Engineering Council

Developing a fresh vision for professional registration

Introduction

The Engineering Council exists to strengthen public confidence in engineering. Established by Royal Charter, we hold the Register of engineers and technicians who have demonstrated they are meeting and maintaining our globally-recognised Standards.

To achieve professional registration in the UK, an individual must demonstrate not only that they have achieved the required level of competence but that they are committed to maintaining that competence through continuing professional development (CPD), and to acting with integrity in the public interest. This is assessed through a peer review process by a licensed professional engineering institution (PEI).

From submarines to tower blocks, the consequences of poor engineering decisions are only too prominent. As well as keeping people safe, engineers are trusted to tackle complex global challenges and use rapidly developing technologies creatively and responsibly.

As a partner in the National Engineering Policy Centre, we welcome the opportunity presented by *Engineers 2030* to rethink professional registration in the context of this changing profession, so together we can ensure our profession lives up to the trust society is placing in us.

This paper sets out our emerging vision, inviting perspectives from the engineering community to help shape its development.

Cover image: Female design engineer sketches car designs in 3D VR

P3: Engineers

Our vision for professional registration is to support and drive the development of engineering professionals in all disciplines and at every stage of their career.

Registration must give employers a relevant indicator of competence and commitment, and demonstrate that the engineering profession can be trusted to act decisively in the public interest to take global responsibility and tackle the key societal issues of our time.

177,370
Chartered Engineers

Develop solutions to engineering problems using new or existing technologies, through innovation, creativity and change. They may be accountable for complex systems with significant levels of risk.

23,863
Incorporated Engineers

Maintain and manage applications of current and developing technology, and may undertake engineering design, development, manufacture, construction and operation.

23,680
Engineering Technicians

Apply proven techniques and procedures to solve practical engineering problems.

872
ICT* Technicians

Apply proven techniques and procedures to solve practical (ICT-related) engineering problems.

*Information & Communications Technology

How professional registration works now

Professional membership

To become professionally registered with the Engineering Council, engineers and technicians must be a member of a PEI. They can then apply for one of our four professional titles.

Assessment of applicants

Assessed against the UK Standard for Professional Engineering Competence and Commitment (UK-SPEC) and the Information and Communications Technology Technician (ICT*Tech*) Standard.

1. Applicants must demonstrate either through recognised qualifications or individual assessment that they have the required level of knowledge and understanding to meet the Standard for that title.
2. An expert panel of registered engineers and technicians undertakes a professional review of competence and commitment, assessing each applicant's portfolio of evidence against the requirements. A professional review interview is a requirement for Chartered Engineer and Incorporated Engineer registrations.
3. The recommendation from the professional review is then considered by the relevant PEI committee. If it is endorsed, the applicant becomes a registrant and is able to use the relevant postnominal on the condition they maintain their competence through continuous professional development, remain a member of their PEI and adhere to their PEI's code of professional conduct.

What needs to change?

Too many people work in core engineering roles without being professionally registered, and we must also attract people in engineering-related roles, especially in fast-growing industries.

Fundamentally, people will only become professionally registered if they believe the value they will get from registration outweighs the time and effort required to achieve it.

Our vision identifies five key priorities for increasing the value of registration and removing unnecessary barriers to engagement.

1. Underlining ethics, sustainability and global responsibility

- While each individual's obligations to society, the profession and the environment are already firmly embedded in the Standards, there is a need to underline engineering professionals' global responsibility even more firmly from the start, and throughout the registration process.

» Our challenge is for registration to enable engineers and technicians to recognise this responsibility and commit to practise accordingly, right from the start.

2. Demonstrating value to employers

- There are many benefits for organisations employing professionally-registered engineers and technicians. While most employers are aware of professional registration, many do not require or actively encourage employees to register.

» Our challenge is to tailor registration to the needs of industry, delivering tangible benefits that matter to employers, so being registered provides a competitive advantage in the workplace.

3. Supporting recognition and career progression

- The current structure of professional titles does not provide sufficient recognition or progression opportunities, especially for early-career engineers and experienced engineering technicians.

» Our challenge is to adjust registration so professionals at all levels feel recognised and valued, supported to keep their skills sharp and motivated to develop in their career.

4. Reflecting new ways of working

- We must adapt to the skills and behaviours needed to solve the complex problems of the mid-21st century, from technical competencies relating to artificial intelligence and digitalisation to cross-functional team working and interpersonal skills.

