still send trained North Easterners to rigs all over the world. “Off-shore wind will require thousands





of people to be posted on platforms out at sea. So you're using different technology but with the same application." If people can be trained locally there is enormous potential for creating jobs. Andy estimates that attracting just two big wind turbine manufacturers to move into the area would create 20,000 jobs.

At Newcastle University, Northumbria College and other higher education institutions in the region, renewable energy and engineering are popular subjects. And Narec is often involved. Sally Poxton, a recent graduate in Mechanical Engineering from London who studied at Sheffield University, now works in Newcastle developing and testing the blades. "People come from all over the UK. It's the only place of its kind, so if you want to do research in off-shore wind, you have to come here," she says.

The hope is that from this investment, companies will come and base themselves in the North East and a supply chain will grow. "There is a real danger for the UK that these turbines will be made elsewhere – North Eastern Europe, for example.



We need to attract industry here and build a supply chain so that we fulfil our own energy requirements and compete globally. We have competition from established centres in mainland Europe, but now we're also seeing competition emerge in the US and China, which is why it's so important that the UK stays ahead in this market."

“ People come from all over the UK. If you want to do research in off-shore wind you have to come here. ”

While there is a worldwide demand for energy companies to increase the amount of renewable energy they produce, the high-tech testing centres for the new technology are too expensive for any one company to afford. And that's where Narec comes in: the centre provides the research, testing capability and knowledge base the companies need. "All the producers want something proven before they invest heavily. So for them, we are taking the risk out of technology," explains Andy.

The region is starting to attract international investment around Narec. Clipper Windpower, a US firm, is the latest company to arrive, and Andy can reel off a list of others. He reckons that the £30 million

of tax payers' money that the Centre has received has enabled it to generate £100 million of investment so far.

Narec is also learning from what Andy sees as one of the greatest missed opportunities for the UK industry in recent years: on-shore wind turbines. "Twenty or thirty years ago, the UK actually invented on-shore wind energy, but we didn't invest in it, and we didn't create a supply chain. Denmark and Germany did – and today they have a massive industry in on-shore wind. We have the innovation and the R&D capability here in the UK to invent – but this time we need to grab the commercial opportunities to turn that ingenuity into business, otherwise the opportunity will be lost".

But he is optimistic about the potential, "The pioneers of our heritage in the North East would be proud of what's happening today. We have some new pioneers and, hopefully some world-beating manufacturing companies coming up, which will be a powerhouse for the North East economy."



Narec employs 170 people and indirectly created **hundreds more jobs in off-shore wind**

The energy market in the North East is estimated to be worth around **£1 billion** and employs **8,000 people**

Today only **2% of our energy comes from renewable sources** – and energy firms have a target to increase that to **15% by 2020**

56 Building blocks for the future

Newcastle and the North East harnessed invention and industry to become the powerhouse of the industrial revolution. Today there are fewer of the manufacturing jobs that were once the mainstay of the region.

Investment in new assets and new industries, combined with entrepreneurial spirit and industrial skills that have always characterised the region, are pointing the way to the future.

