



## **1 THE SCIENCE COUNCIL**

- 1.1 The Science Council is a membership organisation of learned societies and professional bodies drawn from across science and its applications. Collectively our members represent almost 500,000 individuals including scientists, teachers and senior executives in industry, academia and the public sector. There are currently 41 member organisations: a list is attached. In addition to providing a mechanism for the sector to work collectively, the Science Council develops and leads collaborative projects working with member organisations and the wider scientific community: examples include LMI analysis of the UK Science Workforce and Diversity, Equality and Inclusion.<sup>1</sup>
- 1.2 The Science Council's principal area of work is to advance the professional practice of science across the breadth of the science workforce, including non-graduate and technical roles in science. A key aspect of this is professional registration and having introduced Chartered Scientist (CSci)<sup>2</sup> in 2004, the Science Council has added Chartered Science Teacher (CSciTeach), Registered Scientist (RSci) and Registered Science Technician (RSciTech).<sup>3</sup> RSci and RSciTech aim to raise the profile, aspirations and retention of scientists at graduate and technician level.
- 1.3 In preparing this submission we have consulted with member organisations to identify areas of common interest.

## **2 Consultation Question 1. Are you aware of any instances of the term 'apprenticeship' being used to advertise courses other than apprenticeships eligible for Government funding?**

- 2.1 No. Training individuals for careers in science is a relatively expensive and long term commitment and it is perhaps less susceptible to the suggested type of abuse.

## **3 Consultation Question 2. Are there any unintended consequences that may arise as a result of this proposal?**

- 3.1 Our principle concern is that while the government focuses on enshrining a definition of apprenticeships in law, its attention is being drawn away from the urgent need to address wider issues of the perception, take up and quality assurance of the apprenticeships.
- 3.2 While protecting the terms in law would send a strong signal that government values apprenticeships as route of education, training and employment and that the route will have longevity, the clear need to define apprenticeship and apprentice more closely could be extremely complex as the terms are now very dilute. This debate and discussion is likely to be divisive and may serve only to reinforce the current confusion and lack of clarity in the mind of the public, parents, learners and employers.
- 3.3 However, these difficulties would be more easily addressed if the ambition to protect the title is part of a wider strategy to address poor perceptions and lack of confidence in apprenticeships.
- 3.4 For example, should there be a specific minimum length of time agreed for an apprenticeship? Apprenticeships of different lengths are likely to be seen as varying in standard and thus less rigorous than those in other areas of applied science and other areas of the economy. As well as enshrining 'apprenticeship' into law, the government also may wish to investigate whether this can be accompanied by setting a legal

<sup>1</sup> <http://www.sciencecouncil.org/content/diversity-equality-and-inclusion>

<sup>2</sup> <http://www.charteredscientist.org/>

<sup>3</sup> <http://www.professionalregisters.org/>

minimum length of time for a government-funded apprenticeship. This must be done in discussions with the relevant stakeholders, professional bodies included.

#### **4 Question 3: If 'yes' please provide detail of what unintended consequences there may be?**

- 4.1 An attempt to define apprentice and apprenticeship in a way that captures the current dilution of provision would have the effect of casting in stone the confusion and lack of clarity that currently exists and is part of the underlying problem. We are confused by the implications of the consultation that apprenticeships that are employer led and funded (i.e. without statutory support) would not be covered by the definition.<sup>4</sup> This is likely to perpetuate confusion, especially if an employer offered both statutory apprenticeship and non-statutory apprenticeships. The clear way to overcome this is to define the term apprenticeship on the basis of quality criteria and not funder.
- 4.2 As science becomes more complex and inter-disciplinary and applied in all sectors of the economy, high-quality, work-related vocational routes into science must to be developed to ensure that the UK has the higher-level technical and practical skills needed for the modern science and technology based economy. Yet one of the most urgent issues for the UK STEM employment sectors is the lack of skills at technician level. Demand for workers across the UK economy with science qualifications is high, particularly for those with practical and technical skills.<sup>5</sup> To meet anticipated skills demands across the knowledge and science-based sectors it is vital that the UK re-balances its STEM education priorities towards developing non-graduate pathways, and in particular to developing a highly skilled technician workforce.<sup>6</sup> Apprenticeships at level 3-5 are part of the solution to this skills shortage but in science there is no evidence that the current schemes have taken root.
- 4.3 To be attractive to employers and aspirational for young people, apprenticeships must lead to a clear and identifiable achievement at completion. This should go beyond a job with a particular employer, to entry into a recognisable occupation or a profession that would also give status and mobility to the completing apprentice. This is a key aspect of the German system and one that would be well worth emulating in the UK. Many current UK apprenticeship schemes remain sector and employer specific, posing issues around consistency and equivalence, which are potential barriers to transferability and mobility: this could be overcome by embedding a direct link to professional registration where possible.
- 4.4 The Science Council and several member organisations have been working closely with the Life Sciences & Industrial Sciences Trailblazer, which has developed the standard for Laboratory Technician and Science Manufacturing Technician and are being designed to be recognised for entry to the professional award of Registered Science Technician. Such an approach also delivers longevity and resilience in skills planning. When the Trailblazer scheme concludes in 2017, professional bodies in science are in a position to ensure apprenticeship standards in science remain relevant. They are independent and have a well-established track record for providing a link to professional standards. Professional body approval of training provision will also help employers identify quality.
- 4.5 Whether an apprenticeship is valued as a first step on a pathway to higher levels is as important as the need for it to be a recognised and respected step into the profession. However, the Skills Funding Agency, for example, promotes apprenticeships as a route for entry level roles in a variety of sectors where progression is unclear. For example the qualifications map and progression from the role is unclear for a search engine optimisation assistant. We would suggest that such opportunities would be better described as trainee search engine optimisation assistant.

