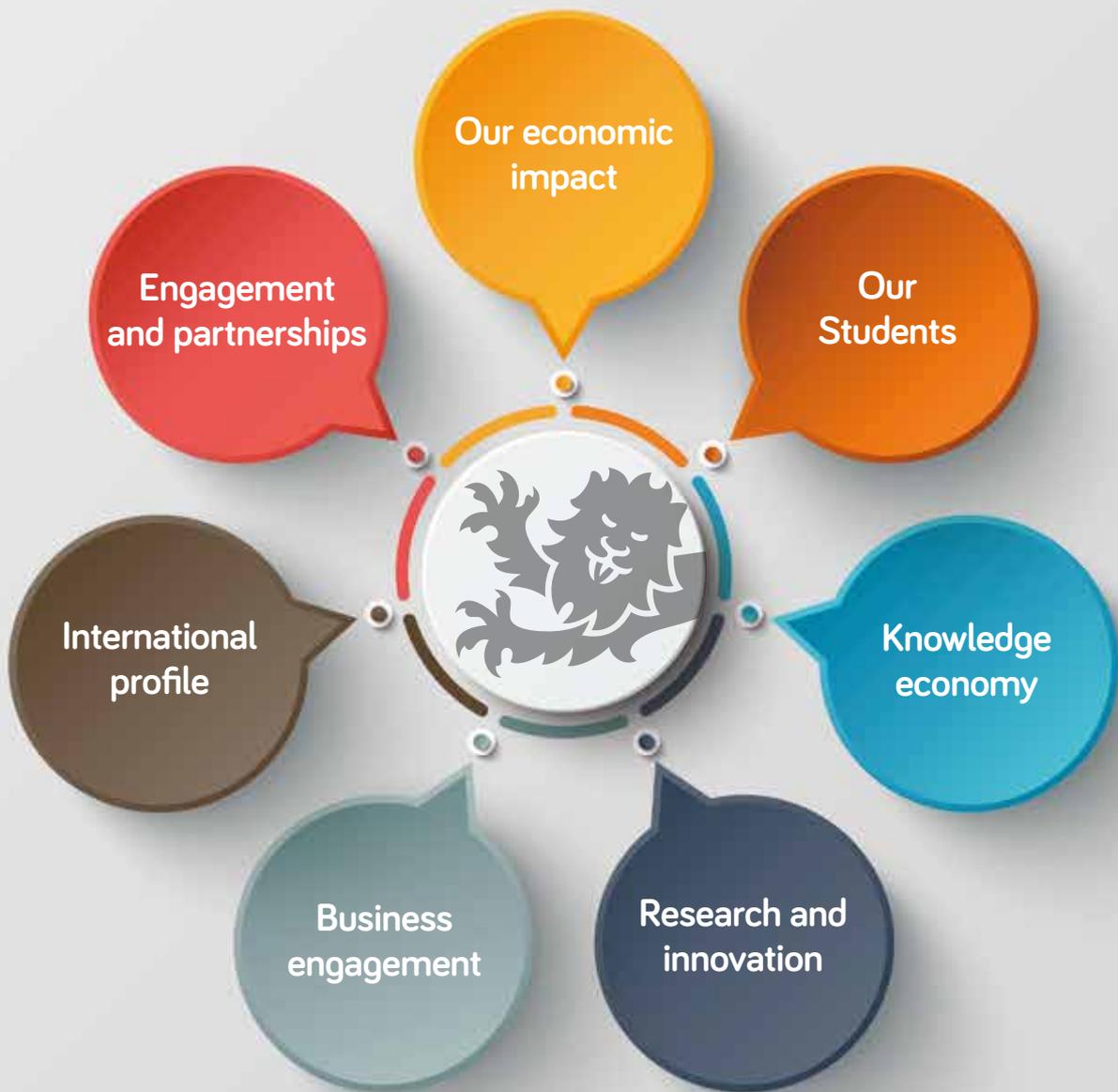


ECONOMIC IMPACT REPORT



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OVERVIEW

Newcastle University was formally established in 1963, but can trace its roots to the School of Medicine and Surgery, which was founded in Newcastle upon Tyne in 1834. Today's University is a thriving international community of 27,750 students and 5,780 staff, the majority of whom are based on our main city-centre campus and other sites around the city.

In recent years, we have expanded our footprint to include two international campuses, in Malaysia and Singapore, which opened in 2011 and 2008 respectively, while our newest branch campus, Newcastle University London, opened in September 2015.

The University is a member of the internationally renowned Russell Group, an association of 24 leading research-intensive universities in the UK, and of the N8 Research Partnership, which features the eight research-intensive universities in the North of England.

We are ranked among the top 1% of world universities, according to the QS (Quacquarelli Symonds) World Rankings. In 2016, Newcastle became one of only 16 universities in the world, and one of two in the UK, to achieve Five Plus QS Stars in the first international assessment of its kind. We also achieve consistently high standards of student satisfaction and were ranked joint 12th in the country for overall student satisfaction in the National Student Survey 2016 and in the world top 20 for international student satisfaction (ISB, 2016).

