

15 January 2016

Royal Society response to the Higher Education Green Paper Fulfilling Our Potential: Teaching Excellence, Social Mobility and Student Choice

Summary

1. The Royal Society welcomes the Government's ambition, outlined in the Green Paper, to improve the quality of teaching in UK higher education, strengthen the focus on employability, widen participation in higher education and open the sector to new high-quality entrants. These aims are laudable and worthwhile.
 - 1.1. Achieving these aims will be vital for filling the science, technology, engineering and mathematics (STEM) skills supply gaps in the UK. Recruiting people with STEM skills is a challenge across the UK: shortages have been high and rising for some time, and businesses expect shortfalls in experienced and graduate recruits to continue¹.
 - 1.2. Efforts to meet this challenge must recognise that teaching and research are both important, and that world-leading research should go hand in hand with excellent teaching. UK universities are central to both teaching and research – they perform nearly three-quarters of publicly-funded R&D², and enrol nearly half of all 17-30 year olds each year³. Maintaining and strengthening the link between teaching and research is vital to keep UK science and research strong.
2. However, achieving these aims will be challenging. The design and implementation of the proposed Teaching Excellence Framework (TEF) will be particularly risky. The key challenges are:
 - 2.1. The TEF must be discipline-specific as soon as possible. Students choose institutions based on the course they want to study⁴; discipline-specific information is needed to inform that choice. Departments also need discipline-level information to improve their teaching.
 - 2.2. It is important that teaching and research are held in equally high regard, and an ongoing focus on teaching quality should help improve the balance between the two. However, the TEF will have some costs. The Government must demonstrate that an effective TEF will, if done properly, have benefits that outweigh those costs.
 - 2.3. The proposed initial metrics would not be robust or valid measures of teaching quality. The Society welcomes the Government's plans to develop new metrics. The Government should consider delaying the award of TEF levels until robust and credible measures are in place.
 - 2.4. It is not clear that fee increases should be provided solely on the basis of teaching quality. This would introduce a range of risks, including that: differential fees might negatively affect disadvantaged or under-represented groups' choices; course provision might shift towards low-cost subjects; and initial weak performance might be locked in by persistently lower fees. All students should be able to expect excellent teaching, regardless of fee levels.

¹ CBI/Pearson 2015 [Education and Skills Survey 2015](#)

² Universities UK 2014 [The Funding Environment For Universities 2014 - Research And Postgraduate Research Training](#)

³ BIS 2015 [Participation Rates In Higher Education: Academic Years 2006/2007 – 2013/2014](#)

⁴ Institute for Employment Studies 1999 [Making the Right Choice - How Students Choose Universities and Colleges](#)

- 2.5. The sector has been working for a number of years to improve teaching quality and to widen participation. Any new arrangements should build on the systems that have already been developed and avoid eroding the gains that have been made.
 - 2.5.1. The sector's past work could also provide alternative measures of teaching quality, which the Government should consider. Possibilities include building on existing peer review processes or assessing institutions' strategies for improving teaching.
3. Rationalisation of the entry arrangements for new providers is needed, but any changes should also preserve the strengths of the existing system. Filling the future demand for STEM skills will require new places in STEM courses, either through the creation of new providers or the expansion of existing courses.
 - 3.1. However, private providers have so far been less likely to offer higher-cost courses, including STEM subjects. If new providers follow a similar path, their contribution to addressing the UK's skills gaps will be limited. A shift in lower-cost course enrolments toward new providers would also affect the finances of existing institutions, putting at risk their own provision of strategically important, but higher-cost, courses.
 - 3.2. The reputation of the UK higher education system is a valuable asset, as is the trust universities have earned from students and the public. The entry regime must ensure any new providers do not damage this reputation or this trust.
4. The proposed new regulatory architecture for higher education and research will need to ensure there is clear strategic coordination of teaching and research.
 - 4.1. Separating the research and teaching functions of HEFCE risks weakening the connection between teaching and research, not strengthening it. These functions are deeply interconnected and require coordinated oversight at a national strategic level.
5. The Society welcomes the changes to research architecture proposed in the Nurse Review. Many details need to be worked out over the coming months, so the Society sees this Green Paper as the beginning of a conversation between the Government and the research community.
 - 5.1. It is likely to be a number of years before Research UK is fully operational. Delay and uncertainty pose a serious risk to the UK research system, as do unintended consequences of changes that have not been fully thought through. To reduce these risks, the Government must be transparent and consultative with the research community throughout policy development and implementation. The Society can play an important role in these discussions by offering convening power and independent expert advice.
 - 5.2. The Society welcomes plans to maintain the dual support system and the autonomy of Innovate UK. Greater strategic coordination of these funding streams is also a welcome goal for reforms to the research system architecture. However, robust mechanisms – potentially through primary legislation – are needed to ensure Quality-Related, Research Council and Innovate UK funding streams are managed and administered independently, both now and in the future. Crucially, the autonomy of the leadership of these separate funding streams must be maintained.
 - 5.3. Changes to the architecture must be matched by ongoing and ambitious investment if they are to strengthen the UK research base. The Society has called on the Government to increase its total investment in R&D to 0.67% of GDP by 2020.

