

ENGINEERS 2030

# Rethinking engineering and technology skills for a world in which both people and planet can thrive

Launch paper



# Foreword and summary

**With this paper, the Royal Academy of Engineering, along with its partners in the National Engineering Policy Centre (NEPC), is launching *Engineers 2030*, a project to identify how engineering knowledge, skills and behaviours are changing in the 21<sup>st</sup> century and what is needed to attract, recruit, educate, and support the engineers and technicians of the future.**

We welcome contributions from all parts of the engineering community into our project. Our hope is that educators, professional bodies, organisations, practising engineers, technicians, and others will provide their insights to generate a common view on the way forward. Please take part in the months to come – this project can only work if it attracts the widest possible input.

Engineers make essential contributions to the economy and society, developing technologies that transform the way we live and work, enabling industries to evolve, and creating the infrastructure that supports our communities.

Now, in the mid-2020s, demands on engineers are greater than ever – demands that are arguably driving towards the need for engineering itself to be transformed to help reshape modern society. The world is facing challenges that can only be resolved with substantial engineering input. Chief among these is the unique and

urgent phenomenon of climate change, which is already having major impacts<sup>1</sup> and could lead to catastrophic consequences. Avoiding the worst outcomes requires economy-wide action including the re-engineering of the entire global energy system. Meanwhile, adapting to the effects that are now unavoidable demands a range of responses, particularly in developing resilient infrastructure. Engineering is fundamental to achieving all of the UN's 17 Sustainable Development Goals,<sup>2</sup> from climate action to eradicating poverty and hunger, providing clean water, preserving biodiversity, and achieving gender equality.

In other words, the engineering vocation is becoming a broader one. Logic, accuracy, technical expertise, curiosity – these qualities are more important than ever – but also crucial today are a global outlook, environmental awareness, interpersonal skills, and the will to make a difference.



The engineering vocation is becoming broader with thousands of new jobs being created to inspire young people to improve society and fulfil their own potential

In addressing today's challenges, engineers also benefit from exciting new opportunities, particularly the unprecedented tools provided by rapid progress in artificial intelligence and related digital technologies. Artificial intelligence can speed up design, automate processes, and streamline tasks, freeing up engineers to focus on how best to target the power of the technology. It has the potential to help engineers accelerate their work to match the urgency of the tasks at hand, but it requires new data science skills, as well as awareness of the ethical issues raised by technologies that replicate human activity.

So the world needs more engineers with a broader range of skills. Yet the UK is still struggling to develop the workforce it needs to meet the current needs of an advanced manufacturing economy, let alone those of tomorrow. The profession needs to attract and retain a higher share of the country's diverse talent. Our profession must be open to everyone with something to offer.

The scale of change demands that as a profession we ask what changes are needed in our mindset, education systems and culture to ensure that engineers and technicians have a deeper understanding of their role in achieving a sustainable society and an inclusive and prosperous economy.

That said, it is important to recognise that progress is being made. To take just two examples among many, the Engineering Council's Accreditation of Higher Education Programmes Standard (AHEP) reflects the importance of sustainability, ethics, and diversity<sup>3</sup> and a Global Responsibility

Competency Compass has been developed by Engineers Without Borders UK to support the professional development of practising engineers.<sup>4</sup>

As always, challenges lead to opportunities and in this case the opportunity is to see thousands of new engineering jobs created with young people being inspired to fill them out of a desire to improve society and preserve the environment as well as to fulfil their own potential.

A new approach is gradually emerging, but we believe it needs to be better defined, more widely agreed, and sharply accelerated. Hence **Engineers 2030** – a forum for the engineering community and wider groups to look afresh at the essence of what it means to be engineers or technicians in the coming decades and how we attract and train them to meet the new challenges.