Recently, we commissioned Regeneris Consulting and Urban Foresight to help us assess our economic impact. Regeneris has looked at our core economic contribution, the contribution of our students, staff and the visitors we bring to the city and region, and our effect on skills and productivity. It has also assessed a range of other socio-economic contributions arising from our research, business and social engagement.

The report uses the most recently available comprehensive data from the 2014–15 academic year with a focus on our economic role in the city of Newcastle upon Tyne and the wider North East region. It also assesses the University's contribution within the Northern Powerhouse area, and across the UK.



FOREWORD

Newcastle University is one of the UK's great redbrick universities, founded in 1834 to address the economic, health and social issues of an industrial city.

Our original role was to educate the pioneers of the industrial revolution to make advances in engineering, shipbuilding and agriculture. We also led the way in research into public health issues that blighted the local population at that time.

Today, even though we have grown in scale and diversity, and are now operating on a truly global stage, Newcastle University continues to have a profound impact on the city of Newcastle and the North East of England.

As Vice-Chancellor and President of Newcastle University, I am immensely proud of the contribution our University makes to the prosperity of our city and region. I am also heartened that the students we teach, the collaborations we have with our many partners and the facilities we provide here are enriching people's lives economically, culturally and socially.

The challenge, of course, is how as an anchor institution in Newcastle we build on this to address issues of social inequality in our region while recognising that we also need to adapt to the wider impact of Brexit, globalisation and profound societal changes such as an ageing population.

The extent of our contribution to the economy and society is summarised in this report. In total our activities add £1.1 billion in Gross Value Added (GVA) to the UK economy every year supporting – both directly and indirectly – 8,850 FTE jobs in Newcastle. Our international students alone boost the economy by £115 million every year – most of which comes to Newcastle and the wider North East.



We actively invest in projects that are helping to attract new businesses and jobs to the region. In partnership with Newcastle City Council, we are creating Science Central – a £350million urban regeneration project on the site of a former brewery which is the largest of its kind in the UK.

Science Central will be home to two innovation centres, in the fields of ageing and data, that have been awarded National status by the government. Together with research centres in energy and infrastructure, they will create a full-scale demonstration site in the heart of Newcastle where business and communities can get involved in providing real-world solutions to the issues facing modern and growing cities. The University is also leading a national research centre for offshore and subsea engineering on the banks of the River Tyne.

We are taking a similar approach to our research and teaching facilities outside the city. At our farms and marine centres, we are working alongside businesses, other education providers and the local community to create opportunities and develop

skills that will bolster Northumberland's economic prosperity.

We also invest in cultural venues linked to our academic excellence. The Hatton Gallery is part of our world-class School of Arts and Cultures while the Great North Museum: Hancock (GNM) is home to an extensive natural history and archaeology collection. Operated by our partners Tyne & Wear Archives & Museums, the GNM and Hatton Gallery welcomed 733,466 visitors in 2014–15.

This economic assessment gives me both confidence in the knowledge that we have a very firm foundation on which to build and the assurance that by continuing to improve our performance, we can bring far-reaching benefits to our city and region and beyond.



Professor Chris Day
Vice-Chancellor and President





OUR ECONOMIC IMPACT

The University's core economic impact is clearly apparent nationally, locally and regionally, through the direct and indirect (supply chain) impact of our operation. Not only are we the city's third largest employer, but also our activities – in particular our multimillion-pound programme of investment in developing our campus – support a significant number of businesses across Newcastle and the North East. Added to that, the induced effects – the household spend of staff employed by the University and our students – further supports the region's economy.

In the academic year 2014–15, Newcastle University's activities supported an estimated £1.1 billion in Gross Value Added (GVA)¹ in the UK. Much of this was concentrated in the North of England, with an £800 million GVA contribution to the three Northern regions – the North East, North West and Yorkshire and the Humber.

The University also has a very significant local and regional impact, supporting an estimated 8,850 FTE (full-time equivalent) jobs in Newcastle, equivalent to 6% of all jobs in the city. Our £750 million GVA contribution to the North East is equivalent to 1.6% of all GVA in the region.

In 2014–15, the University employed 5,170 full-time equivalent staff (FTEs) at its Newcastle campus, making it the third largest employer in the city. It is also the largest employer of the five North East Universities, and the fourth largest employer in the region². One in every three staff at the five North East universities was employed by Newcastle University.

In 2014–15, the University's total income was £475 million. Our net income³ has increased substantially in recent years and we now have the fourth largest income of the 31 northern higher education providers.

The University spent £133 million with UK-based suppliers, of which £17 million was for capital investment. The vast majority of our suppliers are located in Newcastle, Sunderland and the surrounding areas while others were based in Manchester in the North West, and Leeds and Sheffield in Yorkshire and the Humber. Of the total spend with suppliers, £56 million was spent in the North East, and £27 million in Newcastle.

