



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY

Research and Innovation Strategy

Purpose. People. Place.

2021 - 26



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Photo by Professor
Chaosheng Zhang.



Research funding

€70m

competitive funding awards per annum

€96m

in Horizon 2020 funding from EU

15

ERC Primary Awards



PEOPLE

>2,300

staff and postgraduate students undertaking research



SCHOLARLY OUTPUTS

2016-2020

>10,000

publications

>110,000

citations

5

of the World's Most Highly Cited Researchers



REPUTATION

Top 2%

of universities in the world

Top 100

2021 Sustainable Development Goals World Ranking

258th

in QS World University Rankings

Top 400

in Times Higher Education World University Rankings



KNOWLEDGE TRANSFER AND INNOVATION

2015-2020

14

New spin-outs

75

Licencing agreements with industry

310

Collaborative research agreements with industry



REGIONAL SUPPORT OVER 10 YEARS

>100

Active start-ups supported

1,550

Jobs created

>€500m

Funds raised by our start-ups

Our Mission

The research community at University of Galway exemplifies the creative energy and transformative ambition of the university. We pursue enquiry as an intrinsic good, share our insights locally and globally as a public good, and ensure that research has significant impact for all our communities of engagement.





Introduction

It is a pleasure, and an honour, to introduce our Research and Innovation strategy for the next five years. This strategy is a work of many hands. It is grounded in the values of the institution; respect, sustainability, excellence, and openness. Those values are constructed from the contribution of the women and men who devoted themselves to research and teaching in Galway since our foundation in the nineteenth century. The colleagues who have participated in the process of consultation and reflection, through which this strategy has been developed in more recent years, sustain that tradition and those values. I would like to thank everyone who has contributed to the work.

The five pillars of our research environment stand on those values and represent our commitment to full range of human experience and enquiry. We know that in the coming period we will have to be brave and to engage with people and problems that will take us far from the home we have built for our research, and to welcome new kinds of partners and new kinds of problems into that home. The strategy we have developed together, is our guide for both the further development of our research base and for the exploration of new places.

Professor Jim Livesey
Vice-President for Research and
Innovation, University of Galway

“We are deeply mindful of the need for global interconnectedness in facing such complex challenges”.



Our Vision

We live in an extraordinary world, yet one in which society, humanity and our planet face immense challenges. We respond to these challenges through our research ambition.

Over the period of this strategy, we will develop and grow the areas of research in which we have genuine transformative potential. Our work will respond to global challenges, including the UN Sustainable Development Goals. We will support our researchers to achieve excellence through distinctive strengths, which will set us apart internationally.

Our university stands at the heart of a distinctive city and region in the West of Ireland, renowned for its culture, creativity, technology and innovation. Our research will continue to draw from these strong traditions while transforming them for the future.

Our success will be built on a comprehensive research ecosystem as a resource for our many communities. Our community will be diverse, open, supportive and outward-looking.



Our success
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comprehensive
research
ecosystem.

Mirror Pavilion by John Gerrard was commissioned by Galway International Arts Festival for Galway 2020, European Capital of Culture. Photo by Professor Chaosheng Zhang





About Research and Innovation at University of Galway

University of Galway is globally distinctive and research-driven.

We are a wellspring of creative energy and believe in the transformative power of knowledge. Like all great discoverers and adventurers, we look with curiosity over the horizon. We build on the unique strengths of our purpose, people and place for the benefit of individual, societal and environmental wellbeing.

Purpose

The purpose of our research and innovation is to advance the public good. Every discovery, every insight, every innovation seeded, or partnership developed can benefit humanity, the planet and the economy.

People

Our people are creative in their thinking and collaborative in their approach. Their excellence and determination fuel our outputs and impacts. Their openness enables them to excel and to engage in interdisciplinary thinking and work. Our creativity and collaborative capacity allows us to engage in partnerships across the world.

Place

Our place is a distinct and vibrant region deeply connected internationally and open to the world. This place makes the university an exciting and stimulating place to conduct impactful research.

