Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Engineering

Environment

Emerging Technologies

Balanced
solutions for a
better world

E3 Engineering
Environment
Emerging Technologies

**Balanced solutions
for a better world**

www.tcd.ie/e3

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The creation of the world did not take place once and for all time, but takes place every day

Samuel Beckett (1906–1989)
Trinity College Dublin Alumni
1923–1927

E3

Balanced solutions for a better world

E3 Engineering Environment Emerging Technologies

Balanced solutions for a better world

Mission

E3 aims to develop the knowledge, technologies, and aptitudes to design and actively shape the planet's natural capital, through its unique integration of engineering, natural and computer sciences

Vision

To strenghten the interdependence between technological innovation and our natural capital stocks, through world-leading research, education and entrepreneurship

Values

Foresight, Innovation, Transdisciplinarity, Global Responsibility and Excellence

About E3

Balanced solutions for a better world

talent emerges from opportunity. E3 will place those opportunities in front of our students and help them maximise their potential, as citizens and shapers of the future.

About E3

humanity will always create tools, systems and processes that enhance our quality of life



Trinity College Dublin is embarking on an ambitious project to expand education and research activities across three of its Schools: the Schools of Engineering, Natural Sciences, and Computer Science & Statistics. Recognising the importance for humanity in addressing the challenge of sustainable technological development, the expansion of the three Schools is being executed as a single strategic activity in the area of "Engineering, Environment, and Emerging Technologies", or E3.

The E3 vision enables;

- the creation of a purpose built, multi-disciplinary, foundry for the delivery of innovations in research and teaching within the Schools of Engineering, Natural Science and Computer Science and Statistics.
- a future-proofed education for new graduates who will enable society to live on this planet in a way that is sustainable and equitable.
- the underpinning of the infrastructural and staffing needs of these expanded Schools to ensure that their outputs are world leading.
- An increase in the number of STEM students within Trinity by over one third in 10 years.

With E3, Trinity promotes the **Vision** of a society where the interdependence between technological innovation and our natural capital is advanced by world-leading research, education and entrepreneurship.

E3 will position Ireland at the forefront of fields of research in Science, Technology, Engineering, and Mathematics (the STEM disciplines), that are crucial for future economic competitiveness. It will educate engineers and scientists for employment in existing and new technology sectors, equip them with the skills and attributes to lead in the creation of new businesses, and place Ireland in a leadership role globally for the quality of graduates in the STEM disciplines.

Research in E3

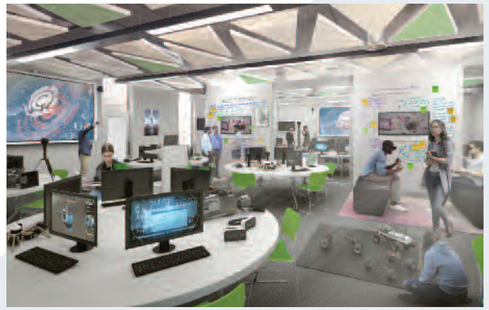
As inherently curious and creative, humanity will always seek to both understand the world around us and to create tools, systems and processes that enhance our quality of life. As our understanding of our world grows, we now know better the effects, both positive and negative, that our way of living has on the world around us.

These effects lead to challenges that are inherently global, multidisciplinary and complex in nature. E3 will be among the first centres internationally to integrate engineering, technology and scientific expertise at scale in addressing some of the biggest challenges facing Ireland and the world – challenges such as climate change, renewable energy, personalised data, water, connectivity, and sustainable manufacturing, among many others. The span of E3 research has been defined using six E3 Research Challenges:

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

About E3



Martin Naughton E3 Learning Foundry

The central theme of E3 is 'balanced solutions for a better world'. E3 will be a crucial component in our transition to a 'smarter' economy, developing technological solutions that are more sustainable and more equitable in the use of the earth's limited natural resources.