Introduction

6. The Royal Society is the independent scientific academy of the UK. It is a self-governing Fellowship of many of the world's most distinguished scientists working in academia, charities, industry and public service. It draws on the expertise of the Fellowship to provide independent and authoritative advice. As the UK's national academy of science, the Society is concerned with the health of the UK's research, innovation and education system as a whole. This submission has been developed through consultation with the fellowship.
7. The Society welcomes the opportunity to comment on the Government's Green Paper on higher education. The Green Paper provides an early opportunity for all stakeholders to contribute to and help shape the Government's proposals.
 - 7.1. Many of the proposed changes would represent a substantial and complex reform of the higher education system. The Society encourages the Government to continue to take a consultative approach, including engaging in public debate and discussion with stakeholders, testing the relevant evidence, and taking the time required to develop and implement sound policy.
 - 7.2. This will be particularly important for the development of the proposed Teaching Excellence Framework, and for the various changes proposed for the research system architecture.
8. Achieving the Green Paper's aims will mean recognising the positive connections between the UK's world-leading research and its excellent teaching⁵, and acknowledging that these go hand in hand.
 - 8.1. Teaching and research each benefit from being linked. In all disciplines, the frontiers of our knowledge are constantly evolving. Teaching must be informed by research in order to remain current and relevant. Teachers who are immersed in research have greater potential to engage and inspire their students. Researchers can benefit from teaching experience by being exposed to new ideas, reinforcing their understanding of research methods⁶ and building their communication skills.
 - 8.2. Finally, good scientists should play a role in supporting and encouraging the next generation of scientists, through education, management, mentoring and engaging the public in science. This will help ensure the UK has a strong and sustainable pipeline of talent for its future scientific endeavour.

⁵ Zaman 2004 [Review of the Academic Evidence on the Relationship Between Teaching and Research in Higher Education](#)

⁶ Feldon, Peugh et al 2011 [Graduate Students' Teaching Experiences Improve Their Methodological Research Skills](#)

Part A: Teaching excellence, quality and social mobility

Aims of the Teaching Excellence Framework

9. The aims proposed for the Teaching Excellence Framework (TEF) are, in principle, welcome. All organisations and individuals in the higher education system should strive to provide excellent quality teaching, ensure students are well-informed about institutional quality and strike the right balance between teaching and research.
10. The sector has already made substantial progress against the proposed aims of the TEF. There are large amounts of information already available to students⁷, many institutions are increasing the emphasis they place on teaching and the student learning experience⁸, and widening participation has been a strong focus for institutions and regulators for a number of years⁹. Achieving the aims of the TEF will require the Government and institutions to build on existing efforts.