Exemplars



Purpose

The purpose of our research and innovation is to advance the public good.

What we mean by purpose

Ground-breaking research from our university on domestic violence as an economic issue has had a fundamental role in shaping the global research agenda, legislation and policy.

Domestic violence is experienced by 1 in 3 women. While this violence is experienced behind closed doors, its impact reaches beyond the individual and their family, having serious consequences for national economies.

A research team, led by Dr Nata Duvvury, has helped mainstream the concept that domestic violence is an economic as much as a social concern and therefore justifying attention at a governmental level. Several projects across a range of countries in the Global South have been completed and the robust findings have been integrated into the domestic violence costings in national and regional economic strategies.

Specifically, the research has been pivotal to developing new legislation and policies to protect women in Egypt, South Sudan and Vietnam. The work has also helped shape thinking at a global level, including the development of a methodology to estimate the resource requirements for a minimum package of essential services for selected interventions in the UN Joint Global Programme on Essential Services.

People

Our people are creative in their thinking and collaborative in their approach.

What we mean by people

Our people invite and inspire others to collaborate and engage. This open approach has led to pioneering and creative initiatives which take engagement deeper and improve research practice.

Engaged Research

Now a national network for the promotion of civic engagement activities in Irish higher education and hosted by the Irish University Association, Campus Engage was founded and led by Dr Lorraine McIlrath along with the Community Knowledge Initiative (CKI) team at our university that was funded by the Higher Education Authority (HEA) as a partnership among five Irish universities. CKI works with individuals and groups both inside and outside the university, to further civic engagement and partnerships, with a focus on community-engaged research for societal impact and change. This focus on engagement with community is complemented by the work of the Innovation Office team who support linkages between our research community and industry.

Public Patient Involvement

Our university is leading the PPI Ignite Network, a new national programme to bring the public into the heart of research initiatives. The Network will help research institutions advance the involvement of the public, patients and carers in health and social care research, drawing on their lived experience to influence research from ideation to the delivery of results.

Supported by the Health Research Board and the Irish Research Council, the Network grows and consolidates the work begun during the initial PPI Ignite programme, where University of Galway was a key innovator, led by Professor Seán Dinneen and Edel Murphy.

Exemplars of PPI excellence at University of Galway include the COB-MS study, which has brought people living with multiple sclerosis (MS) into the driving seat in terms of developing a health intervention that meets their particular needs, and the PPI group operating within the HRB Primary Care Clinical Trials Network Ireland, working with primary care researchers across Ireland.

Public engagement and outreach

We have a long history of public engagement and education outreach initiatives, bringing our research to schools and communities - and, in turn, learning and growing from those interactions. Many pioneering initiatives have stemmed from our university with some now established nationally. For example, Cell EXPLORERS, led by Dr Muriel Grenon, has reached more than 41,000 members of the public since its creation in 2012. Meanwhile, Dr Enda O'Connell and the ReelLIFE SCIENCE project has enabled more than 16,000 young people engage with STEM through video creation.

Place

Our place is a distinct and vibrant region - on the edge of Europe – yet in the centre of things, deeply connected internationally and open to the world.

What we mean by place

Galway has now firmly emerged as an internationally-recognised MedTech hub, mentioned alongside San Francisco, Boston, Minneapolis, Singapore or Berlin. This ecosystem is based on a thriving culture of collaboration across our research community, colleagues in the hospital and industry partners. Additionally, with our track record in engaged research, we have brought the patient to the centre of all we do by embedding patient involvement.

Forging partnerships locally and internationally, we have developed expertise and capacity across the entire continuum of medical device research and innovation. Biomedical science and engineering research underpins our teaching and trains future leaders of our vibrant ecosystem. Our research cuts across disciplines, including fundamental science, engineering, medicine, psychology, economics and clinical and translational science. Research centres, such as the CORRIB Research Centre for Advanced Imaging and Core laboratory, and CÚRAM—the Science Foundation Ireland Research Centre for Medical Devices are globally recognised as “go-to” centres for undertaking medical device research and clinical trials. For example, the CORRIB Lab is leading a first-in-man trial will see surgeons plan and carry out coronary artery bypass grafting based solely on non-invasive CT images of the patient’s coronary arteries.