» Our challenge is to ensure registration embeds these changing skillsets and provides the glue that enables engineers and technicians to work effectively across a widening range of existing and emerging disciplines.

5. Making registration simpler and less daunting

- While registration must be rigorous, it can appear to be an unnecessarily complicated and daunting process.

» Our challenge is to remove barriers to access, ensuring professional registration and PEI membership together provide a coherent, compelling and straightforward offer for current and future engineering professionals.

Delivering these changes together

Responding to the challenges above will involve substantial changes to professional registration.

It will also involve ensuring transitions between professional titles, and between membership and registration, are as seamless and straightforward as possible.

This document sets out in broad terms several development areas to address the key priorities above. We are seeking input from the engineering community on the vision and direction so we can confidently develop the detail together.

Creating a gateway to professional registration, enabling every professional to demonstrate their commitment to ethics, sustainability and global responsibility, right from the start.

Aligning professional registration with entry to practice for both engineers and technicians, providing an industry-relevant indicator of essential knowledge, competence and commitment.

Adjusting senior-level professional titles to support and drive professional development and enhance recognition for both technicians and engineers.

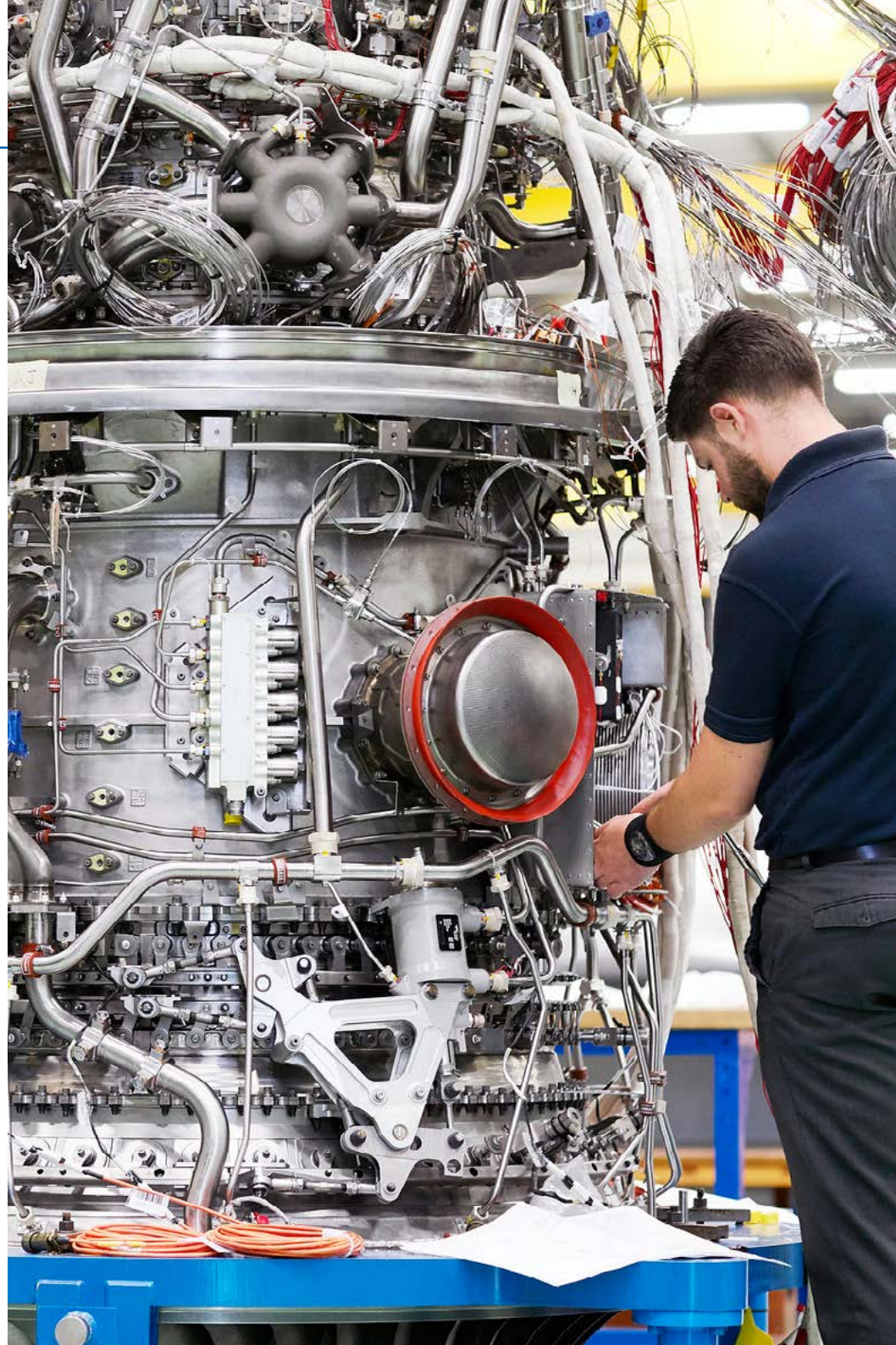

Image: Engineer works on engine © Rolls-Royce PLC, This is Engineering

A GATEWAY TO PROFESSIONAL REGISTRATION

Creating a gateway to professional registration, enabling engineering professionals to demonstrate their commitment to ethics, sustainability and global responsibility, right from the start.

The Statement of Ethical Principles, published by the Engineering Council and the Royal Academy of Engineering, sets out ethical standards to guide engineers and technicians in their practice. Embedded in our overarching Standards (UK-SPEC), they form the basis of professional engineering institutions' codes of conduct, which every member must comply with.

The engineering profession's response to the Royal Academy's *Review of ethical culture and practices in UK engineering* proposes minimum requirements for ethics-related CPD among registered engineers and technicians, and curating and promoting a set of ethics resources for all professional engineers and technicians to use, whatever their status.

There are several examples around the world of elaborate rites of passage through which engineers publicly declare their commitment to practising ethically in the public interest. While these rituals may not be relevant to engineering in the UK, they demonstrate a potential connection between ethical commitment and entering the profession.

Our vision is that a public declaration of informed, ongoing ethical commitment forms a rite of passage into the engineering community.

There are several related elements:

- Provision of curated ethics resources for all engineers and technicians, including online learning activity
- A statement of commitment to professionalism and ethical standards
- A mechanism to sign up to this statement publicly.

