

**The Royal Academy of Engineering**

**Statement of Requirements and Invitation to Tender:** Review of the current education & skills programmes and policies implemented by the engineering industry and other organisations.

Deadline for proposals: Wednesday 29th January 2025.

Submissions and any questions in connection with this tender should be directed to:

Katie Ingrey, Senior Policy Advisor, Education and Skills

The Royal Academy of Engineering

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**Invitation to tender**

This invitation to tender invites proposals to develop: i) a methodology for, and carry out a review of current policies, programmes, and activities implemented by industry and wider organisations, such as charities in tackling the current skills shortages in the engineering sector and; ii) map these programmes and policies against the UK’s engineering education and skills systems using data visualisation tools or programmes, iii) how these programmes and policies map to the Royal Academy of Engineering Engineers 2030 vison and principles.

**Background**

The Royal Academy of Engineering is leading Engineers 2030, a policy project that aims to redefine the skills, knowledge and behaviours required of 21st century engineers and initiate positive change to the UK education and skills systems.

Being an engineer in the 21st century requires a number of specialised skillsets that are not significantly covered in either academic or vocational education. Currently, there is lack of consensus on how to define and differentiate what is needed for future engineering knowledge and skills – and it is believed, little to no attention on the values and behaviours we might expect from a profession that is central to addressing societal challenges. Engineers 2030 which is currently in Phase One is looking at what are the foundational knowledge, skills and behaviours needed by engineers and technicians to meet the 21st century global challenges. This project will shortly enter Phase 2 where we will be looking at the current UK education and skills systems, cultures and polices, and what interventions need to be put in place within the education and skills systems to deliver on the Vison and Principles of Engineers 2030.

The research undertaken for “Review of the current Education & Skill programmes and policies implemented by the engineering industry and other organisations,” seeks to understand what industry and other engineering organisations and charities, including those part of the National Engineering Policy Centre (NEPC) are doing to help tackle the engineering skills shortage in the UK. This includes policies, training or education programmes and activities targeting primary school students all the way to those at university degree and apprenticeship level.

Specifically, we are looking for policies, training or education programmes and activities that align with the following areas:

* Tackling the engineering skills shortages and the issues facing the UK with particular focus on wider global issues such as climate change, AI and what future skills engineers will need.
* Looking at multidisciplinary skills that will be needed in engineering such as being adaptable to in the face of ever-changing working landscape, multidisciplinary mindset, technical skills such as robotics, automations, and the Internet of Things (IoT) etc.
* Understanding what is needed to attract, educate, recruit, and support the engineers and technicians of the future.
* Looking at the perceptions, cultural beliefs, or ethics of engineering, misconceptions of engineers and gap analysis on who ends up studying and becoming an engineer.
* Diversity in engineering, how companies/ the educational institutions are adapting from the traditional ways, the issue of talent attraction and retention and adapted business models in the industry.

The result of this research will be among a number of outputs to be generated through the Academy’s Engineers 2030 project. Other work has included an extensive review and analysis of the literature on future skills needs, workshops and roundtables drawing upon the expertise available to the Academy.

In March 2024, the Vison and Principles of Engineers 2030 were launched for community consultation. The Vison and Principles were tested with wide range of stakeholders to gather consensus on what is needed for the future of engineering.

As we move on to Phase Two of Engineers 2030, we are looking at what are the current interventions in place and where Engineers 2030 can have the most impact with its recommendations/ interventions in the UK’s current education and skills landscape.

**Skills Framing**

The UK is currently facing a significant engineering skills shortage. This problem has been with the UK for number of years and many organisations and industry have come together to work on policies, reports, and programmes to help tackle the skills shortage.

The government is currently looking at the skills landscape with the introduction of Skills England and number of changes to the education landscape such as the curriculum and assessment review, industrial strategy, and funding for higher education.

The Engineers 2030 project will therefore use skills requirements associated with the major changes outlined above as a lens.

It is important to stress that this does not mean that we are ignoring knowledge and behaviours – which are both essential to skills.

**Purpose of the work**

As the interventions by recent governments have been slow to react to the ever-evolving engineering skills shortages, different organisations have produced reports and programmes to try and understand and tackle this issue.

We need to understand to the best of our knowledge what interventions are in place in the current systems. This research will help us to formulate the recommendations and interventions for Engineers 2030.