Our needs-led innovation programme BioInnovate Ireland allows us to—quite literally—look over the shoulders of surgeons to conceive potential new medical devices. Our innovation ecosystem licences patented

technologies to industry, while entrepreneurs spin out high-potential start-ups which are incubated on-campus by our Business Innovation Centre. In addition, early-stage companies spin in to our campus to leverage our research expertise and supports.

Underpinning this continuum we have extensive infrastructure, including biomedical laboratories, pre-clinical facilities, biobanks and state-of-the-art GMP compliant cell manufacturing facilities. Our clinical trials facilities, co-located in the hospital, allow innovations to be tested, with our patient engagement informing our approach every step of the way.

Partnerships are fundamental to our region’s success in this field. We work closely with government agencies equally committed to the sector, with funders and with stakeholders locally and internationally.

Ireland has the highest number of Medtech employees per capita in Europe and is the second largest European exporter of medical devices. Over 70% of the 350 MedTech companies in Ireland are indigenous SMEs – many of whom partner with University of Galway. We also collaborate with world leading medical device companies such as Medtronic and Boston Scientific, as well as internationally acclaimed institutes like MIT, Harvard University, Johns Hopkins Hospital, Stanford University and the Mayo Clinic.

In the last 5 years, we have spun-out 14 companies including innovative MedTech start-ups such as Aurigen Medical, Atrian, Loci Therapeutics, Vetex Medical and Neurent.

Our Research Landscape

University of Galway is a globally focused research-driven university, internationally renowned for the quality and impact of our teaching, research and innovation. We will support ambition and enable the excellence of our people, who are leaders, innovators and critical thinkers that share a passion for understanding, educating and improving the world ^(CE01). We strive for excellence and impact, underpinned by integrity and professionalism. Our research-led teaching nurtures the next generation of changemakers to deliver positive impact on our society, culture and economy.

As stated in our university's *Strategy 2020-2025, Shared Vision, Shaped by Values*, we will sharpen the focus of our teaching, research and innovation using the UN Sustainable Development Goals as a blueprint to achieve a better and more sustainable future ^(CE06).

Our research community, whether curiosity-driven or challenge-led, spans the breadth of our academic disciplines and is undertaken at the level of individuals, research clusters and centres, and interdisciplinary flagship research institutes. We recognise that research areas are neither standalone nor static and that the problems of the world are not solved from just one perspective. The breadth, depth and interdisciplinarity of our expertise, both fundamental and applied, across the Sciences, Social Sciences and Humanities, is key to our success and ability to drive impact and respond to emerging fields of research.

Our location on the very edge of Europe gives us a unique perspective. Our university is at the heart of a distinct and vibrant region, renowned for its unique culture, creative industries, medical technologies, marine ecology and economy, and our innovation. We work in partnership with business, industry and government to provide the graduates, skills, knowledge and innovation that

drive entrepreneurialism, employment and growth in our region.

We see ourselves therefore at the heart of a virtuous circle, investing in areas of strength in our and for our region and, in turn – through our research and teaching – deepening and expanding the wellspring of knowledge, building and attracting more talent, further strengthening these areas of international reputation and reach and embedding them in and for our region.

Through a process of reflection, the community has identified the research base (as illustrated opposite), which will provide the building blocks of this strategy ^(CE07, CE08, CE09, CE10 and CE11).

Engaging with our partners locally, nationally and worldwide, we now invite ambition in research that underpins these areas.

We will also encourage our researchers who have the ambition to grow in both established and emerging research areas ^(CE12). We recognise that none of the above research areas are standalone or static. The breadth of our research and its interdisciplinarity is what drives advancement and innovation, and contributes to our university's mission to serve the public good. We will therefore also maintain this representation, as a living document, reflecting the potential for open enquiry to create new clusters.