**Engineers 2030** is intended to be a catalyst for change. Working with National Engineering Policy Centre (NEPC)<sup>5</sup> partners, we will consult and involve stakeholders from different parts of the system to inform, stretch, and challenge our thinking. In the months to come, we'll work together to ask how our systems and frameworks for attracting and educating engineers might be updated and renewed.

Please do share your views on these critical issues in the coming months by keeping up-to-date through [our website](#) and events.

We look forward to hearing from you.

**Andrew Churchill OBE FREng**  
Chair, Engineers 2030 Working Group

# What new skills will the engineer of 2030 need?

In the near future, the problems engineers will face in tackling the climate crisis and its impacts will be novel, unique, complex, and unbounded. Many will be in outwards-facing roles, working closely with sociologists, environmental scientists, and politicians, requiring a very different set of competences and motivations. Understanding complexity and the balance between resilience and efficiency will be essential skills.

**Preparing future engineers for the net zero challenge. Professor Roger Kemp MBE FREng.**  
Issue 88, September 2021. *Ingenia*, Royal Academy of Engineering.

## The 2020s have brought civilisation to a new inflection point. Climate change presents an unprecedented threat to the environment and society, that is both inevitable and unchangeable.

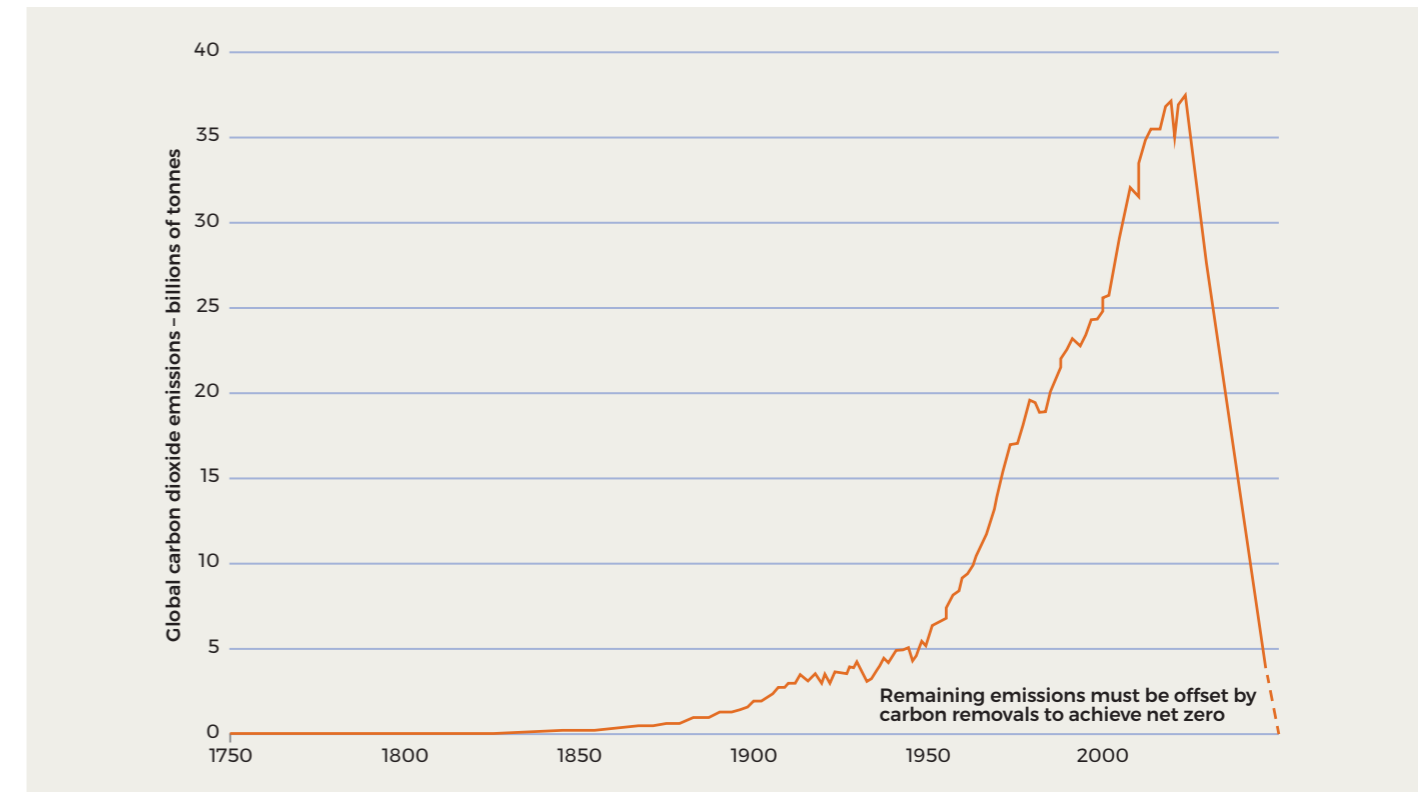
Artificial intelligence grants us access to increasingly remarkable tools to respond to this threat – at the same time raising challenges of its own. While billions enjoy the benefits of industrialisation and digitisation, billions of others do not, increasing tensions in an unstable world. The response of the engineering community to these forces will be critical in determining whether a sustainable future is possible.