The University's supply chain expenditure also had a significant economic impact in the UK as a whole, generating £90 million GVA and supporting 1,800 FTE jobs.

In the main, staff employed by the University spend their wages and salaries locally, further supporting economic activity. This expenditure is concentrated in Newcastle and the North East with 40% and 90% of staff living in the city and the region respectively. These 'induced effects' supported 2,670 FTE jobs and contributed £180 million in GVA in the wider UK economy.

¹ This is the key measure of economic contribution at the level of an organisation, sector or region. It is measured as the sum of total employment costs and surplus before depreciation, amortisation, tax and interest costs.

² HESA staff data by HE provider 2014–15. Data does not include academic atypical staff. Note: North includes the North East, North West and Yorkshire and the Humber.

³ Source: Newcastle University Annual Review and Accounts 2014–15. Net income is calculated as total income less the share of income from joint ventures (such as INTO Newcastle).

OUR STUDENTS

Students are the beating heart of Newcastle University. The North East is renowned as a friendly, welcoming region and this, coupled with the city's reputation as a great place in which to live, work and study, helps us to attract the brightest minds from around the UK and the world. In turn, they make a huge contribution to the economic, social and cultural life of the city and region.

In 2014–15, our student population numbered some 27,750 students, including those at our international campuses in Malaysia and Singapore. Of these, 24,700 students were based on our main Newcastle campus, representing the ninth largest student population of the 31 HE institutions in the North of England. To put it another way, Newcastle University is responsible for educating around one in every 20 students studying at HE providers across the North – and 22,000 of them live in the city.

The University has always attracted large numbers of students from outside the area: 96% of students are originally from outside Newcastle and 81% are from outside the North East.

The North East of England has a tradition of low participation in higher education. Through our award-winning PARTNERS programme and the Newcastle University-led Realising Opportunities initiative, supported by investment in financial support for students from non-traditional backgrounds, we have actively sought to bring about a change in this trend.

It is also a very popular destination for international students, with some 7,000 students from 120 different countries outside the UK studying at Newcastle – the 19th largest international population of all UK universities.

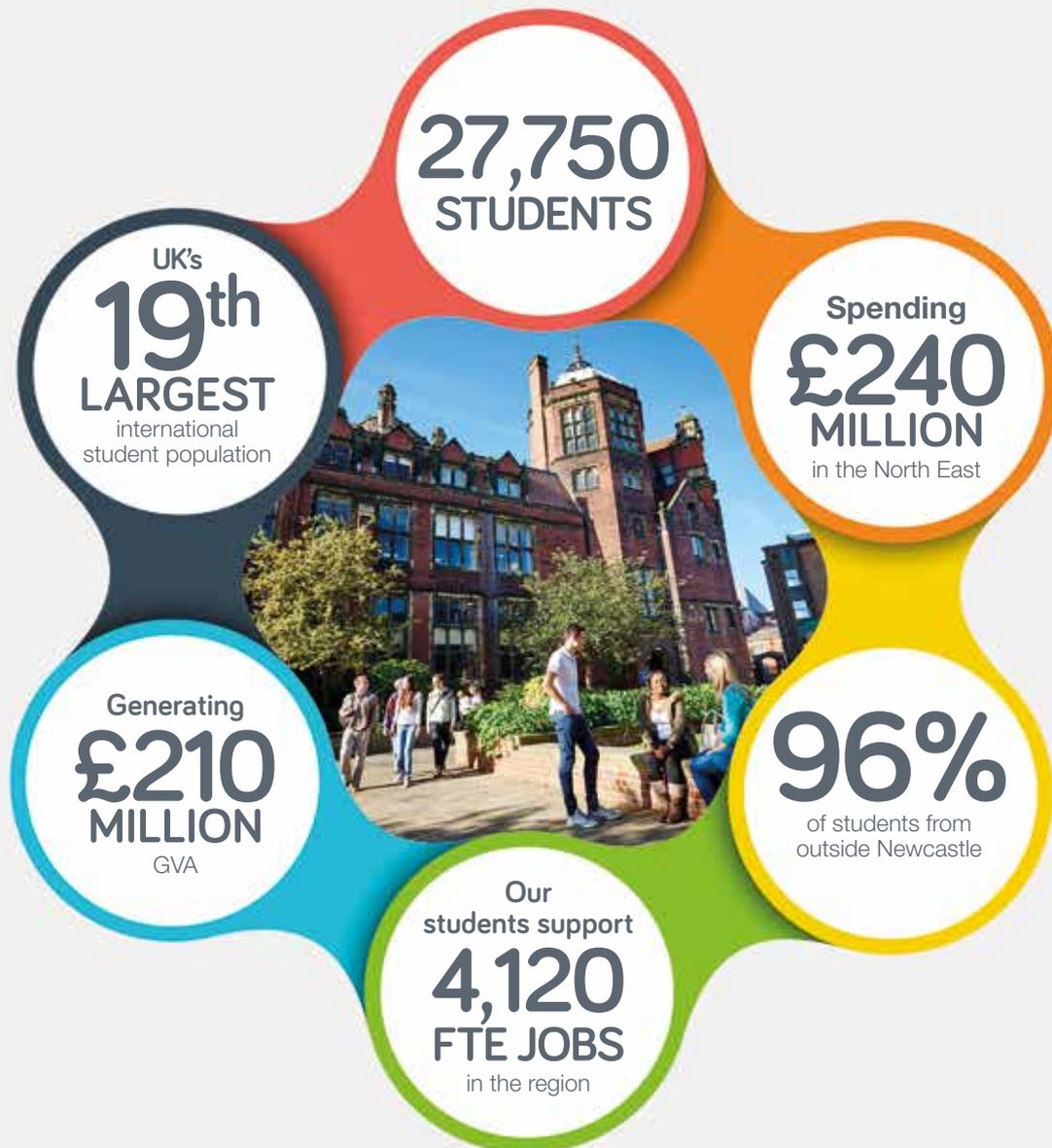
A thriving student population brings with it significant spending power. In 2014–15, students spent an estimated £240 million in the North East outside of the University campus⁴. Those originally from outside the region accounted for around £175 million of this expenditure.

