17 OCTOBER 2011

NEW CHALLENGES, NEW CHANCES

RESPONSE TO THE DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS CONSULTATION

GATSBY

SUMMARY

i This response focuses in particular on how the FE system can ensure the future supply of technicians – those in the workforce with intermediate-level STEM skills.

ii To address the UK's growing shortage of technicians, the following key elements need to be put in place: well understood qualifications for *transferable* technician skills which enhance employment prospects; a funding system that enables people to take the time to get the qualifications; and appropriate FE infrastructure, including suitably qualified lecturers and appropriate training facilities.

iii The UK needs a system of vocational education that is genuinely responsive to the needs of individuals and employers. This will only be achieved if the expertise and networks of the Professional Bodies and the Sector Skills Councils can be unlocked and, crucially, if these two sets of organisations can be encouraged by government to work in partnership.

iv In the STEM subjects the Professional Bodies have a critical role to play by developing professional registration standards that ensure the occupational needs of employers are met while ensuring that knowledge and skills required over the longer term of an individual's career are also valued. Clear technician registration standards will enable Awarding Organisations to develop vocational qualifications that have genuine value in the labour market. The standards will also enable individuals to make more informed choices about the qualifications that will help them achieve their career goals. Government should promote technician registration widely.

v The current FE funding regime is not sufficiently flexible to allow for the differences between the needs of different subjects and sectors. FE colleges must be able to access funds to ensure their technical facilities reflect modern, high-tech workplace environments.

vi In addition to modern workshops and laboratories, a strong technician stream requires a high-quality teaching workforce. We believe the FE system is some way away from having sufficient numbers of suitably qualified lecturers in STEM subjects, but the lack of clear data makes a proper analysis impossible. We urge BIS to put in place mechanisms which deliver a clear picture of the qualifications, experience and specialisms of the FE teaching workforce.

vii Currently there is no way for prospective learners to access data about the employment prospects that follow from different qualifications. This is a significant omission that means effectively individuals have little or no basis on which to choose one vocational qualification over another. A straightforward on-line source of information is required that allows one to compare: the popularity, pass rate, required prior learning, employability rate and average earnings data for every vocational qualification alongside the likely demand for specific skills in the workforce. Gatsby would be willing to partner with government to develop such a tool.

viii We are unconvinced that there would be value in establishing an independent "*commission on vocational teaching and learning*", not least since its terms of reference would be too broad to produce genuinely useful recommendations.

ix Rather than attempting to cover the vast breadth and depth of vocational teaching and learning in a single commission, it would be better to establish a small number of discrete working groups, with each focusing on a specific and acknowledged area of concern, such as 'Level 3 science provision in FE' or 'barriers to unlocking third-sector support for colleges'.

INTRODUCTION

1 Gatsby is a Trust set up in 1967 by David Sainsbury (now Lord Sainsbury of Turville) to realise his charitable objectives. We focus our support on the following areas:

- Plant science research
- Neuroscience research
- Science and engineering education
- Economic development in Africa
- Public policy research and advice
- The Arts

2 Since our work in the education and skills sectors focuses on science, technology, engineering and mathematics (STEM), we have limited our comments in this submission to how the Further Education (FE) system can ensure the future supply of technicians – those in the workforce with intermediate-level (Levels 3 and 4) STEM skills.

3 This country's lack of technicians is a problem which has been known about for decades. However, in spite of numerous reorganisations and policy documents, it has not been addressed. This has been due to a failure to put in place the following key elements:

- a well understood and tested qualifications system for transferable technician skills which delivers financial rewards and enhances employment prospects in the labour market. This should cover both acquiring a knowledge base and practical skills. It should not cover company-specific skills which should be the responsibility of industry;
- a funding system that enables both younger and older workers to take the time to get the qualifications. In this country the funding for the acquisition of the knowledge base will largely have to come from government[1];
- appropriate infrastructure to deliver the above provision, including suitably qualified lecturers/instructors and appropriate training facilities, especially in the FE sector.

4 The record of government interventions in this area is poor. Constant interference and tinkering has increased the complexity of the system and reduced confidence in the quality of vocational qualifications. The desire to meet quantitative targets for education has led to a funding regime that does not produce the key skills that industry needs.

5 In moving forward, the UK needs to work towards a system for vocational education that is genuinely responsive to the needs of individuals and employers and is not dependent on the changing views of successive governments. This will only be achieved if the expertise and networks of the Professional Bodies and the Sector Skills Councils can be unlocked and, crucially, if these two sets of organisations can be encouraged and incentivised by government to work in partnership to a much more significant degree that has traditionally been the case.

[1] The UK cannot, for example, copy the German system because, unlike Germany, it does not have strong trade associations which are able both to put pressure on their members to fund the necessary training and to prevent the poaching of staff.

THE ROLE OF THE PROFESSIONAL BODIES

6 The UK is blessed with strong, well-established Professional Bodies (learned societies such as the Society of Biology, Institute of Physics, Institution of Mechanical Engineers, Institution of Engineering & Technology, etc).