### Climate change

The global effort to address climate change is transforming the engineering profession. Engineers are needed to deliver green energy, such as wind and solar farms, heat pumps, and clean hydrogen; to design electric vehicles; to decarbonise industrial processes; and to create the zero-carbon infrastructure of the future. The transition will affect all engineering disciplines.

And it has only just started. The world still derives more than 80% of its energy from fossil fuels.<sup>6</sup> Deforestation and other carbon-intensive land uses continue. Greenhouse gas (GHG) emissions are still rising. 2023 was the world's hottest year on record,<sup>7</sup> with extreme weather events such as heatwaves,



**Figure 1. Reaching net zero.** Chart to 2023 based on actual emissions as calculated by the [Global Carbon Budget 2023](#)<sup>10</sup> and processed by [OurWorldinData](#)<sup>11</sup>. Chart from 2023 to 2050 based on targeted reduction in emissions of 1.4 billion tonnes per year as identified as required for net zero by 2050 in this [article](#)<sup>12</sup> by Professor Pierre Friedlingstein, of Exeter's Mathematics department and Global Systems Institute (GSI), and Alissa Haward, GSI Project Manager.

wildfires, and droughts affecting all continents. Action to reduce carbon emissions and develop nature-based solutions to climate change at a much faster pace is essential.

If the international community is to meet the goal set by the United Nations of keeping the rise in the global average temperature to 1.5° on preindustrial times, emissions must be cut by 45% by 2030 and to net zero by 2050.<sup>8</sup> The challenge has become an emergency.

### This is also a turning point for engineering.

Engineers have delivered industrialisation to much of the world for more than 250 years, transforming civilisation and raising standards of living. But the advances have come at a heavy social and economic cost as carbon emissions have disrupted the climate's balance; the delay in decarbonisation efforts continues to increase their financial cost.

The challenge facing future engineers has been starkly depicted as a transition from 250 years of a gradual 'upslope', in which increasing quantities of fossil fuel have supported industrialisation and increased emissions, to a very steep 25-year 'downslope' of decarbonisation to net zero by 2050. The difference between what it means to be an engineer on the upslope and downslope has been described as "colossally different".<sup>9</sup>

As this paper indicates, the downslope not only requires new skills such as those required to deliver zero-carbon energy and design socially acceptable solutions to decarbonise industry, but new behaviours and attitudes to safeguard collective survival. There is also the challenge of learning social lessons from industrialisation and making decarbonisation a 'just transition' with good working conditions in growing industries and more equitable distribution of benefits.