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<sup>4</sup> Executive Summary point 7

<sup>5</sup> [http://www.sciencecouncil.org/sites/default/files/UK\\_Science\\_Workforce\\_FinalReport\\_TBR\\_2011.pdf](http://www.sciencecouncil.org/sites/default/files/UK_Science_Workforce_FinalReport_TBR_2011.pdf)

<sup>6</sup> <http://www.smf.co.uk/wp-content/uploads/2013/03/Publication-In-The-Balance-The-STEM-human-capital-crunch.pdf>

- 4.6 We understand that the lack of take up of apprenticeships by employers is also driven by concerns about the quality of the current 'brand' of apprenticeship and inhibited by the lack of availability of appropriate vocational and practical qualifications, and employers' lack of confidence in these qualifications. It remains much easier for science-based employers to recruit into technician-level roles graduates with qualifications that they recognise and understand but where the learner has taken on the costs of their education. This in turn fuels concerns about the validity and value of some science qualifications particularly for those who achieve lower grades in STEM and does not help to develop understanding of non-graduate routes to science careers.
- 4.7 Historically, the term apprenticeship was applied to describe a model of work-place learning that combined practical skills development, experience, class-room learning and qualifications. It involved a formal arrangement with an employer and was aligned very directly with entry into a particular occupation or profession. Since 1994 this concept has been progressively diluted, mainly by government but also by training providers and some employers. As used by government, the term now covers a multiplicity of work-placed learning schemes from level 2 to level 6 or even 7 with the growth of 'degree/graduate apprenticeships' and even now 'research apprenticeships'. For the most part apprenticeship opportunities are promoted for jobs rather than occupations. This has caused confusion and loss of confidence in the brand particularly amongst employers and parents, and lack of aspiration for young people.
- 4.8 For many the term 'apprenticeship' has become now a generic term for non-university based continued learning and training. The Science Council recognises that the UK has an acute youth unemployment and skills crisis as well as a need to develop non-graduate training and education but the tendency to perceive the choice as simply 'graduate' or 'apprentice' routes is unhelpful.
- 4.9 For global science and technology-based businesses this lack of clarity is also a concern as they need to benchmark training and skills levels across different jurisdictions. The increasing use of the term 'graduate apprenticeship' contributes to a perception that 'proper' apprenticeships, particularly in science occupations, are for those who believe they have the capacity and capability to study for a degree. But in Germany, for example, the average vocational/education/training apprenticeship would last between 2 and 3.5 years. A young person may perceive that signing up for a full graduate apprenticeship route could be for as long as 6 or 7 years.
- 4.10 Government is in a position to lead by example and to re-focus the use of the term apprentice for its own schemes so that the definition returns to its occupational and professional roots, and other language and terminology is developed to describe alternative practical, work-related and vocational training pathways.
- 4.11 The Science Council position is that strong quality control arrangements as advocated by the Richard Review would be more effective in re-branding apprenticeships than any statutory measure employed to protect the use of the title. For the foreseeable future government funding and other incentives are likely to be key drivers for employers in developing apprenticeships and other training opportunities as appropriate for the skills needs of each sector. These tools can be used to effectively endorse provision.

## **5 Do you have any other comments that might aid the consultation process as a whole?**

- 5.1 The Science Council calls on the government to position statutory protection of apprenticeship and apprentice titles within a wider programme and to work partnership employers, professional bodies, training providers, schools, further education colleges and qualification bodies that will:
- ensure the brand is associated with high-quality education and training that leads to an occupational or professional qualification;

- ensure that apprenticeship standards are linked to professional registration requirements in sectors where they exist, such as science and engineering
- ensure that learners gain transferable skills to underpin their future careers as well as develop and maintain the professional standards sought by employers.
- tackle the inconsistencies regarding the minimum length of time for apprenticeships. This is a key concern for science apprenticeships and one the Science Council has recently highlighted.
- support careers IAG, through investing to promote high-quality apprenticeship opportunities and accompanying career pathways more widely, with better information and advice given to young people about apprenticeships as a meaningful and valued pathway into higher education and into a science career.
- create opportunities for a wider range of employers to engage in the Trailblazer schemes and its potential successor. The longevity of the scheme will be greatly determined by the level of engagement by employers of all sizes and from across a wide range of industry and employment sectors. Abolishing employers' National Insurance contributions for apprentices under 25 may also encourage employers to take on more apprentices.



## **Member Organisations of the Science Council**

**August 2015**

Association for Clinical Biochemistry and Laboratory Medicine  
Association of Neurophysiological Scientists  
Association for Science Education  
British Academy of Audiology  
British Association of Sport and Exercise Science  
British Computer Society  
British Psychological Society  
British Society of Soil Scientists  
Chartered Institution of Water and Environmental Management  
College of Podiatry  
Energy Institute  
Geological Society of London  
Institute of Biomedical Science  
Institute of Brewing and Distilling  
Institute of Corrosion  
Institute of Food Science and Technology  
Institute of Marine Engineering, Science and Technology  
Institute of Materials, Minerals and Mining  
Institute of Mathematics and its Applications  
Institute of Measurement and Control  
Institute of Physics and Engineering in Medicine  
Institute of Physics  
Institute of Science and Technology  
Institute of Water  
Institution of Chemical Engineers  
Institution of Environmental Sciences  
London Mathematical Society  
Mineralogical Society  
Nuclear Institute  
Oil and Colour Chemists' Association  
Operational Research Society  
Physiological Society  
Royal Astronomical Society  
Royal Meteorological Society  
Royal Society of Chemistry  
Royal Statistical Society  
Society for Cardiological Science and Technology  
Society for General Microbiology  
Society of Biology  
Society of Dyers & Colourists  
The Organisation for Professionals in Regulatory Affairs