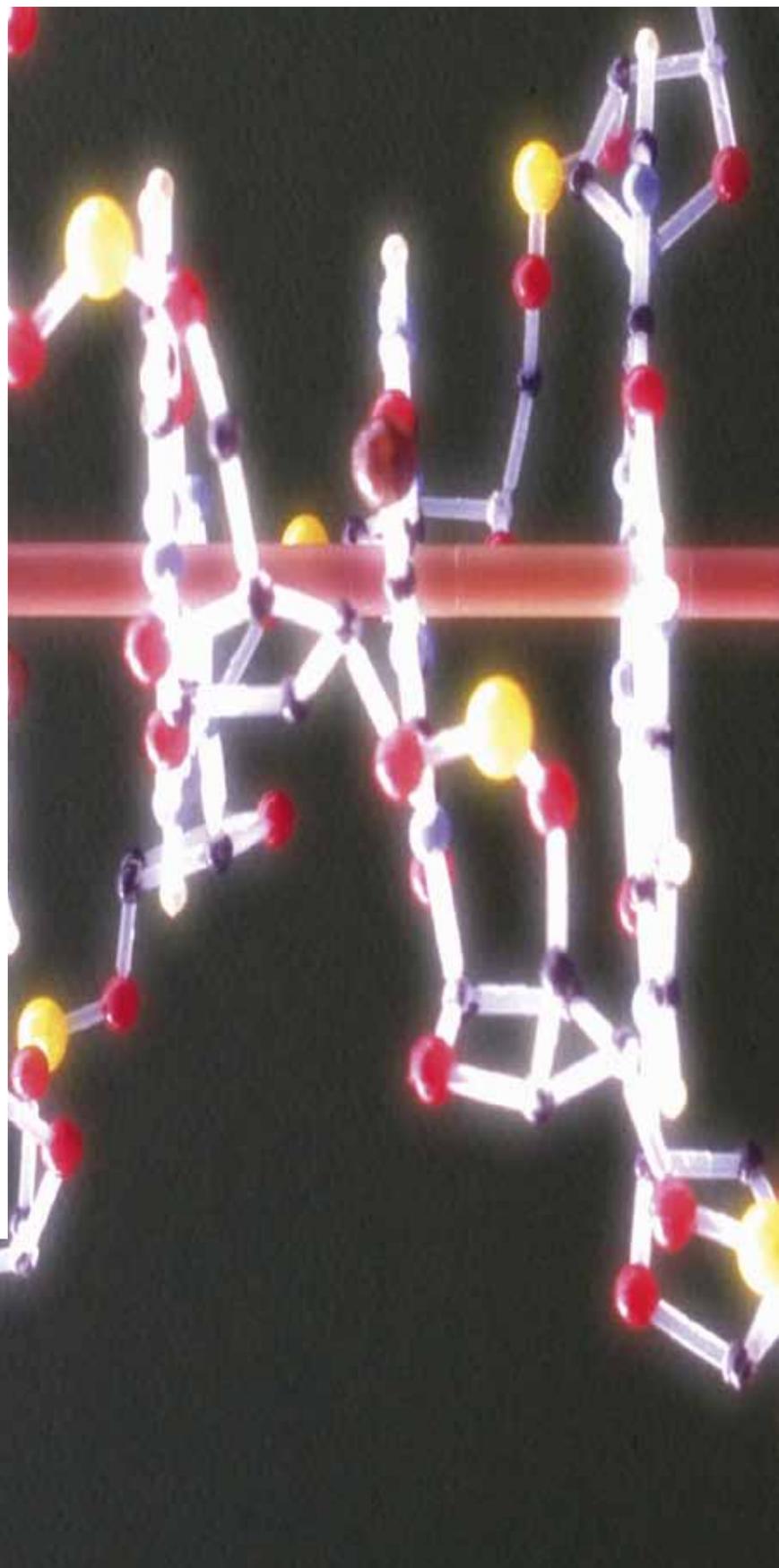
Like the rest of the UK, the city and the region is beginning to emerge from recession. But looking ahead, one thing is clear. The work that we do, the way that we live and the cities we live in, are all changing.

Small businesses are starting to step up to serve global customers, and compete in global markets. It is these businesses which will create the new jobs and the vibrant cities of the future. Opportunities are arising for entrepreneurs to harness breakthrough science, fast-changing technologies, and the growing demand for a greener economy.

Because the jobs of the future in Newcastle and the North East will not be the same as the jobs of twenty years ago, or even the jobs of today, it is vital to cultivate the sources of high-skilled, high-value, and high-technology jobs and businesses that can bring talent and investment into the region, and help put it on the world stage.

Building up home-grown talent will be the surest way to win in a world where the new industries and new jobs will depend on skills and creativity, technology and innovation. It is a big endeavour, not only for individual businesses but for the region as a whole.

And, everywhere across the region today, it is already possible to identify what the building blocks of the future will be.



The world is changing

The last half-century has seen unprecedented growth in international commerce. **Total world trade** in 2000 was **22 times** the level seen in 1950.

Falling telecommunications costs have driven globalisation: in 1927 the first transatlantic phone call from Columbia, Missouri to London lasted **6 minutes** and **cost \$162** – it can now be done for **free over the internet**.

In a ranking of the world's top companies, the UK **has 3 in the top 25**. Last year, China had no companies in the top 25 – it now has 4.

Investment now operates at a global scale. In 2007-8 there were 1,573 investments into the UK, creating more than **120 new jobs** a day.