Enhancing policy and society

inclusive societies
children, families and human rights
health policy and economics
sustainable economic development
business innovation



Enriching creativity and culture

digital humanities
historical and literary research
creative arts
language, culture and identity
an Ghaeilge
geography, place and politics



Improving health and wellbeing

medical technologies
regenerative medicine
population health and health services
neuroscience
cancer research



Realising potential through data and enabling technologies

data science and business information systems
artificial intelligence
advanced computing platforms and services



Sustaining our planet and people

climate action
clean energy
ocean, freshwater and terrestrial ecosystems
sustainable bioeconomy
One Health

Our Goals

Purpose – Maximum outcomes and impact through excellent research and innovation.

People – A thriving research community, with ambition and an engaged approach.

Place – Robust ecosystems, infrastructure and partnerships underpinning our global reputation.



Strategic Priorities

2021-2026

Over the past decades, we have grown our research community and research infrastructure dramatically. Our research reputation, outputs and impacts have flourished, and our international collaborations and regional connections have thrived. Our challenge is to sustain this trajectory.

The focus of research strategy in this period will be on creating the conditions for an intensification of the quality, scale, and scope of research in the university.

This focus will be evident in five areas:

We will develop an integrated planning and budget model that will ensure the appropriate level of funding for research activity at every scale across the university.

We will identify areas with the ambition and the genuine transformative potential to achieve truly international research recognition in areas of institutional strength, particularly where we have external stakeholders. We will invest in those areas through our Institutes and Centres.

We will create a supportive environment that enables staff and students to undertake excellent research and innovation, recognising these contributions and aspirations.

We will increase the diversity of our research community, including diversity in leadership, and widen the scope of recruitment to research positions.

We will develop specific targets for research impact and build the stakeholder relationships necessary for sustained impact.

Flagship actions



Excellence

- 1.1 Develop shared criteria for the creation and assessment of Research Institutes. (AE07)
- 1.2 Develop research platforms to address grand challenges. (CE07) (CE08) (CE09) (CE10) (CE11) (CE12)
- 1.3 Invest to achieve a sustainable research ecosystem that supports our research institutes, centres, core research facilities and research support systems. (AE08) (CE12)
- 1.4 Establish graduate schools in distinctive research priority areas and align our postgraduate programme development with the work of our interdisciplinary research institutes. (AE10)
- 1.5 Ensure that University of Galway has capacity to absorb increased funding in our areas of research specialisation. (AE11) (AE09)
- 1.6 Establish new strategic partnerships with prestigious national, European, and international centres of research excellence with a focus on research collaborations and staff/student exchange. (AE12)
- 1.7 Fully integrate engagement and impact into research development and assessment. (AE13)



Sustainability

2.1 Embed sustainability across research so that our research community can gain the necessary knowledge and skills to become sustainability role models and leaders. (AS03)

2.2 Focus our research expertise and infrastructure on the targets of the 17 Sustainable Development Goals (SDGs) with measurable ambitions for research income, outputs and impacts. (AS19)



Openness

3.1 We will enhance our entrepreneurial ecosystem by opening it to inter-sectoral collaborations, with industry, the arts community, employers and other stakeholders in recognition of our unique role in creating the skills and scholarship that drive growth across our region and nationally. (CP04)

3.2 Create an Open Scholarly Community in which the process, content and outcomes of research are ethically managed and openly accessible. (AP04)

3.3 Establish partnerships with development agencies and stakeholders for our region to support the growth and scaling of indigenous and international businesses. (AP12)

3.4 Embed engaged research across the University by involving and collaborating with the public throughout the process of our research activities. (AP13)



Respect

4.1 Promote and support the highest standard of ethics and integrity in all aspects of our research, reflecting our values. (AR05)

4.2 Promote equality and diversity in our research community and the continuing professional development of our researchers through implementation of the European Charter for Researchers & the Code of Conduct for Recruitment. (AR04) (AR08)

4.3 Embed a visible and exemplary culture of respect which attracts and retains research talent. (AR01)

Tracking our progress

Key Indicators on the journey to our goals.

