National
Engineering
Policy Centre

Royal Academy
of Engineering

ENGINEERS 2030

Visions and principles

Introduction

Engineers 2030 is a transformative vision for the future of engineering in the 21st century. In today's rapidly evolving world, the engineering profession must adapt to address unprecedented challenges whilst embracing new opportunities. At the heart of this vision is a commitment to reimagining how engineering knowledge, skills and behaviours are developed and applied to create a sustainable, resilient, and inclusive society.

The urgency of climate change demands a radical re-engineering of our global energy systems and infrastructure. At the same time, digital technologies — especially artificial intelligence — are revolutionising the way engineers design, automate and optimise their work. These advances offer the potential to accelerate innovation and growth, yet they also require engineers to develop new data science skills and maintain vigilance around ethical considerations. In this context, engineering must evolve not only to uphold technical excellence but also to expand its focus to include a global outlook, environmental consciousness and refined interpersonal abilities.

Our new guiding Vision and six Principles of Engineers 2030 are founded on innovation with responsibility, a broadening of skill sets and perspectives and a deep commitment to inclusivity and sustainable development. We believe that engineers must harness new technologies within an ethical framework that considers both social and environmental impacts. This means advancing education and professional development that nurture technical expertise as well as the capacity to meet global challenges and drive meaningful change. By creating an environment that welcomes diverse talent, we can unlock creativity and enhance our collective ability to achieve long-term societal benefits.

The Vision and Principles were developed in partnership with the National Engineering Policy Centre and engineering community stakeholders through roundtables and a consultation process. Without this we would not be able to develop the Vision and Principles that embody our commitment to excellence, inclusivity, and global responsibility. It lays the foundation for an engineering community that is well-equipped to meet 21st century demands.

On behalf of the Engineers 2030 Working Group, I thank all those involved to date and hope we continue to work together as we explore how to reshape education and skills systems to enliven the Vision and Principles.

Professor Sir Bashir M. Al-Hashimi

Professor Sir Bashir M. Al-Hashimi CBE
Chair, Engineers 2030 Working Group

Summary

In March 2024, the National Engineering Policy Centre (NEPC) launched a public consultation seeking feedback on a new Vision and six guiding Principles aimed at shaping the engineering profession through 2030 and beyond. This process generated 101 written submissions, largely from individual engineers, and included workshops with industry representatives, educational providers, government bodies, and professional institutions. While the overall response was supportive of the Vision and Principles, the relatively low level of industry participation suggested that greater effort is needed to connect the proposed ambitions with practical, day-to-day commercial realities.

A central theme in the consultation was the need for clarity and accessibility in the Vision's language, ensuring that it speaks not only to experienced engineers but also to the wider public. Many respondents felt that the Vision should balance an innovative, forward-looking stance with a recognition of engineering's historical contributions, particularly in areas such as climate action and technological advancement. Educational reform emerged as a priority, with calls for a more holistic approach that integrates both technical and non-technical skills to prepare engineers for complex future challenges. Respondents emphasised the importance of resilience, adaptability, commercial awareness, and digital proficiency within the curriculum, but also cautioned against allowing digital skills to overshadow the discipline's core technical rigor. Sustainability featured prominently as a desired cornerstone of the Vision, but there were concerns that the term risked losing impact if defined too broadly. Many participants suggested refining its meaning so that it remains focused, tangible, and achievable.

Inclusivity and diversity were widely acknowledged as essential to strengthening the profession's talent pipeline. A key recommendation was to increase public engagement and educational outreach, highlighting engineering as a career open to people from all backgrounds. Clear communication strategies were seen as instrumental in building public trust and reinforcing the societal value of engineering. Workshops held during the consultation echoed these perspectives and further underscored the need for policy and programme recommendations that could transform education, promote engineering to a broader audience, and align practice with the Vision and Principles.

Next steps

As Engineers 2030 enters its next phase, attention will turn to developing specific proposals for policy and educational reforms, with the aim of concluding by the end of summer 2025. A series of regional and national round tables will commence using the Vision and Principles as a guide for the proposals that Engineers 2030 will advocate for during the next phase of development.