A significant proportion of spend is captured in the city itself. Of the 22,000 students living in Newcastle during the academic year, around 21,000 were from outside the city, spending approximately £188 million.

The majority of the economic impact from student spending, therefore, is generated by full-time students who are originally from outside the city and the region. Between them, they created £210 million of GVA and supported over 4,120 FTE jobs as a result of their off-campus expenditure. International students also generated a significant additional economic contribution to (and hence export earnings for) the UK, equivalent to £115 million in GVA and 1,860 FTEs.

Furthermore, expenditure generated by visits from students' friends and family supported 430 FTE jobs and £17 million in GVA in the North East. Of these 290 FTE jobs and £10 million in GVA came to Newcastle.

⁴ Note that all figures remove expenditure that goes as income to the University (e.g. student fees and spend on university accommodation), or is spent outside the area concerned.



KNOWLEDGE ECONOMY

As one of the great redbrick universities, Newcastle University originated from colleges of medicine and physical sciences that were established to serve the needs of an increasingly industrialised society at the turn of the 19th century.

Today, Newcastle University continues to make a strong contribution to the skills base locally, regionally and nationally. Around one third of its employed graduates were working in the North East three and a half years after graduation, with almost half remaining in the North of England, making us a net importer of talent.

A single year's cohort of graduates entering employment in Newcastle six months after graduation represented 2.5% of all employees in the city in 2014⁵ or 11% of all 16- to 24-year-old employees with a Level 4+ qualification in the city⁶.

Meanwhile, 88% of all Newcastle University graduates were employed in higher managerial or professional occupations three and a half years after graduation.

Our graduates have gone on to work in a range of sectors, many of which overlap with sub-regional and national priority growth sectors identified by the North East and Tees Valley LEPs and the Northern

Powerhouse, including advanced manufacturing, health and life sciences and financial and professional services.

A university education increases both earnings potential and a student's chances of finding employment over the course of their working life. They also improve the business performance and profitability of the companies they work for. The GVA generated over the course of the 2014–15 cohort of graduates' working lives⁷ is estimated to be £17 million in Newcastle itself, £65 million in the North East, £90 million in the Northern Powerhouse and £320 million in the UK economy.



⁵ Source: Office of National Statistics (ONS) Business Register and Employment Survey.

⁶ Source: ONS Census 2011. Note that it is not possible to disaggregate further by age.

⁷ In discounted 2013–14 prices.

RESEARCH AND INNOVATION

Our aim is to be a world-class, research-intensive university and at Newcastle we are committed to excellence in research and innovation, but excellence with a purpose. We believe that it is not enough to ask simply ‘what are we good at?’, but we must also ask ‘what are we good for?’ In other words, we want to ensure that the work we do makes a difference to society, not only in our city and region, but also on a national and indeed global scale.

A significant part of our efforts in this respect are channelled through our three societal challenge themes of ageing, social renewal and sustainability, recognising that we need to focus on finding solutions to these major global issues.

Our ambitions are supported by a strong track record of attracting funding for our research. In 2014–15, we received a total of £105 million in funding from research contracts and grants. We are a vital contributor to spending on R&D in the region, where 43% of spend comes from universities compared to a UK average of 26%⁸.

We have some 2,000 research collaborations in 62 countries worldwide and we have achieved particular success in Europe, with 235 projects being supported under the EU FP7 framework between 2007 and 2013 and a further 70 awards under the EU Horizon 2020 project.

We are also a key contributor to the North East’s cutting edge R&D in the life sciences and healthcare sector, which produces 33% of the UK’s GDP in pharmaceutical manufacturing.