Can people feel part of the engineering community from the outset?

Professional engineering institutions provide membership offers for those joining the engineering profession, with benefits include learning resources, events and mentoring towards professional registration.

Alongside the ethics resources and declaration of commitment above, it is vital to guide prospective engineers or technicians towards PEI membership, so they can experience these benefits as rapidly as possible.

Online portal for all engineering professionals

This could be delivered through an online portal where engineers and technicians, current or prospective, can engage with resources curated by a collaboration of organisations including professional engineering institutions and partners.

In the simplest form of the portal, users can engage with learning activities, (including a PEI-finder tool), sign up to an ethical statement and receive ongoing communications to support their journey towards professional registration.

ENTRY TO PRACTICE

Aligning professional registration with entry to practice for both engineers and technicians, providing an industry-relevant indicator of essential knowledge, competence and commitment.

Most professional engineering institutions have a membership offer to engage early career professionals. While there is already a suitable title for early career technicians, there is no equivalent title for engineers, nor for those working in areas closely related to engineering.

Our vision is that professional registration gives employers valuable assurance that engineers and technicians entering the workforce are competent and committed.

These professional titles should be designed in partnership with PEIs and employers for relevance across disciplines and industries. The criteria would need to be robust but straightforward, aligning with factors such as entry to employment, completion of training or apprenticeship, or appointment to a first position of professional responsibility.

- They should be pitched at a level that would give employers confidence that a professional has reached a trusted level of competence, building on sound foundational knowledge and skills and a commitment to ethical and professional standards. This includes a commitment to maintain CPD.
- They should equip professionals with a foundation for practice in emerging, fast-moving fields such as digitalisation, autonomation and AI.

These registration-level titles could be designed as the next step for those who have completed the ethical commitment, or it may be viable to combine so that this ethical engagement is an integral part of the registration process.

How does this relate to technicians?

The current Engineering Technician and ICT Technician titles already provide a suitable early-career title, and could be refined to reflect the points above. An entry-to-practice engineering title could also provide a viable step for a technician looking to transition into an engineering role.

What's the motivation for professionals to engage?

Fundamentally the motivation for early career professionals to engage is to demonstrate to employers that they are fit for the job and to gain competitive advantage over unregistered peers. An extension of the online portal referred to above could provide additional value through tools and prompts to support CPD.

How would membership and registration reinforce each other?