More encouragingly, the process of decarbonisation is underway and poised to accelerate. More than 100 countries have set net zero targets<sup>13</sup> and several, including the UK, have legal obligations to reach the goal. This is leading to new waves of legislation and regulation that demand engineering-based responses. For example, carbon pricing now covers nearly one-quarter of all global greenhouse gas emissions and businesses are increasingly being required to disclose quantified greenhouse gas emissions, as well as targets for reducing them.<sup>14</sup>

As governments encourage and mandate decarbonisation, and costs of green solutions fall, a more sustainable future becomes economically viable, with new products, services, jobs, markets, supply chains, and economic models. However, achieving this economic viability is dependent first and foremost upon safeguarding human life – now and continuously.

Engineering skills are essential to capitalising on the green economy and the opportunities are extensive. In the offshore wind sector, for example, the UK is already a global leader. With the sector continuing to grow, the industry estimates that by 2026 the sector could employ about 70,000 workers, compared to 26,000 today.<sup>15</sup> Government estimates indicate there are already more than 500,000 ‘green jobs’ in the UK.<sup>16</sup>

Work has already been done in education to develop relevant programmes. For example, the Joint Board of Moderators (JBM) has made the climate emergency central to the education of future civil engineers in its university guidelines.<sup>17</sup> But there remains an urgent need for more engineers with the skills needed to support the transition to the net zero economy and the motivation that comes from a wider understanding of the challenge. The big question for this project is how to attract them.



### Sustainability and systems thinking

The drive to address climate change is part of a wider endeavour to create a more sustainable environment and society – as defined by the UN’s 17 Sustainable Development Goals, which cover issues from climate change and inequality to nature and education.

For engineers, this requires sector-specific skills, such as those needed to develop new infrastructure and build resilience to extreme weather. They also require awareness of ethical dilemmas whereby work to achieve one goal can jeopardise another – for example, extracting minerals required for a net zero economy in countries where working conditions are harsh.

Sustainability challenges also require systems-level responses as they are often complex and multidimensional.<sup>18</sup> Some of the capacity to respond to these changes is being built as engineers have worked in complex environments for decades. Systems engineering is a feature of many courses and has its own international council,<sup>19</sup> although it is far from ubiquitous in engineering education.

The concept of the ‘globally responsible engineer’ has emerged, reflecting the ethical obligations that engineers have to act in ways that contribute to the sustainable development of the global community. In this project, we are asking how we can find and train such engineers.



### Artificial intelligence, digitisation, and cyber-physical systems

Digital technology, particularly artificial intelligence, is rapidly changing many aspects of social and economic life. As well as everyday applications such as digital assistants and chatbots,

artificial intelligence is providing engineers with powerful tools to create, in particular, data-driven ‘cyber-physical systems’ where infrastructure is embedded with sensors and other digital devices and controlled by advanced computing systems.

Artificial intelligence has the potential to maximise the reliability, responsiveness, and accuracy of national energy systems, manufacturing, transport, and utilities, while equally having the potential to be unreliable itself. Engineers have a crucial role as trusted experts to ensure that human-centred outcomes are central to the growth of technology and digital ecosystems.

Transformations on this scale will disrupt engineers’ and technicians’ roles as they replace some human skill sets and necessitate new ones. Future engineers will not only need AI-specific skills but related competencies in areas such as statistical analysis, modelling, and natural language programming.

The pace of adoption of technologies and the blurred lines between humans and machines are altering not just the way we live and work, but also changing job content, skills needed, and the jobs

being displaced. Understanding how technologies will affect jobs and labour markets is crucial for determining how people can transition from declining occupations to the jobs of tomorrow.

Artificial intelligence and digitalisation also have a role in decarbonisation as they help businesses, consumers, and others to maximise efficiency, increase resilience, and accelerate emissions reduction.

However, Artificial intelligence also presents challenges. Countries, companies, or individuals who become proficient in Artificial intelligence may achieve dominant positions in industries or international affairs, reducing opportunities for others. Meanwhile there are fears that computers trained using machine learning may reflect human biases – in recruitment for example – basing recommendations on past decisions and embedding the status quo rather than welcoming change.