7 In the past, Professional Bodies played a significant role in the development and accreditation of vocational qualifications, particularly at technician level. This engagement ensured access to the professions via a vocational route. However in recent decades the engagement of the Professional Bodies in vocational education has gradually eroded. This erosion needs to be reversed and the contribution of Professional Bodies – working in partnership with the Sector Skills Councils – harnessed for the benefit of FE and the vocational qualifications system.

8 In the STEM subjects the Professional Bodies, coordinated by the Engineering Council and Science Council, have a critical role to play by developing professional registration standards that ensure the occupational needs of employers are met while ensuring that knowledge and skills required over the longer term of an individual's career are also valued.

PROFESSIONAL REGISTRATION FOR TECHNICIANS

9 Following Lord Sainsbury's recommendations to Lord Mandelson in April 2010, the new Technician Council is overseeing the development and roll-out of a common framework of registration standards with three tiers (starting at 'Registered Technician' and concluding at Chartered level) for all those working in STEM. Registration has existed in Engineering (EngTech) for many years; technician registration in Science (RSciTech) is being piloted by the Science Council with Gatsby support, for roll-out next year.

10 Individuals gain professional registration by firstly joining a relevant Professional Body and then, through the registration process, by demonstrating professional competence as well as a commitment to continuing professional development.

11 The Professional Bodies act as gatekeepers for the standards of technician registration in a similar fashion to the way that they do for Chartered designations (CEng, CSci, CChem, etc). Registration through Professional Bodies brings status – much more than any government could ever hope to confer on an individual qualification. More importantly, registration is only financially viable for Professional Bodies if it is sufficiently attractive to individual technicians for them to pay their registration fees, and this will only be the case if registration standards reflect the needs of employers.

12 The knowledge and skills enshrined within the registration standards reflect the demands of the workplace but are broader than those that would be assessed through NVQs or other occupational qualifications. This breadth is vital in ensuring the transferable knowledge and skills that will enable a technician to respond to innovation and change are also valued.

13 Furthermore, clear technician registration standards will enable Awarding Organisations to develop vocational qualifications that have genuine value in the labour market. This process should thus drive a rationalisation in the number of vocational STEM qualifications. The standards will also enable individuals to make more informed choices about the qualifications that will help them achieve their career goals.

14 So, while the creation of a professional registration framework might be dismissed by the uninitiated simply as a process to categorise the STEM workforce, in reality it is likely to be the key to a strengthened and streamlined vocational education system and a larger and better equipped technical workforce. It also, incidentally, has the advantage of requiring very little or no government funding to succeed. It does however require government support in policy terms and BIS should promote technician registration at every appropriate opportunity.

QUALIFICATIONS AND EMPLOYMENT

15 Traditionally one would expect vocational education to be about equipping individuals with the knowledge and skills to carry out a particular job. However, with the apparent bifurcation of the UK labour market into low skilled employment requiring little or no education and high skilled employment apparently requiring degrees, this role has become less clear and the links between vocational qualifications and employment have weakened.

16 From a STEM perspective there appears to be little value in Level 2 qualifications other than as preparation for further study or progression to an Advanced Apprenticeship. The issue then becomes how best to provide a range of qualifications at Level 2 that ensure a suitable option for everyone with the ability and aptitude to work in STEM at Level 3 and above. The government's focus should be on ensuring far more people reach Level 3 in STEM subjects and sectors than is currently the case. For most young people this will be achieved in school and/or college and so the education system must be suitably dovetailed with the country's skills demands.

17 Many of the recent failures of policy in vocational education have arisen because the links between so-called vocational qualifications and employment were too weak. As a consequence of this failure to deliver what should be their unique selling point, vocational qualifications have been forced to compete in the marketplace with A-Levels as either broad general Level 3 education pathways or as university gatekeeper qualifications.

18 Professional technician registration sets clear expectations based on employment and the need for transferable skills that should enable the development of a strong technical stream that leads to worthwhile and rewarding careers. Registration will be aligned to apprenticeship frameworks so that those completing Advanced Apprenticeships should be in a position to apply for Registered Technician status. Similarly, as more Higher Apprenticeships are developed it will be important to align these with the criteria for the two higher tiers of registration.

INFRASTRUCTURE AND STAFFING

19 The current funding regime is not sufficiently flexible to allow for the differences between the needs of different subjects and sectors. FE colleges must be able to access funds that allow them to ensure their technical facilities are fit for purpose and that their lecturers are kept up to date with current industrial practice.

20 We are about to embark on a modest piece of work with the 157 Group to understand some of the barriers to the provision of STEM courses in FE colleges. In particular, we are hoping to understand whether current and proposed funding arrangements are sufficient to ensure colleges have high-quality workshops and laboratories that reflect modern working environments. We would be happy to engage with BIS at an early stage in this work.

21 In addition to modern workshops and laboratories, a technical stream requires a high-quality teaching workforce. However, anecdotally, we believe the FE system in England is some way away from having sufficient numbers of suitably qualified lecturers/instructors in STEM subjects.

22 The BIS-funded FE STEM Data project[2] attempted to quantify the size and backgrounds of the STEM teaching workforce in FE but the data was insufficient to allow any meaningful conclusions to be reached in these respects.