The E3 project aims to significantly increase the number of students in the E3 Schools. This will ramp up over ten years. The education of these students with a new pedagogy will be realised through the Martin Naughton E3 Learning Foundry, a state of the art 6,086 square metre facility based on the main Trinity campus, which will deliver new teaching facilities and an innovative interactive learning space for undergraduate and postgraduate students.

It will accommodate the substantial growth in the number of students and staff, and facilitate an innovative curriculum with increased emphasis on team work, design and project-based activities that will draw the teaching activities in the E3 Schools closer together. Work will commence on the space this year, with a projected completion date of 2023 on the cards.

E3 Research Institute

Building on its tradition of innovation, entrepreneurship and engagement, the expected development of the Grand Canal Innovation District (GCID) being championed by Trinity will afford another opportunity to contribute to the development of Dublin as an innovation centre. At the heart of GCID, and ensuring connectivity to the wider innovation ecosystem, the E3 Research Institute will be a venue for large-scale research programmes, especially for those working in collaboration with industry and other stakeholders.

E3 Research Institute will tackle the fundamental issues of a liveable planet, the technological development that is needed for our economy and society, and the social behaviours that emerge or that need to be fostered.

At the core of the E3 Research Institute is a recognition that technology must evolve in symbiosis with the natural and human world. The natural world furnishes us with resources that are needed for economic activity and for society, and that economic activity in turn impacts on the natural world.

The Martin Naughton E3 Learning Foundry which is due to be completed by 2023.

Balanced Solutions for a Better World

The River Liffey

Trinity's Centre for Creative Technologies & Media Engineering

V-SENSE

Dublin Innovation District

The Irish Sea

E3 Research Institute

Trinity Centre for Biomedical Engineering

CRANN

ADAPT

Department of Civil, Structural and Environmental Engineering

AMBER

iCRAGLAB@TCD

CONNECT

Martin Naughton E3 Learning Foundry

Trinity Centre for the Environment (TCE)

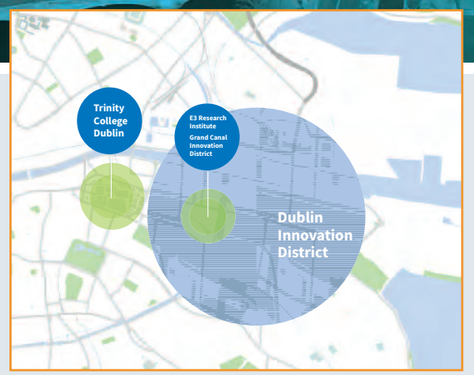
Trinity Centre for Biodiversity Research (TCBR)

Trinity Campanile

Trinity College Dublin

College Green Entrance

O'Connell Street Bridge



An innovation district will connect indigenous and multinational companies together with researchers and venture capitalists. Such a district will produce a sum that is greater than its parts, driving inward investment, new collaborations and jobs. Its benefits will be brought to the regions through virtual connections and the sharing of research, best practice and space.

Trinity Research Centres;

Trinity Centre for Bioengineering

Trinity Centre for Biodiversity Research

Trinity Centre for Creative Technologies & Media Engineering (CHIME)

Science Foundation Ireland centers;

CONNECT	Ireland's Research Centre for Future Networks and Communications
ADAPT	The Global Centre of Excellence for Digital Content and Media Innovation
iCRAG	(Irish Centre for Research in Applied Geosciences) - Ireland's national geoscience research centre, located at UCD.
Amber	(Advanced Materials and BioEngineering Research) - Centre that provides a partnership between leading researchers in materials science and industry

Trinity analytical and test facilities;

iCRAG LAB@TCD	State-of-the-art electron and laser beam equipment for the characterisation of geoscience material
CRANN	Advanced Microscopy Laboratory (AML) Structures Testhalls - Civil, Structural & Environmental Engineering
V-SENSE	Investigates Visual Computing at the intersection of Computer Vision, Computer Graphics and Media Signal Processing

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