Purpose	People	Place
Impactful research outputs	Supports for researchers' ambitions and careers	Thriving and sustainable research and innovation ecosystem
Exemplars of engaged research	Rewards and recognitions	International research partnerships
Mechanisms to support transformative research	Diverse research and innovation community with EDI values embedded	Sectoral / key area successes and reputation
Transfers of knowledge and innovation	Positive research culture	Regional engagement and innovation partnerships
Alignment of research projects to SDGs	Adoption of responsible research metric	Open scholarly community

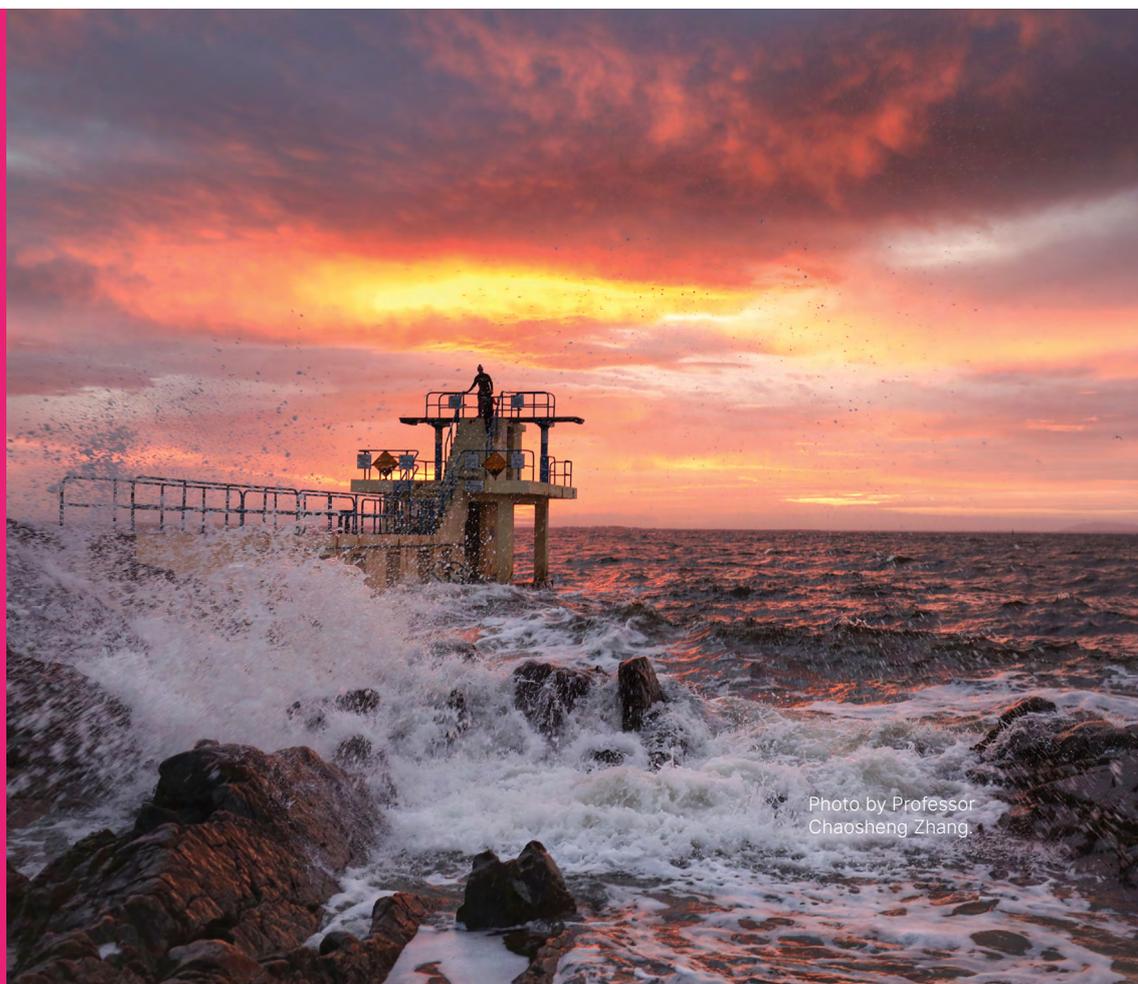


Photo by Professor Chaosheng Zhang.

Delivering on Shared Vision, Shaped by Values

– Strategy 2020-2025

We will build on the core values of University of Galway and contribute to achieving the commitments and Flagship Actions referenced throughout the document and listed here:

Excellent Nui Galway



AE07 We will invigorate our research institutes to ensure our continued impact and support high standards, using this strategy and values as our lens

AE08 We will invest to achieve a sustainable research ecosystem that supports our research institutes, centres, core research facilities and research support systems, with a particular focus on investment in talent and award support

AE09 We will sharpen our focus on the European Union's research agenda to maximise funding opportunities, consistent with our mission to serve society

AE10 We will establish graduate schools in distinctive research priority areas and align our postgraduate programme development with the work of our interdisciplinary research institutes

AE11 We will actively contribute towards building Galway's reputation as an internationally recognised centre of excellence for medtech, data science, culture and creativity, climate and oceans, public policy, and innovation in the Government of Ireland Future Jobs Strategy

AE12 We will establish new strategic partnerships with prestigious national, European and international centres of research excellence with a focus on research collaborations and staff/student exchange

AE13 We will develop a compelling content programme to showcase the outcomes and impact of our research and innovation, nationally and internationally

CE06 We will sharpen the focus of our teaching, research and innovation using the UN Sustainable Development Goals as a blueprint to achieve a better and more sustainable future

CE07 Engaging with our partners locally, nationally and worldwide, we will invite ambition in research that underpins the area of enhancing policy and society