**Our question in Engineers 2030 is how to recruit and train engineers who can avoid such pitfalls while maximising the positive impacts of the technology.**



# How well is the UK's engineering community positioned to equip engineers and technicians over the next 25 years?

**The UK engineering profession recognises these drivers of change. It is widely agreed that engineering has an essential and positive role to play in addressing the challenges and in shaping an inclusive society and prosperous economy.**

However, it is also generally agreed that the profession still has much to do in generating the capacity to shape the future. The UK does not have enough engineers. Outdated misconceptions of the engineer's role persist. Engineering is not attracting as many talented people as it should among women and people from diverse backgrounds. The education of engineers is in need of review.



## Shortages

The UK has been facing persistent skills gaps in all forms of engineering and now faces similar gaps in digital and data capabilities. In a recent survey, over half (55%) of manufacturers said they were experiencing shortages in advanced manufacturing skills and even more (61%) in

traditional manufacturing skills, such as fabrication, welding, and mechanical engineering.<sup>20</sup> About 125,000 people a year are now required to replace an ageing and retiring workforce. Current estimates project a continuing shortage of 35,000–50,000 engineers and technicians per year from level 3/ advanced level technician roles upwards.<sup>21</sup>

The shortages in employment have their roots in choices 'would-be' engineers made in education. In higher education, the proportion of students studying engineering has remained at around 5% for the past 15 years, and in certain subject areas such as electronic and electrical engineering, critical to net zero transition, there has been a long-term decline. New apprentices starting engineering and manufacturing apprenticeships have also been in decline since a peak in 2015. About 95,600 people started engineering apprenticeships in 2022–23 – a decrease of 7.7% since 2018–19.<sup>22</sup>

Most young women continue to reject engineering as a career, as evidenced in the stubbornly persistent low numbers of women in the UK engineering workforce – just 16.5% in 2021.<sup>23</sup>



## Misconceptions

The rate of recruitment into the profession is likely in turn to be affected by popular perceptions of the engineer's role. Despite thousands of initiatives over many decades to inspire students and career-switchers into engineering and government – industry backed campaigns to position engineering as the highly skilled and economically valuable occupation that it is, outdated perceptions persist, particularly among young people.

For example, nearly a quarter (23%) of British people envisage engineering jobs as being mainly based in factories or building sites, including 39% of 18–34-year-olds, while one-fifth (18%) still hold the view that engineering roles are better suited to men, including 28% of 18–34-year-olds. 42% of people say they don't know much about what people in engineering do, or what the job involves.<sup>24</sup>

On the positive side, two-thirds (64%) believe engineering jobs are crucial to addressing society's biggest challenges such as climate change and 87% trust engineers to tell them the truth.<sup>25</sup> However, while people acknowledge some of the most important skills needed in engineering jobs are problem solving (60%) and analytical skills (52%), so-called 'softer' skills, such as communications (33%) and leadership (18%) are seen as much less important – despite being vital to many contemporary engineering careers.

Narrow perceptions of engineering limit the talent pool and there is still much work to be done to communicate the rich opportunities afforded by an engineering career: to fulfil individual potential, to help solve global problems and to provide a diverse and supportive environment for talent from every part of the community.



## Education

There is widespread recognition that education for engineering needs to evolve continually to match the changing needs of the economy and society. One of the principal aims of **Engineers 2030** is to seek debate and agreement on the form that this evolution should take.

Degrees at undergraduate and higher levels provide professionally accredited routes into the profession, enabling students to acquire the foundational and specialist skills required across the range of disciplines.

However, the individual disciplines are changing, as is the wider context. Digitisation and artificial intelligence are changing processes and broadening possibilities. Climate change and other issues of sustainability are creating new challenges that demand new skills as well as a mindset that recognises their significance. The balance between generalists and specialists may need to change, while the concept of core skills may need to evolve to embrace technical competencies in artificial intelligence and data analysis on one hand and interpersonal abilities such as communication and collaboration on the other.