Measuring teaching excellence

11. Improving teaching quality is something all institutions and individuals can (and should) aspire to, and be rewarded for. However, reliably measuring teaching quality is difficult¹⁰, and implementing the proposed TEF will be challenging.
12. The TEF should use measures that are: valid (actually measure teaching quality); accurate (have minimal errors in measuring it); reliable (giving results that are consistent across time and institutions); and that impose an appropriate level of burden on teaching staff and institutions. Use of metrics to achieve these goals will need to be carefully implemented.
13. Valid, accurate and reliable metrics do not currently exist, so new measures will be needed. This means there will inevitably be some additional burden on institutions.
14. However, if sound measures can be identified and the information from the TEF provided to students and departments in an effective way, so that there are strong incentives to improve teaching, then the benefits are potentially considerable.
15. While any new system should aim to minimise the burden on teaching and research staff, the first priority should be ensuring that the system delivers valid and valuable measures of teaching quality. Government should monitor the costs and benefits of the new system, but should also be clear that, although there will be a cost, this exercise is important and worthwhile. If designed and implemented properly, the benefits will outweigh the costs.

Quality Assessment reviews:

16. The Society welcomes the use of existing Quality Assessment (QA) reviews to inform the basic TEF award. These reviews are a trusted and established means of ensuring an institution meets UK expectations for education.

⁷ CFE Research 2015 [UK review of information about higher education: Report on the review of the Key Information Set and Unistats](#)

⁸ BIS 2014 [Improving the student learning experience – a national assessment](#)

⁹ BIS 2014 [National strategy for access and student success in higher education](#)

¹⁰ Sutton Trust 2013 [Testing Teachers: What works best for teacher evaluation and appraisal](#)

17. As the new arrangements evolve and mature over time, it will be important that the TEF and QA systems remain coherent and do not duplicate one another. Once the TEF is mature, the Government should consider and consult on how best to integrate these systems.

Institutional evidence:

18. The TEF assessment process would also allow institutions to submit supporting evidence. There is a risk that subjective institutional evidence could be disproportionately burdensome for institutions and staff to collect¹¹.
19. The institutional evidence component will need to be carefully designed so that meaningful comparisons can be made across institutions. Clear guidance will be needed on the scope of this evidence and the level of detail required.
20. Although the framework will need to grow and evolve over time, it should do so in a gradual way, maintaining stability in most aspects. This is another important means of reducing burden.

Metrics:

21. The Green Paper proposes using a set of common metrics (which largely already exist) for the TEF's introductory period. However, the Green Paper also acknowledges that the existing metrics are largely only proxies for teaching excellence (they do not have high validity) and that there are issues with their robustness (they do not have high accuracy). This will make the initial metrics challenging to interpret and apply, for both students and institutions.
22. All metrics will also be affected by the substantial differences between disciplines. Disciplines attract different students, benefit from different teaching approaches and rely on different types and levels of facilities. This will mean results are likely to vary across disciplines, including STEM subjects.
 - 22.1. Some disciplines have disproportionately high uptake of postgraduate study, which may skew the results of some employment outcome metrics, since the most talented students are more likely to pursue further study before entering the labour market¹².
23. Imperfect metrics are more likely to result in unintended consequences¹³.
 - 23.1. A poorly designed student satisfaction metric could result in grade inflation (if students report higher satisfaction from higher grades), or for making exams, coursework or laboratory tasks easier (if students report more satisfaction from easier or less intensive courses).
 - 23.2. Teaching styles that have more immediate and measurable impact may become favoured over teaching that has less easily measured outcomes. Teaching aimed at developing independent thinking and interdisciplinary approaches are two areas that could be at risk from imperfect measures. There are important lessons to be learned from school

¹¹ HEFCE 2015 [REF Accountability Review: Cost, benefits and burden](#)

¹² HEFCE 2013 [Trends in transition from first degree to postgraduate study: Qualifiers between 2002-03 and 2010-11](#)

¹³ HEFCE 2015 [The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management](#)

accountability regimes, which are much more specific, and where a range of unintended consequences can be observed¹⁴.