Recent developments, such as the creation of two government-designated National Centres in the

region, led by the University, will serve as a focus for our innovation activities. The National Innovation Centre for Ageing (NICA) and the National Innovation Centre for Data (NICD), together with the National Centre for Energy Systems Integration (CESI), the £11.2 million UKCRIC integrated infrastructure labs and urban observatory on the Science Central development and the Tyne Subsea National Centre for Subsea and Offshore Engineering on the banks of the River Tyne will drive forward scientific advances and innovation in the region, creating jobs and a thriving community to grow the North East economy.

The latest Research Excellence Framework (REF) in 2014, which ranked the University 16th overall in the UK for research power with the vast majority of its research classified as 4* (world leading) or 3* (internationally excellent), is a measure of the quality of our research.

Among our key REF subject strengths, in the UK we are ranked: 1st for Computing Science research impact; 3rd for Engineering research power; 11th for Mathematical Sciences research; 8th for Medical and Life Sciences research quality; 3rd for English; and top 12 for Geography, Architecture and Planning and Communication and Media Studies.

⁸ Source: ONS

BUSINESS ENGAGEMENT

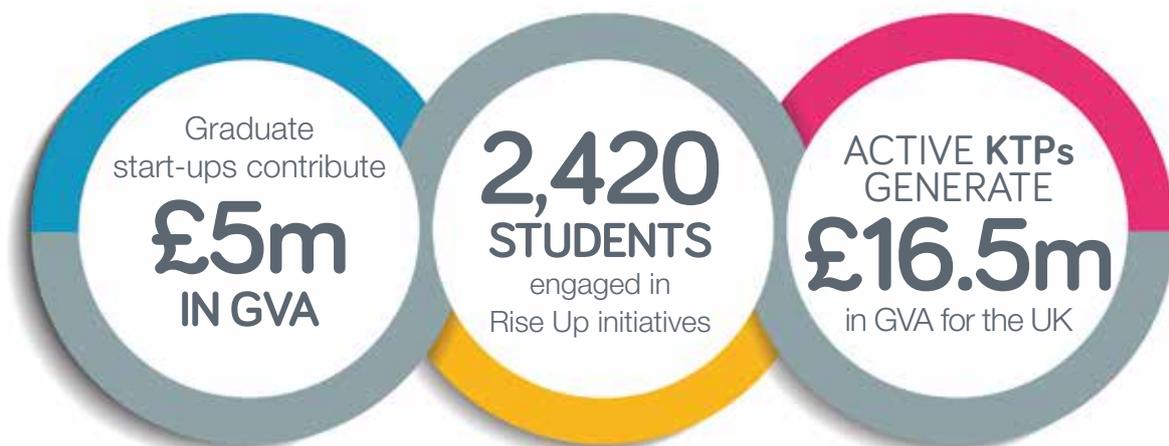
Universities play an integral role in the UK economy and Newcastle is no exception to this, helping to commercialise innovative ideas, diffusing the technical and soft expertise of our students into the workforce and supporting academic spin-offs and graduate start-ups with funding, mentoring and subsidised workspace.

We work with global industrial partners including Dyson, Microsoft, Northern Powergrid, Siemens, GSK, Unilever, and Northumbrian Water to support a range of business and commercialisation projects, including:

- Knowledge Transfer Partnerships (KTPs). KTPs support businesses to access the help of graduates with particular projects – benefitting both the company and the student. The University has a 90% success rate in its KTP applications and has been awarded 160 projects worth £20 million since 1980.
- Collaborative Awards in Science & Engineering (CASE) studentships between its students and a public or private sector organisation.
- Business support services, from academic consultancy through to the provision of laboratory and workspace.
- Support for student enterprise with the provision of workspace, advice and coaching, through the Rise Up initiative and Founderships programme. A total of 2,420 students engaged in Rise Up, with 35 graduate-led ventures creating 48 FTE jobs.

This type of activity generates real economic impact for the region and beyond. New business start-ups established by Newcastle University graduates raised £1.8 million in external funding in the past year, representing 75% of all external investment received by graduate start-ups across the region. In 2014–15, almost 60 start-ups from the University had survived at least three years, and companies started up by Newcastle graduates that are currently in operation are contributing an estimated £5 million in GVA.

Furthermore, the currently active KTPs will generate £16.5 million in GVA for the UK, while the University's collaborative research and consultancy activities will help to generate £116 million in net additional GVA for the businesses concerned.





rise up

Join the entrepreneurial revolution

Follow your passion.
Don't follow the norm.
Don't accept mediocrity.
Don't curb your enthusiasm.

Don't be afraid to do your own thing.
I believe I can do it better.
I want to make the rules.
I know I can make a go of it.
I want to work for myself.
Rise up.

INTERNATIONAL PROFILE

At Newcastle University, we aim to grow and sustain our international profile, impact and reputation for academic excellence through mutually beneficial partnerships and collaborations with a network of partner institutions and organisations around the world; through the physical presence of our two international branch campuses in Singapore and Malaysia; and through our relationship with INTO University Partnerships.

Newcastle University Singapore and Newcastle University Medicine Malaysia (NUMed) are founded on our research and teaching strengths and align to the skills needs of countries in which they are located.