The foundations for tomorrow's engineering community are laid in today's schools and here too, reforms should be considered to provide better pathways to attract the talent needed. Currently, the pattern of qualifications leads to early specialisation compared to many countries, with A-level students typically choosing either arts and humanities or science subjects. Those who follow the arts and humanities route are generally lost to engineering at 16. Conversely those following routes that lead to engineering lose the benefit of a more rounded education including subjects such as history, geography, and psychology that provide a wider perspective on society.

UK schools also suffer from chronic teacher shortages in science, technology, engineering, and mathematics (STEM). In 2022–23 the under-recruitment of teachers in initial training was most substantial in physics, design and technology, and computing – which recruited less than a third of their targets.

These issues are compounded by a traditional emphasis on taking the academic pathway into engineering via A levels and degrees, rather than those of further education, apprenticeships, or other routes later in life.



### Community and institutions

The UK has a network of well-established engineering institutions that began with the formation of the Institution of Civil Engineers in 1818. The community has grown to encompass 39 professional engineering institutions, the Engineering Council as an independent regulator,

EngineeringUK to promote the profession, and the Royal Academy of Engineering as the national academy. The engineering education and skills ecosystem also includes hundreds of UK further education colleges and universities offering engineering and technology qualifications and undergraduate degrees across an array of disciplines from civil, mechanical, and chemical engineering to computing, biotechnology, production, and manufacturing.

This network offers all the hard-won benefits of stability and experience, but at a time of transition and turbulence it is timely to ask how we can build on what has been achieved to make the community more responsive and relevant to the demands of the mid-21<sup>st</sup> century.

**The task for Engineers 2030 is to enable debate and seek agreement on ways to transform public perceptions, inspire young people and furnish future engineers with the skills and behaviours needed to solve the complex problems of the mid-21<sup>st</sup> century.**



# What changes are needed to attract and support the engineers of 2030?

**While the discipline of engineering has existed for centuries,<sup>26</sup> engineering skills have never been more essential for humanity and the environment, given the leading role they can play in solving the climate emergency and creating a more sustainable world.**

Yet the challenge of bringing the wide variety of engineering skills to bear on the complexities of 21<sup>st</sup> century problems as effectively as possible is yet to be solved.

Addressing this challenge requires a step-change that cannot be achieved by policymakers, academics, industry, or professional bodies working separately. The scale and complexity of the challenge requires a partnership approach to bring diversity of thought, expertise, and resources to the process.

So far in this paper we have been sharing observations and raising questions. Our primary purpose is not to be prescriptive about solutions but to initiate a new conversation about the profession. But as a starting point, here we sketch out what we believe may be some of the key areas where change can come about and some of the characteristics that such changes might exhibit.



### Perception

Research shows that engineering is widely misunderstood. But with engineering itself changing so fast, there is now an opportunity to make a fresh start in explaining the profession's role to the public.

It is a chance to reposition and redefine the role, showing how engineers are essential players in preserving the environment, shaping society, and underpinning successful economies.

Such a campaign may provide a stronger and more exciting proposition to those seeking a dynamic and meaningful career, attracting more young people from a greater diversity of backgrounds.



### Skills

There is wide recognition of the need for ongoing reform in the education and training of engineers. But there is also a need for engagement and debate about the form such changes should take.

In particular, it is increasingly common ground that engineers should understand the science of

climate change and the components of a net zero economy – but to what extent? More people with technical green skills are needed to deliver a zero-carbon future – but how can that be achieved?

Artificial intelligence has a bearing on all engineering activity but there is scope for debate over how it features in the curriculum. Engineers also need to gain awareness of the associated ethical issues and be able to explain the benefits and risks of the artificial intelligence that they are using.