24. Existing metrics would later be supplemented by new metrics, designed to measure robustly the level of engagement with study and learning gain. The employment outcomes metric is also expected to move toward using HMRC administrative data rather than survey methods. Developing these will be challenging. Learning gain in particular is difficult to measure¹⁵ and developing and implementing valid metrics, that cannot be manipulated, is likely to take some time.
25. The Society welcomes the proposal to develop new metrics with greater validity and robustness – these will be needed as soon as possible if the TEF is to be credible and effective.
26. The unreliability of the proposed initial metrics, the potential for unintended consequences and the difficulty of developing better metrics mean that the Government should consider alternative measures of teaching quality rather than existing metrics. The Government should also consider delaying the granting of TEF awards until any new reliable metrics have been fully developed.

Alternative or additional measures of teaching quality

27. There are alternatives to using the proposed measures. Institutions and departments have been working for a number of years on these issues, and their experience makes it clear that new ways to measure teaching quality are not easy to envisage or develop. These efforts have produced a mature system of external assessment, a variety of peer review processes, and rigorous course accreditation arrangements in many disciplines.
28. Despite years of development, none of these systems is perfect – an illustration of the difficulty of assessing teaching quality. Any new system to assess teaching quality should consider building on the systems that institutions have already developed to do so. These options would need to be carefully assessed, but might provide greater validity without placing excessive burden on staff.
29. One specific option is to build on existing systems for peer assessment based on professional judgement; another is to assess the processes and strategies that institutions have put in place to improve teaching, rather than the teaching itself.

Peer review and professional judgement:

30. One way that the TEF could help improve the quality of teaching is by highlighting exemplary practice. The sector has existing mechanisms to do this, which could be built upon – peer review of teaching is already used at many institutions to provide feedback to teaching staff, and external examiners work to ensure standards and results are comparable across institutions.
31. Since external examining and peer review systems are already in place in many institutions, building on and strengthening these existing systems should be considered. One advantage of peer review approaches is that they are, by their nature, bespoke to particular departments and disciplines.
32. However, a system based entirely on peer review would likely be burdensome, and care would be needed in designing a system that avoids increasing workload significantly beyond that for current arrangements. Other measures would be needed to complement inputs from peer review

¹⁴ Chakrabati and Schwartz 2013 [Unintended Consequences of School Accountability Policies: Evidence from Florida and Implications for New York](#)

¹⁵ RAND: 2015 [Learning gain in higher education](#)

processes. Fairness should be a priority, and in particular the potential for unconscious bias would need to be taken into account.

Assessment of processes and strategies:

33. To build a culture where teaching quality is valued, a spotlight should be placed on examples of excellent teaching. One way to highlight and measure institutions' efforts to improve teaching is to assess the processes and strategies they have put in place to improve teaching.
34. Some of this information would be included in the institutional evidence already proposed; formalising their inclusion could provide a valuable complement to other forms of institutional evidence.

Discipline-specific assessment

35. Whatever measures are used to assess teaching, making assessments available at the discipline level must be a priority. This would make the TEF more useful, by helping students understand the quality of teaching in a particular field of study and helping departments improve their teaching.
36. Disciplines will vary in how well they perform on the various proposed TEF measures. Presenting students with results aggregated across multiple disciplines is unlikely to be helpful, since students are generally interested in a particular field of study¹⁶, and information about the average teaching quality across an entire institution cannot inform them about individual fields.
37. Discipline-specific measures would also help mitigate some of the risks associated with the TEF.
 - 37.1. Improving teaching will be more costly for some disciplines than for others. A TEF based on institution-level awards could drive institutions to concentrate attention and funding on disciplines that are cheaper to improve. STEM subjects, with their relatively expensive laboratory, fieldwork and practical components¹⁷, would be particularly at risk. A discipline-specific measure would help discourage this by revealing the true underlying picture of performance across the institution.
 - 37.2. Careful aggregation of discipline-specific information could make institution-level awards less distortionary, including by removing any disincentive to invest in improving higher-cost subjects.
38. Finally, much of the effort to improve teaching must occur at the departmental level, since this is the level where teaching staff are managed and where teaching itself occurs. Ensuring that TEF measures distinguish between disciplines would help departments deliver the bespoke, discipline-specific interventions that will be needed to improve teaching across a diverse range of subjects.