Newcastle was the first UK university to establish a fully owned overseas campus for Medicine and Biomedical Sciences in Malaysia. The fully GMC-accredited programmes provided by NUMed are helping to train doctors to meet the growing need for physicians to support the Malaysian Health Service.

In Singapore, our significant collaboration in engineering with the Singapore Institute of Technology showcases our global reputation for academic

excellence to high-tech industries based in one of the world's leading financial centres. In 2017, we are planning to open a research facility in Singapore to further these links.

INTO Newcastle was launched in 2007 to increase and diversify international students progressing to Newcastle University by providing a series of English Language and academic study programmes. This venture brings in over 1,000 additional international students to the city each year. Combined with over 7,000 overseas students registered at the University, this reflects substantial expenditure injections that support jobs in the region.



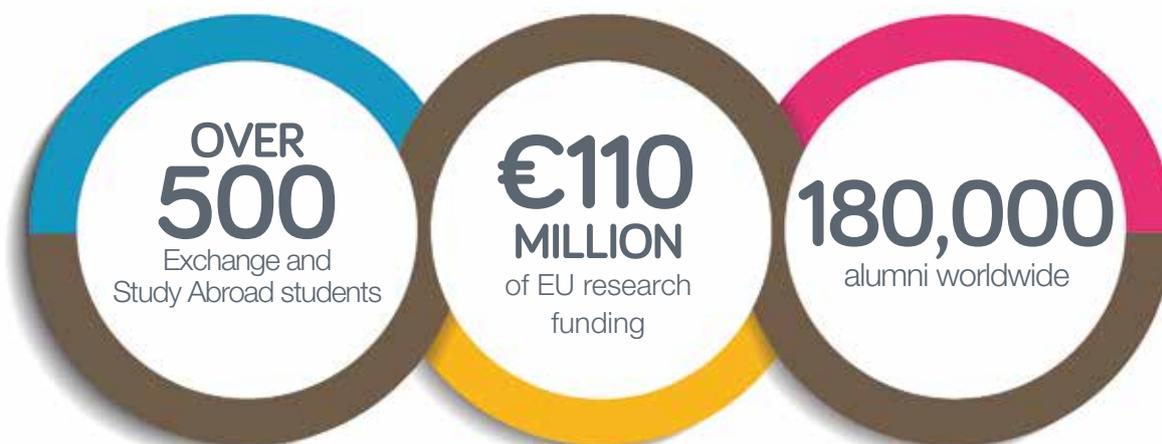
Newcastle University maintains a strong portfolio of long-term, broad and deep partnerships with like-minded, world-class institutions around the world. These partnerships develop through shared missions and values and support the University's teaching and research into addressing global challenges.

Our key partners:

- Indiana University, USA – a strong institutional partner with whom Newcastle has a wide range of activities with high societal impact for both Indianapolis and Newcastle. This includes dental students from both institutions working together to provide primary care to help the most vulnerable members of society in the two cities' most deprived areas.
- Monash University, Australia – a partnership that combines Newcastle's strengths in biomedical sciences and clinical medicine to benefit patients and the wider population.
- University of Groningen, Netherlands – a key partner for Newcastle University Business School, and partner on European funding bids.

These activities enable Newcastle's students and staff to access an international experience that benefits the region and local community:

- Over 500 Exchange and Study Abroad students come to Newcastle from our partner universities each year and contribute to the local economy.
- The Loyola University Maryland Study Abroad Center at Newcastle University is a partnership activity that annually brings significant financial investment from Loyola University, USA, to provide their students with a range of weekend excursions and activities throughout the region.
- Newcastle University Language Resource Centre employs international students to provide the local public with a range of free activities and services. These include conversation groups, language taster sessions, a tandem learning scheme, and a range of language learning materials available to the public free online.
- At the end of the EU's FP7 programme (2007–2013) 235 successfully funded projects brought funding worth over €110 million to Newcastle.
- The University has a growing and increasingly global network of approximately 180,000 alumni that can support our partnership activity.



ENGAGEMENT AND PARTNERSHIPS

Engagement with business, third sector organisations and external partners is integral to Newcastle University's positioning as a civic university. By forging effective links with a range of partners, we ensure that our teaching and research activities have a genuine economic, cultural and societal impact.

Across the city and region, the University is a key partner in a number of major initiatives with a focus on innovation.

- We are working with Newcastle City Council to develop Science Central – Newcastle's £350 million flagship project bringing together academia, the public sector, communities, business and industry through the Science City partnership – with the aim of creating a global centre for urban innovation in the heart of the city.
- Creative Fuse North East is a £3 million research partnership between the region's five universities looking at how the creative, digital, and IT (CDIT) sector in the North East can be developed in order to play a leading role in the region's economy. The universities will work with the 12 local authorities in the region, businesses, artists, cultural organisations and partners to research how the CDIT sector can ensure it has the right skills for a sustainable future.
- The Academic Health Science Network North East & North Cumbria is dedicated to improving healthcare, driving wealth creation and promoting research participation across the region.