CE08 Engaging with our partners locally, nationally and worldwide, we will invite ambition in research that underpins the area of enriching creativity and culture

CE09 Engaging with our partners locally, nationally and worldwide, we will invite ambition in research that underpins the area of improving health and wellbeing

CE10 Engaging with our partners locally, nationally and worldwide, we will invite ambition in research that underpins the area of realising potential through data and enabling technologies

CE11 Engaging with our partners locally, nationally and worldwide, we will invite ambition in research that underpins the area of sustaining our planet and people

CE12 We will also encourage our researchers who have the ambition to grow in both established and emerging research areas

Sustainable University of Galway

AS03 We will embed sustainability across our learning, research and the student experience, so that our entire campus community can gain the necessary knowledge and skills to become sustainability role models and leaders

AS19 We will focus our research expertise and infrastructure on the targets of the UN Sustainable Development Goals with measurable ambitions for research income, outputs and impacts

Open University of Galway

AP04 We will create an Open Scholarly Community in which the process, content and outcomes of research are ethically managed and openly accessible, and promote the use and production of Open Educational Resources

AP12 We will establish partnerships with development agencies and stakeholders for our region to support the growth and scaling of indigenous and international businesses

AP13 We will embed engaged research across the University by involving and collaborating with the public throughout the process of our research activities

CP04 We will strive to make a positive impact on society through partnering with other universities, organisations and communities, locally and internationally, to enable the creation and sharing of knowledge, expertise and technologies

Respectful University of Galway

AR01 We will embed a culture of respect through the development and implementation of a Respect Charter, led at every level of the institution

AR04 We will advance ideas that underpin respect for the dignity of all people through our teaching and research activities

AR05 We will fulfil our 'Public Sector Equality and Human Rights Duty' across all of the University's functions and relationships

AR08 We will increase the diversity of leadership and university structures to represent the increasingly diverse composition of the University of Galway community