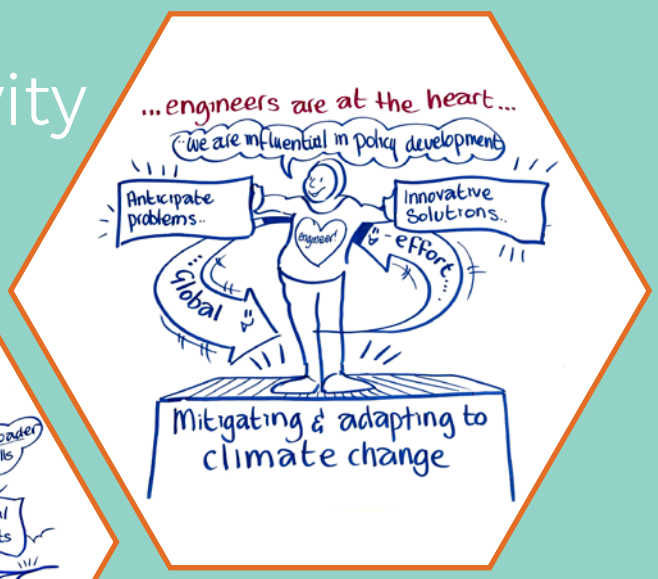
Vision

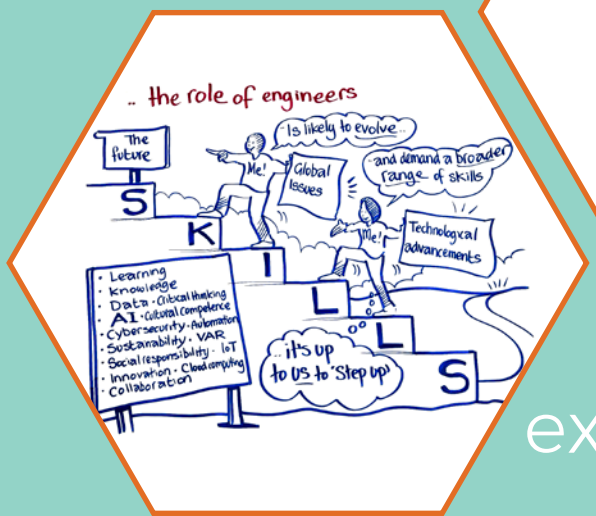
By 2030, engineers play an urgent and pivotal role in sustainable growth, technological development, and environmental regeneration with all sectors of engineering working inclusively and across fields.

Engineers are demonstrating leadership, creativity and technical excellence by implementing solutions that shape the future and enable society to navigate immediate challenges.

creativity

leadership





solutions

excellence

Principles

01

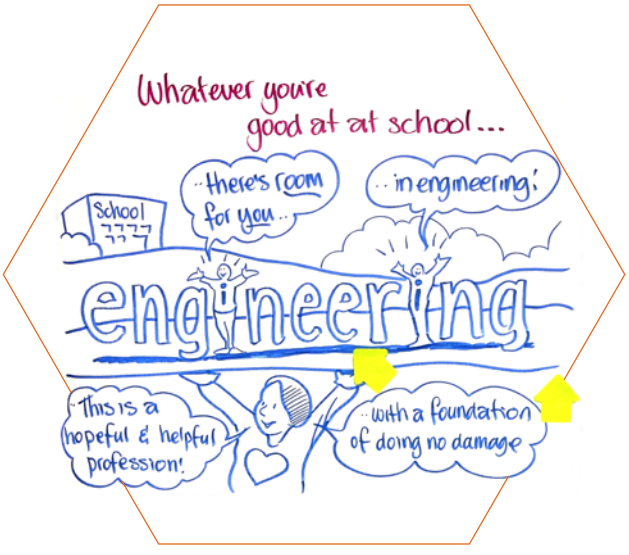
Resilient and future-facing

We navigate the changes that occur rapidly in our career by embracing adaptability, continually developing our skills and knowledge, and collaborating across engineering disciplines.

02

Socially responsible and inclusive

We draw on broad ranging perspectives and communicate widely, including with marginalised groups, to create, design, and implement solutions that work for everyone.

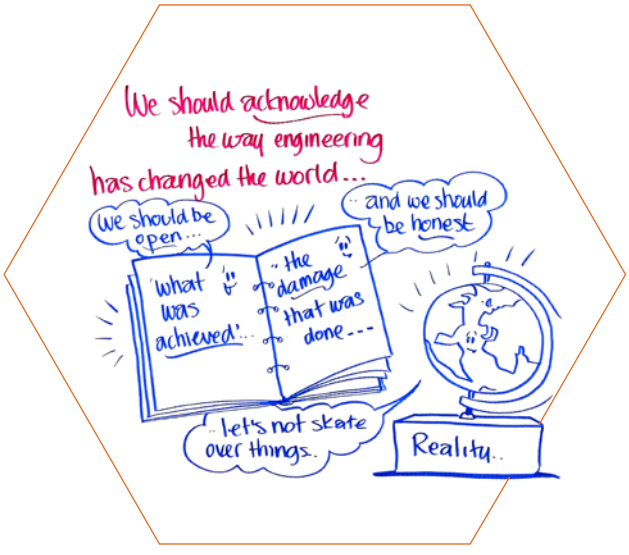


Principles

03

Trusted by the public

We recognise our professional ethical responsibilities in designing, creating, and building a better future for people and the planet.