**Research Questions**

To meet the overarching aim outlined above, the study should respond to the following research questions:

* What interventions are industry (particularly the science, technology, engineering, and mathematics (STEM) sector) funding including policies, training or education programmes and activities other interventions?
* What are wider government and non-government organisations / charities doing to help tackle the engineering shortage, promote diversity, and recruit and retain engineers in the sector including policies, training or education programmes and activities, and other interventions?
* How do these map to current government policies/ interventions in education and skills systems?
* Are they short-term, medium-term or long-term interventions?
* How do these policies, training or education programmes and activities map to and support the current qualities within the Engineers 2030 Vison and Principles and where are they unsupported by current policies, training or education programmes and activities?
* Are there any gaps / areas where there are limited interventions?

Please note: We will provide a list of members to NEPC and data available on their report and programmes to help with this research. We will also provide a full list of the Vison and Principles for Engineers 2030.

**Deliverables and Milestones**

The bidder will be expected to provide:

* An **inception report** outlining the agreed methodology for carrying out the study, including the level granularity and how the data will be presented and interpreted.
* A **final draft report that** outlines the methodology applied, presents the data generated and answers the research questions provided above, along with appropriate analysis and narrative.
* **A final report / or other format****showcasing the research data** to the Academy’s publishable standards including an interactive and publishable map of these interventions along engineering education and skills pathways.
* Questions used in surveys, interviews and similar interactions undertaken to produce the report.
* Anonymised data set of the responses to all surveys, interviews and similar interactions undertaken to produce the report. The Supplier will be expected to attend (virtually and occasionally in person) review meetings with the Education and Skills policy team and/or other members of the Engineers 2030 working group at the Royal Academy of Engineering.

**Methodology**

The successful tender will outline a proposed methodology for meeting the project deliverables and answering the research questions identified. This methodology will need to be agreed by the Academy before beginning the project. Essential components will include the following:

* A systematic approach to accessing policies and programmes from the engineering industry and other organisations that target the engineering skill shortages.
* Mapping how these fit into the current education and skills systems within the UK or are linked to government initiatives. With clear narrative and data analysing how these interventions work, how they map to Engineers 2030 Vison and Principles.
* Input from industry, STEM organisations and charities not necessarily part of the STEM landscape are included to ensure coverage of a range of sources and at different stages of the curriculum.
* How this data will be presented, in clear useable format and what level of granularity is possible. Please be clear in your tender response.

The Royal Academy of Engineering is happy to liaise with potential respondents to support the development of a methodology that meets these requirements.

**Project management**

The Academy is the body responsible for commissioning this research. Katie Ingrey, Senior Policy Advisor, Education and Skills, is the main point of contact for the contractor with support from Dean Thompson, Head, Education and Skills Policy.

Their role is to:

* Provide input to the contractor.
* Help ensure the quality of the study by reacting to work plans, methodology, initial findings.
* Help ensure that the outputs of the study will prove useful to the wider policy project, Engineers 2030.

 They will be supported members of the Engineers 2030 working group.

 The Tender must show how the supplier will work with this project team – and ensure regular and effective project management with a central point of contact.

 **Timeline**

 The work will commence in January 2025 and must be completed before the end of March 2025.

Three months in total from contract being awarded to the delivery of the final report.

**Budget and invoicing**

**A budget of up to £40,000 inclusive of VAT is available for the work**, with staged payments agreed through the contract and final payment made upon submission of the final report completed by **Friday 28th March 2025**. Additional budget is available for the data visualisation, interactive and publishable map component subject to negotiation.

**Procurement schedule**

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| Deadline for the submission of proposals  | Wednesday 29th January  |
| Review Panel  | Week beginning 3rd February |
| Meeting with preferred supplier  | Week beginning 10th February |
| Contracting/Inception meeting  | Week beginning 3rd February  |
| Delivery of the inception report two weeks following the kick-off meeting between the Academy and the Supplier  | Week beginning 17th February |
| Commission must be completed by  | Friday 28th March 2025 |

**Proposal Content**

The tender must outline an effective methodology for carrying out the study, the level of detail/ granularity you will be able to provide, a full project timetable, how the output will be presented such as report/infographic, risk analysis and how these risks might be mitigated.

In the interests of consistency and to enable an efficient and fair evaluation, responses to this ITT must:

* Include an executive summary providing an overview of the response and highlighting the most important points.
* Include a company/organisation profile.
* Be self-contained.
* Include terms and conditions.