Rewards from the TEF

39. TEF ratings are proposed to have two important consequences: institutions with high TEF scores will be able to increase fees in line with inflation; and students will have better information about

¹⁶ Institute for Employment Studies 1999 [Making the Right Choice - How Students Choose Universities and Colleges](#)

¹⁷ HEFCE 2012 [High cost subjects analysis using TRAC\(T\) data](#)

teaching quality. Both consequences will, in theory, create an incentive to improve teaching quality. The strength of these incentives will depend on the size of the rewards available.

40. Providing better information to students is positive in its own right, particularly as students now fund more of the cost of their higher education. This could help students make better choices, access better education and achieve better outcomes. It could also help providers attract talented students from the UK and abroad, increasing their market share¹⁸.
 - 40.1. However, for the information from the TEF to substantially improve student choices, it will need to: provide discipline-specific information, allowing students to compare courses across providers; deliver information that is not already available; and be easily accessible to students.
 - 40.2. Even if the TEF provides new, discipline-specific and accessible information, it may not influence students' decisions. Reputation, employer perceptions, location and other non-teaching factors will still play an important role in student choices¹⁹. If TEF results do not outweigh these other factors, this may blunt the incentive to improve teaching.
 - 40.3. Lessons from the implementation of Key Information Sets should guide the presentation of TEF results and data.²⁰
41. The Green Paper also proposes that institutions with good TEF ratings be allowed to increase fees in line with inflation. Higher education institutions will, in time, need increased income to cover the growing costs of providing education. A mechanism will be needed that allows institutions to make the case for increased funding, on the basis of genuine and warranted increases in costs. However, it is not clear that fee increases should be linked to teaching quality alone.
 - 41.1. As a general principle, all students should be able to expect excellent teaching, regardless of fee levels. Students face a complex, multi-faceted choice when deciding whether and where to attend higher education, and presenting this choice as a trade-off between quality teaching and fee levels is unlikely to help students make more informed decisions.
 - 41.2. It is unlikely that all institutions will receive the highest TEF rating, and as a result TEF levels and fees will become increasingly differentiated over time. Fee cap differentiation could lock in past poor teaching, by leaving institutions with the weakest teaching without the resources to improve. If some institutions do not do well in the TEF, they will receive less funding per student than other institutions (with per-student funding likely falling in real terms), and may attract fewer students. The per-student gap in funding will also be compounded over time with inflation. An institution with falling real terms funding will likely find it difficult to improve teaching without disruption to its teaching and learning activities.
 - 41.3. A move toward differential fee caps could have difficult-to-predict effects on different groups of students. The last increase in the tuition fee cap, implemented by the majority of UK institutions, was followed by large declines in participation by part-time students. A cap that varies between institutions might have a more subtle effect – for instance, if the fee difference becomes large enough, some disadvantaged groups may begin to opt for lower-cost (and lower-quality) institutions.

¹⁸ British Council 2014 [Integration of international students: A UK perspective](#)

¹⁹ HEA 2012 [Behavioural approaches to understanding student choice](#)

²⁰ CFE Research 2015 [UK review of information about higher education: Report on the review of the Key Information Set and Unistats](#)