One of the mainstays of our cultural offering is our popular and thriving programmes of free Public Lectures and concerts by high-profile speakers and performers. These are among the best of their kind in the country, attracting many thousands of visitors to the campus. Meanwhile, our cultural attractions, including prominent venues such as the Great North Museum: Hancock and Hatton Gallery, operated by our partners Tyne & Wear Archives & Museums, are major assets for the city and the region, drawing hundreds of thousands of visitors every year.

The University is committed to widening participation through many channels including student ambassadors, mentoring, targeted activity development, tutoring, placements and role models.

Realising Opportunities is an award-winning national collaboration of 15 leading research-intensive universities led by Newcastle University, working together to promote fair access and social mobility of students from groups underrepresented in higher education.

Launched in 2009, Realising Opportunities provides able students with skills and information to: make informed decisions about future education, raise their aspiration to progress to a leading research-intensive university; and to support their current school/college work.

Some 77% of applications made by the 2014 student cohort received offers and 70% received a place at their first choice institution, with 76% of student saying they were happy with the offers they received.

In 2014–15, the scheme supported 4,148 students across the programme, with 81% of graduates receiving a first or upper second-class degree.

We also support and deliver a variety of community projects through Go Volunteer, which helps students to find their ideal community volunteering opportunity, as well as having links to over 100 charities and not-for-profit organisations within the local community who are always looking for student volunteers.

These and other activities have resulted in considerable, measurable successes that have benefitted the city and region as a whole, generating jobs and contributing significantly to the North East economy:

- In 2014, 93% of entrants to the University from the North East were from state schools, 32% from lower socio-economic groups, 20% from low participation neighbourhoods and 9% from BME communities.
- 4,700 students volunteered 50,000 hours of their time in 2014–15.
- Newcastle University hosts around 70% of all visits to museum and gallery exhibitions held by all five HEIs in the North East. It also ranked first among the five North East HEIs for the number of attendees to performance arts events and other community and cultural events.

- In 2016, the University agreed a £100 million 30-year loan with the European Investment Bank due in part to ambitious growth plans illustrated by Science Central. The loan is the largest ever for a university outside London and the south east.
- The NewcastleGateshead Convention Bureau won Best Industry Partnership at the Association of British Professional Conference Organisers annual awards in 2015 for its work with Newcastle University to bring academic conferences to the region. These conferences showcase our research and teaching excellence and bring significant economic benefits to the region. Conference visits from outside the region generated £46 million in GVA and 1,610 jobs for Newcastle and Gateshead in 2013.



CASE STUDY 1

RURAL SUSTAINABILITY

The Institute for Agri-Food Research and Innovation (IAFRI) is a joint venture between the University's School of Agriculture, Food and Rural Development and Fera Science Ltd. IAFRI operates under a private-public ownership to deliver both innovation and wealth creation in strategically important industrial sectors.

Key to IAFRI's work are the facilities provided by the University's two research farms, Cockle Park and Nafferton. Cockle Park, a 262-hectare site 18 miles north of Newcastle, is one of the UK's top agri-tech research centres as well as a viable farming business, combining arable and animal practices and providing a base for working with industry, NGOs and the farming community.

Cockle Park is the focal point for a new £70 million Centre of Innovation Excellence in Livestock which will bring together the best research in areas such as breeding, animal health, biotechnology, feeding and genomics to transform the productivity of the UK livestock industry.

The University is also playing an integral role in a new Centre for Crop Health and Protection, launched in 2013 under the government's Agri-Tech strategy to ensure that its investment in agriculture delivers material benefits for society and the economy in the UK and overseas.

The Centre, which has its headquarters at the National Agri-Food Innovation campus at Sand Hutton, near York, has secured £21.3 million of government investment over four years. With partners including Bayer CropScience, Tesco, and Fera Science Ltd, the Centre brings together expertise and insight from leading research organisations and industries in the sector to lead the way in developing solutions to the challenges facing world agriculture.

Meanwhile, Nafferton Farm, to the west of Newcastle, is split between organic and conventional farming and provides a 300 hectare research facility to explore the opportunities and risks of sustainable intensification and ecological farming practices.



CASE STUDY 2 CITY FUTURES

Newcastle City Futures focuses on developing a radical new model of urban development to tackle the complex challenges facing Newcastle and other cities around the world arising from a range of factors including an ageing population, traffic congestion and extreme weather events.

The project takes a unique approach by involving everyone in the city in the development of solutions to its challenges, harnessing creative thinking and expertise from among diverse groups of people: the general public, academics and private and public sector organisations.

Using the latest environmental monitoring, urban modelling, data analysis and visualisation tools, the project aims to establish Newcastle as a test-bed for urban innovation. The project has received funding

from RCUK (Research Councils UK) and Innovate UK and it has been designated as one of five Urban Living Partnerships. Currently, 20 individual projects are in development, all brokered by Newcastle City Futures. Partners include ENGIE, IBM, Nexus, Newcastle City Council and the North East LEP.