Please include the following in your proposal:

* **Organisational background** (500 words max): Please explain if you are applying as an autonomous organisation or as a formal consortium. Please clearly explain the role of each participating team member, providing the names and providing information on the experience and suitability of staff who will be involved in the project.
* **Delivery proposal** (1,000 words max): Please explain how you intend to approach this commission; the level granularity, how the data will be presented and provide a proposed timetable of activities
* **Experience** (500 words max): Please explain your organisation’s experience by evidencing a maximum of three similar projects.  Indicate if there are any conflict-of-interest issues. Include two previous client contacts as references, with the addresses, email and telephone number details and a brief description of the project.
* **Project management** (1,000 words max): Please provide a full budget breakdown of the project costs and project plan, illustrating how you intend to meet the stated deadlines.
* **Other**: Latest set of Annual Accounts and an appropriate level of professional risk indemnity insurance.

Responses should demonstrate value for money (e.g. by building on existing research, leveraging off other analyses of the group, etc.) and consideration of diversity and inclusion.

Submissions Respondents must provide an electronic copy of their proposal to katie.ingrey@raeng.org.uk no later than **Wednesday 29th January**.

**Assessment criteria**

In selecting a contractor, the Academy will use the following criteria (please note that the order of this list is not significant and does not imply the order of importance and that this list is indicative only and is not exhaustive):

* Clarity from the contractor on what is expected from the Academy to fulfil the proposal
* Understanding of the objectives and requirements
* Proposed methodology and quality of the solution
* Comments on the specification/original ideas
* Demonstrable ability to meet the timetable and deliver a quality product
* Evidence of the appropriate skillsets
* Relevant experience of similar projects
* Overall value for money

**Scoring**

The review panel will consider the selection criteria to give a weighted score out of 100. The proposal with the highest total score will be awarded as the preferred supplier.

A meeting will be arranged with the preferred supplier on the morning of the week beginning 10th February. This will provide the review panel with an opportunity to follow up on any concerns identified during the review process prior to a final decision being made.

 **Scoring frameworks:**

Scores will be awarded as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria**  | **Score**  | **Weighting**  | **Max points**  |
| Proposal Quality: Approach and methodology  | 0-5  | 6  | 30  |
| Project management and delivery  | 0-5  | 4  | 20  |
| Experience of individual team members  | 0-5  | 2  | 10  |
| Experience of similar service provision  | 0-5  | 2  | 10  |
| Cost – budget is clear, competitive and value for money.  | 0-5  | 5  | 25  |
| Financial standing and level of professional indemnity insurance  | 0-5  | 1  | 5  |
|   | **Total**  | **100**  |

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| --- | --- |
| 0  | No answer / unacceptable response   |
| 1  | Very poor response  |
| 2  | Poor response  |
| 3  | Acceptable response  |
| 4  | Good response  |
| 5  | Excellent response  |

**Contractual:**

All tenders must remain valid for a period of 90 days from the date of submission by the vendor. This ITT and the information contained within it are deemed to be confidential information. Vendors and/or their agents or business partners responding to this ITT, do so entirely at their own cost.

**Annex 1: The Royal Academy of Engineering**

Engineering matters. It underpins our daily lives, drives economic growth, plays a critical role in addressing major societal challenges and helps ensure our readiness for the future, from providing a sustainable supply of food, water, and clean energy, to advancing healthcare, and keeping us safe and secure.

As the UK’s national academy for engineering and technology, the Royal Academy of Engineering brings together the most talented and successful engineers – our Fellows – to advance and promote excellence in engineering for the benefit of society.

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 are growing talent and developing skills for the future, driving innovation, and building global partnerships, and influencing policy and engaging the public.

 As a *charity*, we deliver public benefit from engineering excellence and technology innovation.

 As a *national academy*, we provide progressive leadership for engineering and technology, and independent expert advice to government in the UK and beyond.

 As a *Fellowship*, we bring together an unrivalled community of leading businesspeople, entrepreneurs, innovators, and academics from every part of engineering and technology.

 In everything we do, we are guided by our five values: progressive leadership, diversity and inclusion, excellence everywhere, collaboration first, and creativity and innovation. The Academy’s strategy can be viewed [here](https://raeng.org.uk/about-us/our-strategy).