The addition of an entry-to-practice engineering title may help to align professional registration with existing membership structures which have an early career offer.

SENIOR REGISTRATION PATHWAYS FOR TECHNICIANS & ENGINEERS

Adjusting senior-level professional titles to support and drive professional development and enhance recognition for both technicians and engineers.

Chartered Engineer is by some distance the most prevalent of the existing professional titles, accounting for almost 80% of the titles held on the Register. It conveys prestige and professional status, and some employers consider it a requirement for certain roles.

The Incorporated Engineer title is considerably less prevalent overall, though in some disciplines, such as highways and operations, it is more prevalent than the Chartered Engineer title.

While some experienced engineering technicians progress to these engineering titles, many take on increasing responsibility and authority in technician roles, but with no professional title to provide recognition or differentiation from those at the very beginning of their career.

Our vision is that professional registration provides relevant progression and recognition opportunities for both engineers and technicians with significant responsibility and experience.

- A senior-level technician title would need to be developed in consultation with employers to reflect appropriate levels of knowledge, skills, and authority.
- While a chartered title could be pursued, it may not be viable, so an alternative title such as 'Senior Engineering Technician' may be required.
- This senior level title essentially creates a parallel pathway for technicians, stimulating professional development and providing recognition for experienced technicians.
- This title could require demonstration of capability to carry out a senior-level engineering technician role ethically and competently in emerging and fast-moving fields such as digitalisation, autonomation and AI.

What about Incorporated Engineer?

It is important for the registration structure to be simple to understand and tailored to the needs of industry and employers.

While in this model of registration it may not be simple to differentiate the Incorporated Engineer professional title from the higher-level Chartered Engineer title or any lower-level engineering titles, for some employers and engineering disciplines the Incorporated Engineer title provides a particularly useful indicator of competence.

There are several ways to balance these competing needs for simplicity and industry-relevance, including keeping both Incorporated and Chartered titles as they are in the registration structure. This is an important consideration for engagement with employers and other stakeholders.

How would membership and registration reinforce each other?

As PEI membership is a requirement for ongoing registration, the addition of a senior-level technician title could improve retention of experienced technicians as PEI members.

Making criteria as straightforward as possible

Alongside any adjustment to the registration structure there is a need to make the registration criteria as transparent as possible, focusing in particular on removing unnecessary barriers for those who do not have recognised qualifications.

Example framework 1: Parallel pathway

Gateway to registration

New

Moving towards professional registration

- First step towards professional registration, for all prospective engineers and technicians, including those in roles related to but not primarily engineering.
- Could simply involve engaging with information and resources, making a commitment to ethics and professional standards, and joining a PEI if ready to do so.

Registration level

Registered Engineer
(Title and designation TBC)

New professional title aligned with entry to practice as an engineer.

Registered Engineering Technician
(EngTech / ICT*Tech*)

Existing professional titles, already aligned with entry to practice as a technician.

Senior registration level

Incorporated Engineer (IEng)

Existing professional title, may need to be adjusted according to whether it can be clearly differentiated and add value to employers.

[Senior] Engineering Technician
(Title and designation TBC)

New professional title, recognising higher level knowedge, skills and authority.

Chartered Engineer (CEng)

Existing professional title, reflecting innovation, complexity and risk.

Note: These are summary charts only. The layout of the titles is not intended to relate to precise education levels or any other implied hierarchy.

PEI membership

- Participants encouraged to use online PEI finder to join a PEI.

- PEI membership required for professional registration.
- PEI membership could be aligned with registration levels where appropriate for clarity.
- PEIs undertake professional review to award titles.

Example framework 2: Sequential pathway

Towards registration

Universal gateway into professional registration, for all prospective engineers and technicians.

Registered Engineering Technician (EngTech / ICT*Tech*)

Existing professional titles, aligned with entry to practice as a technician.

Registered Engineer (TBC)

New professional title aligned with entry to practice as an engineer.

Incorporated Engineer (IEng)

Existing professional title, tailored to industry needs.

Chartered Engineer (CEng)

Existing professional title, reflecting innovation, complexity and risk.

PEI membership

- Participants encouraged to use online PEI finder to join a PEI.

- PEI membership required for professional registration at all levels.
- PEI membership could be aligned with registration levels where appropriate for clarity.
- PEIs undertake professional review to award titles.

Image: Female software engineer with projected code © This is Engineering

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