

RESEARCH, INNOVATION AND IMPACT

NOTTINGHAM TRENT UNIVERSITY

RESEARCH AND INNOVATION ARE NEEDED TO CONFRONT AND MANAGE THE WAYS IN WHICH THE WORLD IS CHANGING, WITH GRAND CHALLENGES OF AGEING, INFECTIOUS DISEASES, CLIMATE CHANGE AND OTHER INTRACTABLE PROBLEMS REQUIRING THE APPLIANCE OF SCIENCE.

TO TACKLE THE BIG QUESTIONS YOU NEED INTERDISCIPLINARITY.

LOOKING THROUGH THE LENS OF A SINGLE DISCIPLINE WON'T PROVIDE THE ANSWERS.

PROFESSOR SIR MARK WALPORT, CHIEF EXECUTIVE DESIGNATE OF UK RESEARCH AND INNOVATION

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At Nottingham Trent University, our research is distinguished by its deep connections with and profound responses to the real challenges faced by the professions, businesses, services and communities in our City, our County and our Region. Increasingly, it stretches beyond to a global impact that changes lives and the world we all share.

Research that confronts real issues

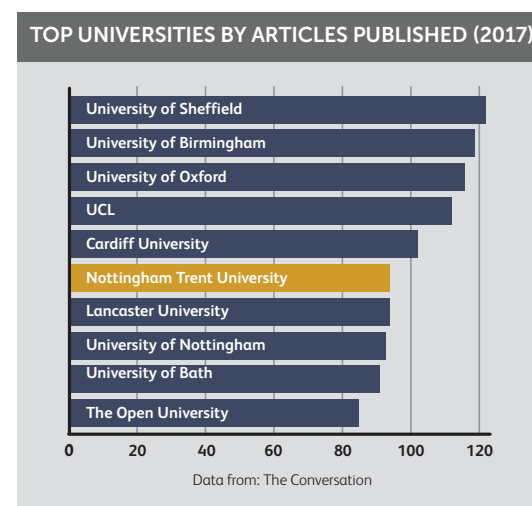
We respond to the challenges faced by the professions, businesses, industries, and civic and community organisations with which we work. Recognised as an anchor institution, we play a crucial role with our partners in the economic, cultural and social prosperity of our region. Our research brings an important enabling dimension to the development of this shared prosperity.

In 2014, 90% of our research was judged to be world-leading, internationally excellent or internationally recognised through the national Research Excellence Framework. Now, in our focussed areas of research, its quality and impact stands comparison with that undertaken at any university anywhere in the world.

We invest heavily in the infrastructure to support our research activities and as a consequence attract leading researchers from across the world into our research community. In recent years almost £40m in external funding has been awarded to support our research in an increasingly competitive funding landscape.

However, we do much more than conduct research. Our research makes a difference in the world, driving innovation in public and private sectors alike, from the rehabilitation of sex offenders to new techniques in food production. Our research influences academic and public policy debates across a wide range of subjects. This is recognised by our leading position in publication and readership tables for The Conversation.

We also develop the innovators of the future. Our research informs the curricula of our academic programmes. Research practice is integral to every course. Our students apply research-led knowledge, theory and skills to discipline challenges in real-world contexts, forming a deep pool of ambition and talent. Our Doctoral research community of almost 800 students, include many whose research studies are directly linked to their own professional roles in industry, business and the professions.



Innovation at the core of practice

Working with our partners, we create flexible and responsive multi-disciplinary research teams to tackle complex issues in ground-breaking ways. This approach is exemplified through the activities within our **research themes**; these are areas of focused research strength that cross discipline boundaries to engage hundreds of our researchers.