This initiative is being used as a case study around the world to inspire other cities to identify their own assets and solutions in addressing city challenges. The government is also using Newcastle City Futures as a guide for new ideas. As a result, Newcastle is leading an international network of cities, including Groningen, Hong Kong and Sydney, which is seeking to identify best practice in university-city relations and inspiring other cities to follow Newcastle's lead.



CASE STUDY 3

EMPLOYER ENGAGEMENT

Newcastle University Business School's award-winning Global Experience Opportunities (GEO) programme gives all Business School students the chance to boost their employability through an innovative programme of extracurricular activities that links them with partner university students, businesses and alumni around the world.

In 2014–15, 476 students participated in the GEO programme in various initiatives, including global internship schemes and virtual business case competitions.

GEO also organises an annual one-day student conference, Gain a Global Advantage (GaGA), where alumni and business leaders in senior roles from international organisations such as Disney, Nike,

Mayborn, HSBC and The Economist discuss the importance of global outlook and experience in the context of employability.

The programme has increased the visibility of Newcastle and the North East among partner institutions, resulting in the formation of strategic partnerships that extend beyond research. For students and the Business School, the programme provides them with exposure to the region away from the classroom, while employers gain access to the talent and enthusiasm of high-calibre students, with the potential to lead to increased graduate retention in the region.

Giles Morgan, Global Head of Sponsorship Events, HSBC, addresses the Gain a Global Advantage conference.



CASE STUDY 4

PARTNERING WITH BUSINESS

Newcastle University has been awarded 'Principal Partner Status' by Siemens, one of only four UK universities to be awarded this title, along with the Universities of Cambridge, Lincoln and Manchester.

This comes as a result of the extensive collaboration between both organisations in joint research projects, the development of new qualifications to meet future skills demands, and in providing industry placements as an integral part of education programmes.

Siemens' significant investment in the locality, thanks to this collaboration with the University, has seen the development of infrastructure to vehicle (I2V) communications technology research, focusing on improving and making road transport more efficient. Other research and development partnerships between Newcastle University and Siemens includes R&D into the offshore wind sector, at Blyth's world-class Offshore Renewable Energy Catapult facilities.

The University's Siemens Smart Grid Laboratory allows researchers to put the electricity grid to the test without any risk to customers.

These initiatives have brought funds into the region, such as the Government's Regional Growth Fund (RGF), making the University more appealing to future students, and have enhanced the economy through the upskilling of the local workforce and the creation of jobs.

Elsewhere, the University is working with global energy company, ENGIE, to explore joint projects that address challenges around ageing, smart data and energy. The strategic relationship will link ENGIE's 'Cities of Tomorrow' initiative with the University's Newcastle City Futures project, and will involve each of the national research centres on Science Central. The partnership will primarily concentrate on the analysis of urban data, digital services for ageing populations, intelligent networks and battery storage.



CASE STUDY 5

SHOWCASING CREATIVITY

During 2016, 10 sculptures by Newcastle University Fine Art students, inspired by the fairy tale Hansel and Gretel, were displayed at Kielder Forest in Northumberland as part of Kielder Water & Forest Park Development Trust's Art and Architecture programme.

The opportunity for our students to showcase their work in public in the beautiful natural surroundings of Kielder Forest helps make the University's fine art degrees programmes attractive to prospective students and brings visitors to Kielder, thereby stimulating the local economy.

Meanwhile, architecture students from the University designed a stargazing pavilion in Stonehaugh, providing a warm room for stargazers on a Kielder campsite. A second project to restore a dilapidated roundhouse in nearby Rochester to create an open air amphitheatre and contemporary timber pavilion is also being used by stargazers and for musical performances and a range of community workshops.

Newcastle University's Institute for Creative Arts Practice was established in 2013 as a centre of expertise and innovation in fine art, music, creative writing, filmmaking, digital culture and curatorial practice. One of the Institute's most notable projects

is the £200,000 Northumbrian Exchanges initiative, which aims to stimulate economic development in rural communities in Northumberland through cultural activity. As part of the project, researchers worked closely with local cultural projects including Allenheads Contemporary Arts, Visual Arts in Rural Communities and the Holy Island Partnership, to investigate how such organisations can remain sustainable during times of austerity.

Students from the University's respected Folk and Traditional Music degree, supported music festivals and workshops while Masters' students from the University's Business School undertook placements with six creative businesses to explore new ways of building sustainability and benefiting rural Northumberland.

In January 2017, 'Explore and Create' – a new project developed by Kielder Water and Forest Park Development Trust – received a £49,300 grant from Arts Council England's National Lottery-funded Grants for the Arts programme. Building upon the existing partnership between the Trust and the University, the project will focus on nurturing talent and providing opportunities for the development of creative skills.

Opposite: *'Pyramidal Edifice'* by Newcastle University Fine Art student Anthony Hensman.



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