23 This is a matter of some concern. The significance of subject specialism has long been recognised in the schools sector, and steps have been to taken to ensure the supply of appropriately qualified, subject specialists. Raising the quality of teaching and learning in the FE sector will only be achieved with an

[2] Research Project: FE and Skills STEM data (BIS/RAE 2010)

appropriately qualified workforce and we urge BIS to put in place mechanisms which deliver a clear picture of the qualifications, experience and specialisms of the teaching workforce in FE.

24 Furthermore, given the imminent changes which will enable appropriately qualified FE staff to work in schools, there is a need to ensure that any data collected for the FE sector can be matched to the school sector to ensure we have an accurate picture of the teaching workforce in its entirety.

CAREERS AND LABOUR MARKET INFORMATION

25 The UK system for skills relies upon a complex interaction between demand from employers for particular skills and demand from learners for individual qualifications. For this system to work both employers and potential employees require a shared understanding of the skills system and the value of individual qualifications within it.

26 Currently there is no way for prospective learners to access data about the employment prospects that follow from different qualifications. This is a significant omission that means effectively individuals have little or no basis on which to choose one vocational qualification over another. A database of qualifications recognised for technician registration would be a step forward in this direction.

27 Ideally what is required is a single, straightforward on-line source of information that allows a prospective learner (or parent, employer or policy-maker) to access and compare:

- the popularity of every vocational qualification, in terms of numbers studying them and regional distribution;
- the historical success (pass) rate for each qualification;
- required prior learning and typical routes into each qualification;
- typical progression routes out of each qualification (eg employment in certain sectors; or progression to further study; etc);
- employability rates for each qualification (where appropriate);
- average earnings 12 months after achieving a qualification (where appropriate);
- case studies of previous participants on a course;
- likely demand for specific skills in the workforce (tied to the National Skills Audit).

28 Noting that many people will move between vocational and academic pathways, the database described above should ideally also include relevant academic qualifications (eg AS/A-level mathematics or traditional undergraduate courses in engineering, etc). Similarly it should have a reach beyond the STEM subjects. However, to make the construction of such an initiative more feasible, we suggest the initial focus should be on Level 3 and Level 4 qualifications, while embedding sufficient flexibility such that it can be expanded over time.

29 In addition to information on qualifications there is a need to develop much more detailed descriptions of the world of work, akin to the O*NET system used in the United States (http://online.onetcenter.org/) but with enhanced functionality. Indeed much of the work that needs to be done here has already been undertaken in the creation of O*NET. It may be therefore that the remaining challenges would largely be in adapting O*NET and connecting it to UK Labour Market Information (LMI).

30 Gatsby would be willing to partner with government to develop a user-friendly online interface that made LMI available in a straightforward way to learners, parents, employers, policy-makers and others.

COMMISSION ON VOCATIONAL TEACHING AND LEARNING

31 We are unconvinced that there would be value in establishing an independent "*commission on vocational teaching and learning*", not least since with such a title its terms of reference would inevitably be far too broad to produce genuinely useful recommendations. For example, for such a commission to be true to its title, it would need to examine both a vast breadth and depth of provision, from dry stone walling to accountancy, and from entry level to foundation degree.

32 We believe that, rather than attempting to cover the vast breadth and depth of vocational teaching and learning in a single commission, it would be better to establish a small number of discrete working groups, with each focusing on a specific and acknowledged area of concern.

33 For example, we note in section 7(v) of the consultation document concern is expressed about the state of science education in FE. A working group could usefully be tasked to examine this topic, as long as it focused on a key objective, such as 'to advise on appropriate science provision for learners not destined for university at age 18.'

34 Such working groups should also be tasked with evaluating the impact of previous initiatives so that we ensure lessons from the past properly inform future development. In the case of a working group looking at science this should include an evaluation of the LSIS post-16 STEM programme and the then DFES's 'Success For All' professional development programme. Given such a remit, we would expect to see the work of a science group steered by an advisory group made up of stakeholders from Sector Skills Councils, Professional Bodies and others in the STEM community.

35 We believe another productive area for inquiry would be to unpick the barriers that seemingly exist to outside agencies engaging with and offering support to FE colleges. To take one example, it must be a cause for concern that even while a huge proportion of STEM A-levels are delivered in the FE sector, staff in colleges have not benefitted from anything like the level of support from the Professional Bodies, learned societies and charities as their colleagues in the school sector. Unlocking such support for the FE sector should be a priority. However, we would argue that such work would be better led by those not entirely embedded within FE.

CONCLUSION

36 In the introduction to this submission we outlined the key elements that need to be put in place to ensure we have a world class system of technical education. We believe that, following this consultation, BIS has an opportunity to make significant progress towards securing these elements in place by:

- supporting and promoting professional registration for technicians and hence driving qualification development such that it meets the needs both of individuals and employers;
- improving significantly the quality of data on the experience and qualifications of FE lecturers in order to inform future recruitment and training strategies;
- ensuring that learners and employers have access to the data that they require to make informed choices about education and training;
- understanding and seeking to overcome the barriers to third-sector organisations (including Professional Bodies and charities) engaging and supporting FE colleges in the same way as they regularly support schools.