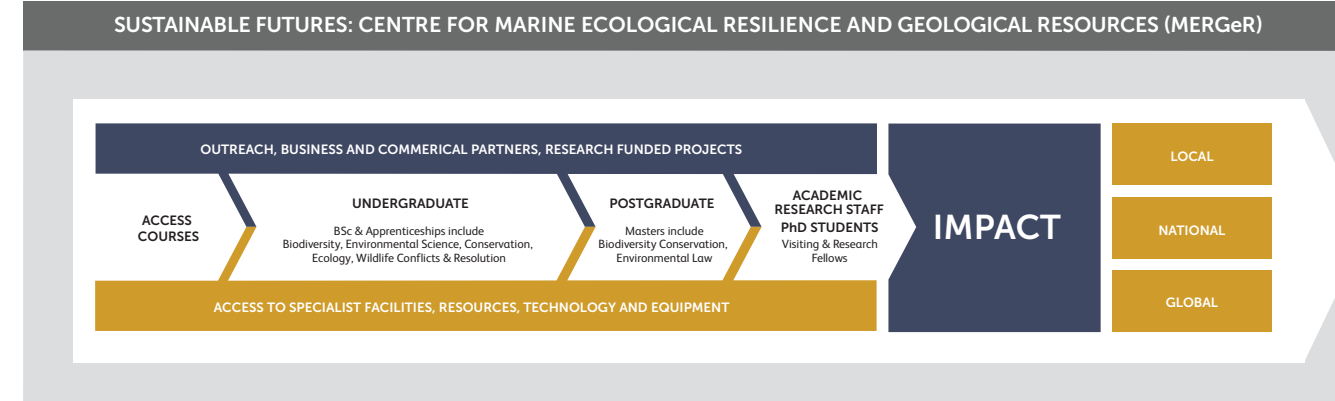
In **Health and Wellbeing**, our approach and expertise enable fresh views in exploring healthy development, ageing, pathologies that influence disease, and deeper understanding of healthcare issues in our communities and society.

Future demands in healthcare will be met by new technologies, devices, diagnostics and wearables. NTU's **Medical Technologies and Advanced Materials** research leads the way in the development of new materials combining design and science. We create smart textiles, medical devices, smart home solutions and robotics. We support our businesses partners to translate these innovations into commercial reality.

With the earth's finite resources supporting growing populations, we must adapt the way we use energy and grow food. Our research in **Sustainable Futures** applies innovation in low carbon technology within established communities, develops new approaches to sustainable consumption and green mobility, and demonstrates breakthroughs for sustainable agriculture and managing water quality.

Research in **Safety and Security of Citizens and Society** provides insight into how we make society safer, with innovative projects in: rehabilitating sex offenders; improving the criminal justice system; enhancing driver safety; reducing crime; revolutionising security scanning; and examining the safety and authenticity of our food.

We are leading the way in state-of-the-art approaches to **Global Heritage**, integrating science and technology with archaeology, architecture, literature, social sciences, art and design. This approach enables innovations around monitoring the deterioration of materials, devising methods for conservation, digitising past and present communities, and enhancing ways to manage heritage.



THE AWARDS 2016	Outstanding contribution to innovation and technology
University Awards 2016 Winner	Guardian University award for social and community impact
ROBIN CORBETT WINNER	Received for prisoner rehabilitation
NICE WINNER	Shared Learning award for Health and Care Excellence
IOP Institute of Physics	Dennis Gabor Medal and Prize 2017
PREMIO IMBUCCI	Premio Imbucci award for research into gambling addiction

For example, the Centre for Marine Ecological Resilience and Geological Resources (MERGeR) examines the intersection between marine ecosystems, use of natural resources and the law. The Centre is a hub for researchers from the UK and beyond who are working on these issues, and emerging fields of research, policy, teaching and outreach in marine ecological resilience and geological resources.

"We need the law to understand and address the impact of human activities on the resilience of our natural systems; a complementary focus on geological resources means we can apply a critical approach to natural resource use in line with ecological resilience." Professor David Ong, Professor Elizabeth Kirk, MERGeR

Local, national and global impact

Since 2014, over 100 examples of published research have led to developments in public policy, professional practice, commerce, culture or quality of life, including:

Insights from **Professor Gill Allwood's** research on prostitution, gender quality and climate change have been used by the European Commission and European Parliament, professional associations and non-government organisations to inform policy.

Professor Peter Murphy's research has had direct impact on policy and practice of the Emergency Services across England and, in particular, on the Fire and Rescue Service in Nottinghamshire.

Distinguished Professor Mark Griffiths has developed a Behavioural Addictions Tool which is changing gambling law and policy around the world. This tool pinpoints ten potentially addictive characteristics of games and offers companies practical ways to reduce the risk of players developing gambling problems by altering the games' structural characteristics.

Pioneering research by **Distinguished Professor Paul Evans** on 3D X-ray imaging signalled a breakthrough in multiple-view imaging which has had worldwide impact on the security industry and public safety, especially revealing explosives concealed in luggage.

Within the UK over 4 million people suffer from diabetes. **Professor Tilak Dias** has developed a 'smart' textile garment that can be used in the treatment of foot ulcers to help prevent amputation, one of the major complications caused by the disease.

Professor Gang Pan has pioneered the development of cost-effective and safe technologies to treat toxic algal blooms and water pollution as well as nutrient recycle/reuse technologies in natural water systems.

Innovating since
1843
NOTTINGHAM TRENT UNIVERSITY 



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