- 41.4. The financial rewards from the TEF will be limited by the level of inflation, while the costs of improving teaching and submitting results could be high. For some institutions, the costs of the TEF may be greater than the benefit from inflationary fee increases. Some institutions might opt not to participate, which would severely limit the value of the exercise.
- 41.5. Finally, allowing fees to vary between institutions could distort institutions' decisions about course provision, affecting the range of courses available across the country. STEM courses have higher costs²¹ and are particularly at risk.
42. For the TEF to be effective in driving better teaching, rewards for institutions will need to translate into appropriate incentives for departments and teachers. Ultimately, excellent teaching can only be delivered by excellent teachers, with the support of their department and institution.
- 42.1. Student feedback and teaching evaluations are already being used in hiring and promotion decisions at many institutions²². All institutions will need to carefully assess what more they can do to improve teaching, and whether their current efforts are effective.
- 42.2. Institutions will need to consider a range of possible new measures, including amending hiring, promotion and pay policies, promoting sharing of best practice, observation, peer feedback, and formal training. A TEF based on valid metrics could give institutions an incentive to find effective ways to improve teaching, and to avoid ineffective ones.
- 42.3. However, incentives for staff and departments will need to be carefully designed, and their effects monitored for any unintended consequences.
- 42.3.1. Experience with the inspection and accountability regime for schools suggests that staff morale and effectiveness will be better served by positive rewards than by punitive measures²³. Staff experience of the TEF should be monitored to ensure it is not being implemented in ways that result in dissatisfaction or low morale.
- 42.3.2. Any change that moves teaching and research toward being unconnected career pathways would be detrimental, since it would reduce the opportunities for UK teaching and research to build on one another.
- 42.3.3. Similarly, any shift toward a casualised teaching workforce is unlikely to promote professionalisation of university teaching, since a workforce without job security is less likely to invest in improving teaching practice. Of course, it will remain important that graduate students and post-doctoral researchers have opportunities to gain teaching experience, and this will often be through short-term or casual contracts.
- 42.3.4. The use of teaching-only and short-term contracts should be monitored to ensure the TEF is not adversely affecting higher education employment practices.
43. To minimise the risk of unintended consequences, fee increases may not be best linked to the TEF in the short term. Over the longer term, the Government should monitor the changing costs and revenues of higher education institutions, and consider how necessary increases might be delivered in future.

²¹ Institute of Physics and Royal Society of Chemistry 2015 [The Finances of Chemistry and Physics Departments in UK universities: Third Review](#)

²² HEA 2014 [Collecting and using student feedback](#)

²³ National Foundation for Education Research 1999 [The impact of OFSTED inspections](#)

Widening access and social mobility

44. The Society welcomes the Green Paper's intention to maintain and strengthen the focus on social mobility and widening participation in higher education.
45. Ensuring that anyone who has the talent and potential to benefit from higher education is able to do so is a worthy goal in itself. Removing the barriers to access faced by disadvantaged and under-represented groups will become increasingly important in meeting the demand for graduates, in order to deliver the set of skills and knowledge that the UK needs. Universities and government will need to work closely together to ensure there are appropriate arrangements to promote greater access, for disadvantaged and under-represented groups.
46. Students in the highest socioeconomic quintile are much more likely to progress to higher education than those in the lowest. They are also more likely to go to a highly selective institution.²⁴
47. As noted in the Green Paper, prior educational attainment is the key factor in determining progression to higher education. Coordinated work across government will therefore be needed at both school and university level in order to fully address the barriers to access.²⁵
48. However, the proposed structure of TEF levels with a corresponding differentiation of fees could potentially lead to students from lower socioeconomic backgrounds and other under-represented groups tending to apply to less expensive, potentially lower quality institutions.
49. The proposed merger of HEFCE and the Office for Fair Access (OFFA) into a new Office for Students should be given careful consideration. There is a risk that merging the access regulator into the broader higher education regulator could weaken the regulatory focus on widening access.
50. Similarly, existing access agreements have worked well,²⁶ and care should be taken to preserve and maintain their success as the TEF is implemented. Institutional focus on widening access must be maintained, and efforts to evaluate teaching must complement, not detract, from this work.
51. The Society welcomes the intention to disaggregate TEF measures by disadvantaged and under-represented groups. This will help monitor and improve efforts to widen access.
52. The Government should consider maintaining the current separation of widening access and assessing teaching quality – this is likely to make both tasks simpler, and would minimise the risk of undermining or losing focus on widening access and social mobility.
53. If fee increases are introduced based on teaching quality, these should be conditional on further efforts to widen participation, to mitigate the risks for disadvantaged and under-represented groups. This might include dedicating some of the funding increase to greater provision of bursaries.