04

Integrated approach

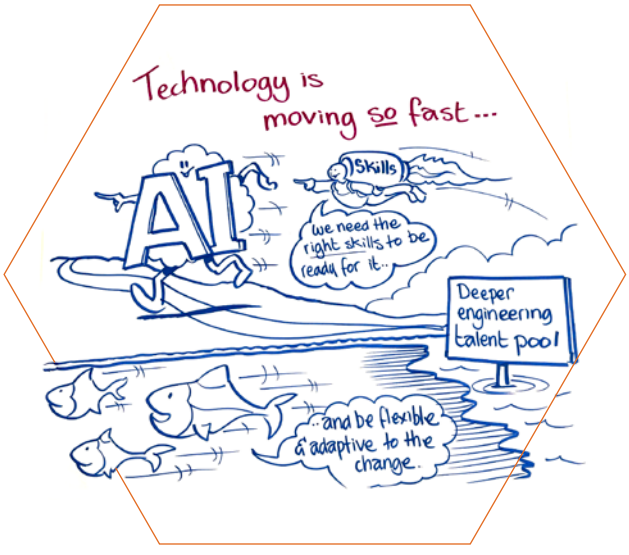
We manage and understand uncertainty in all its forms and work collaboratively to find creative and integrated solutions.

Principles

05

Data and digitally fluent

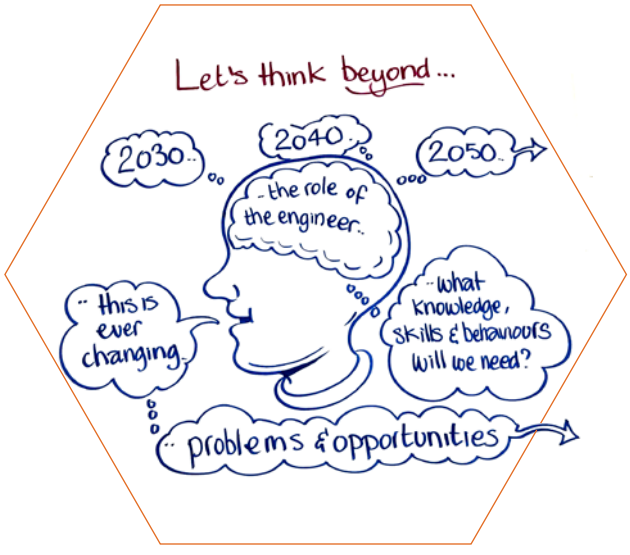
We embrace digitisation, including artificial intelligence, and are skilled in working at the interface between the digital and physical worlds as they continue to merge.



06

Commercially and economically literate

We generate knowledge within enterprise by using our technical knowledge and skills in creative ways for sustainable and equitable growth.



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THE ROYAL ACADEMY OF ENGINEERING

The Royal Academy of Engineering harnesses the power of engineering to build a sustainable society and an inclusive economy that works for everyone.

In collaboration with our Fellows and partners, we're growing talent and developing skills for the future, driving innovation and building global partnerships, and influencing policy and engaging the public. Together we're working to solve the greatest challenges of our age.

NATIONAL ENGINEERING POLICY CENTRE

We are a unified voice for 43 professional engineering organisations, representing 450,000 engineers, a partnership led by the Royal Academy of Engineering. We give policymakers a single route to advice from across the engineering profession. We inform and respond to policy issues of national importance, for the benefit of society.

THE UCL CENTRE FOR ENGINEERING EDUCATION

The UCL Centre for Engineering Education brings together UCL's Engineering and Education Faculties to figure out how we educate future engineers better and how we get more engineers into the UK economy. We believe that there's a need for a new conversation about how we attract and nurture engineering talent. It's a big challenge which will require partnerships between educators, professional bodies and industry.

www.ucl.ac.uk/centre-for-engineering-education

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