As engineers take on more complex problems, more of them will need to understand systems thinking and systems engineering skills. Discussion is needed over how these are embedded in the curriculum. Similarly, as they work with multiple partners, engineers need the aptitudes to match. Success in addressing the complexity of today's global challenges necessitates agile, cross-functional team-working, with engineers having to excel in interpersonal skills to be able to identify appropriate courses of action.

Paradoxically, as artificial intelligence becomes more powerful and systems approaches are applied to more complex problems, the quality of human decision-making becomes even more critical. For it is people who decide how technology is applied and thus whether its massive potential to help resolve the challenges facing civilisation is realised, underused or, worse, abused. Human characteristics such as wisdom, creativity, empathy, and connection to the natural world are central to help engineers work effectively to harness the power of emerging technologies. As in previous periods of rapid technological and societal change, such as the Renaissance, the leaders who emerge are often polymaths whose knowledge and abilities span a wide range of areas.

At the school level, some action has been taken by the current UK government to move away from early specialisation and create a more balanced curriculum for 16–18 year olds, including consultation on an 'Advanced British Standard'<sup>27</sup> that will mean most students choose a minimum

of five subjects from a menu of options, albeit with some as 'majors' and others 'minors'. However the reform could take a decade to implement and without explicit promotion of the attractions of engineering in schools, it may not lead to more students making choices that lead them towards the profession. There is also the question of how pre-16 education can plant the seeds of engineering careers. As well as gaining a grounding in increasingly essential core skills such as maths and literacy, knowledge of nature and time spent studying natural systems may be important in fostering the desire to help restore and preserve them.



### Behaviours and attitudes

As well as working in new ways, engineers need to think in new ways. For decades, many engineers have solved problems by developing new products and infrastructure. While these have served pressing human needs, for example for food, transport, or communication, there is now an imperative to look to longer-term needs, such as sustainability and the challenges of an ageing society. Engineers have a new vocation as guardians of the natural world, developing products and processes that restore, renew, or revitalise sources of energy and materials. This means creating technology with people and the natural world at the centre of their thinking, at the start of the creative process.

This approach applies at all levels: local, national, and global. At the global level, where engineers already collaborate with others to address transnational challenges, it has led to the concept of 'global responsibility', based on recognising that the consequences of an engineer's actions can extend beyond local or national borders and have impacts on people, societies, and the environment worldwide. Work has already been done to define the competencies required by a globally responsible engineer, from reasoning and advocacy

skills to understanding of social and environmental impacts.<sup>28</sup> But there is much room for discussion as to how such competencies are integrated with technical skills and relate to the real-world experiences of engineers.



### Resources

Resources are always required to make the most of new engineering opportunities and the UK is seeing some increased investment in these areas. For example, a £370m science and technology funding package was announced in 2023 which included £250m of investment in artificial intelligence, quantum technologies, and

engineering biology as well as £117m for PhDs in artificial intelligence.<sup>29</sup>

While such commitments are clearly welcome, there is scope for debate on the level, focus, and context of investment. Do we need to spend more as a country on educating and supporting engineers? Or do we need to refocus investment into new areas, outside of conventional engineering?

Indeed, is resourcing the fundamental problem? Or is there an agreement that investment by itself is only one factor and that funding must be balanced with innovations and collaborations in areas such as education and communication created in partnership with business, schools, colleges, universities, the engineering profession, and governments at national and devolved levels?



# What is the purpose of the Engineers 2030 project?

**This project is designed to enable a national debate on how to achieve objectives that have been agreed and pursued for decades in the engineering profession, but with only partial success. These include:**

- understanding and agreeing how engineering has – and will be forever changing – and setting out the core knowledge, skills, and behaviours that engineers and technicians will need to address challenges for a world in which both people and planet can thrive.
- attracting more engineers and technicians – and ensuring they are upskilled throughout their careers to meet the changing needs of the economy and wider society.
- building a more diverse engineering workforce.
- creating a more inspiring and accurate perception of the engineer's role.
- updating and reforming how and what is taught in engineering education.
- enabling all schools to encourage students towards engineering, by increasing the numbers of teachers of relevant subjects and bringing real engineering contexts into curricula and courses.

With **Engineers 2030**, the Royal Academy of Engineering, working in partnership with professional engineering institutions, is preparing to hold discussions with communities from within and outside engineering. We want to invest time for people to listen to each other and work together to create solutions with every part of the engineering education and skills system.

We want this conversation to be informed by experience and evidence. Therefore **Engineers 2030** is underpinned first by the expert knowledge of Fellows of the Royal Academy of Engineering as well as that of professional engineers and technicians from the 39 UK-based professional engineering institutions accessed through the **National Engineering Policy Centre**. It will also be informed by the many views we expect to hear from the engineering community and beyond.

Second, the project will be supported by the study of new evidence to understand the landscape in which engineers and technicians operate. A [literature review](#) (published February 2024) has already synthesised what is known about future engineering skills in the UK.

Two new pieces of research will help us understand in more depth the knowledge and skills needs of engineers and technicians from 2030. The first will support our understanding of the engineering knowledge and skills gained by newly qualified engineers from their initial engineering education

and explore how useful this knowledge and skills have been to the jobs they did in the early years of their career. The second seeks to understand the digital and data-centric skills needed by engineers and technicians in the rapidly growing digitised engineering and manufacturing sectors.

We will also be mapping the functions of the four UK nations' education and skills ecosystems to understand better how functions work within each system and how they interact with each other to identify any areas where change may be beneficial. Two 'Futures' workshops, bring members of the community together to explore trends and drivers and develop our insights to help navigate an uncertain future.

In the second phase of the project, we will investigate more deeply the areas of education and skills systems that have been identified as those where action to address the challenges facing the engineers and technicians of 2030 and beyond can be most effective in the short to medium term.

Early in 2024, we will share a **Vision and set of Principles for Engineers 2030** and seek much broader engagement with stakeholders across the UK to consider, debate, and improve them. We want as many communities as possible to tell us about their views on the Vision and Principles, on the importance of engineering skills to society and the economy, and critically, how we will safeguard and increase engineering talent now and into the future.

We will seek input from, but not excluding:

- the engineering profession
- training providers
- students in education and training
- educators across all phases of education systems
- policymakers across the four nations of the UK
- practising engineers and technicians
- the professions that use engineering
- employers.

**The views of students, and engineers and technicians who have recently started their engineering careers are particularly important.**

**Engineers 2030** must have the interests of young people at its heart – for they will be the beneficiaries as the engineers and technologists of 2030, 2050, and beyond. But we know that they face a difficult global context of economic, environmental, political, and technological uncertainty.

So, we will make a priority of engagement between young people and experienced professionals. The changes made to support young engineers will be more successful if they are informed by an intergenerational dialogue.

Contributions gathered through this consultation will support our understanding and will be acknowledged in our final report to be published in 2025.





## For further information

Please take a look at the Academy's website and specifically the [Engineers 2030 web pages](#).

Please contact us to express your interest in either having individual conversations or joining workshops during the consultation period during the spring/summer of 2024.

For further information, please contact the Education and Skills Policy team at: [Engineers2030@raeng.org.uk](mailto:Engineers2030@raeng.org.uk)

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- 4 [www.ewb-uk.org/global-responsibility-competency-compass/](http://www.ewb-uk.org/global-responsibility-competency-compass/)
- 5 The National Engineering Policy Centre brings engineering thinking to the heart of policymaking, creating positive impacts for society. We are a partnership of 42 professional engineering organisations that cover the breadth and depth of our profession, led by the Royal Academy of Engineering. Together we provide insights, advice, and practical policy recommendations on complex national and global challenges.
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