²⁴ BIS 2015 [Socio-economic, ethnic and gender differences in HE participation](#)

²⁵ BIS 2015 [Socio-economic, ethnic and gender differences in HE participation](#)

²⁶ CFE Research and Edge Hill University 2013 [The uses and impact of access agreements and associated spend](#)

Part B: The higher education sector

New providers, degree awarding powers and speeding up entry

54. A simple system and a level playing field for entry of new higher education institutions, degree-awarding powers and university title could allow innovative new providers to form in the UK.
55. However, entry and recognition regimes play an important role in protecting students, as well as the quality and reputation of UK higher education. This role must not be compromised. Carefully managed entry arrangements will be important if the new regulatory regime is to succeed.
 - 55.1. The existing arrangements for new provider entry, degree-awarding powers and university title help assure students that a provider meets educational standards. The arrangements should be reviewed and rationalised where appropriate, but this indicator of quality should not be undermined.
 - 55.2. If the new arrangements allow low-quality providers to enter, UK and international students stand to waste time and money, and the reputation of the UK's higher education sector as a whole may suffer.
56. There are well-documented shortages of STEM skills²⁷, which must be addressed to increase the UK's productivity and economic growth. This will require the creation of new providers or the expansion of existing STEM courses, which rely on substantial investment in equipment and facilities, and the development of close links between teaching and research.
 - 56.1. New providers may not be able to deliver these vital underpinning elements of good STEM teaching. Private providers in the UK have so far focused on lower-cost subjects, with very few offering more expensive lab-based subjects²⁸. If this pattern continues for other new providers, their contribution to filling skills gaps will be smaller than might be hoped.
 - 56.2. There are many existing institutions with proven excellent STEM teaching, and their expansion may be an efficient and effective means of meeting the need for new student places. Any reforms to the entry arrangements should also consider whether there are unnecessary barriers to the expansion of existing providers.

Provider exit and student protection

57. Contingency arrangements to protect students in the event of provider failure are important. International experience, particularly from countries where failure has been more common, should be taken into account when designing improved exit arrangements.
58. However, the risks to students, and the sector more widely, can be only partly mitigated by provider exit arrangements. If a new provider enters and then fails, at least one cohort of students will have their study disrupted. The value of earlier cohorts' qualifications could also be called into question.
59. Financial compensation would be appropriate in this circumstance, but since most students will only complete one undergraduate degree in their lifetime, it may be difficult to fully compensate them for a reduction in the value of that degree.
60. Ideally, entry by low-quality institutions should be prevented, and risks of failure should be identified and mitigated early, to prevent failure from occurring.

²⁷ CBI/Pearson 2015 [Education and Skills Survey 2015](#)

²⁸ BIS 2013 [Research Paper no. 111: Privately funded providers of higher education in the UK](#)

Part C: Simplifying the higher education architecture

The regulatory system and Office for Students

61. The regulatory system should promote and protect the interests of students. However, it should also recognise the dual role of higher education institutions – educating students and undertaking research. Universities and other providers have multiple roles, and complex relationships with the state and with other sectors. The regulatory and governmental structures for higher education and research need to be carefully designed to deal with this complexity.
62. It is important that one body should maintain an overarching view of all of the sector's activities. The Nurse Review recognised that greater strategic oversight of the research sector is needed; the same applies to teaching, and to the sector as a whole. Without this, it will be difficult to plan strategically for the entire sector, including research, teaching and business/community links.
63. The proposals in the Green Paper include substantial changes to the regulatory landscape, including merging HEFCE and the Office For Fair Access into a new Office for Students. The Nurse Review proposes a new overarching body for the Research Councils, Research UK, which could include HEFCE's responsibilities for funding and assessment of research that takes place in HEIs. Each of these changes seeks to make the respective body stronger and more effective. However, separating oversight of education and research would make strategic planning for the sector difficult.
64. The Government should ensure that any new regulatory system includes coordinated strategic oversight of both teaching and research at a national level. This would allow for strategic planning for UK institutions. It would also help strengthen links between research, teaching and business, making UK higher education more effective. Finally, it would help protect institutional autonomy by serving as a trusted broker for the sector and the Government.
65. The Government should also seek to retain the expertise and experience built up in the people and structures of the current system. This will be necessary for successful implementation of any new regime and for ensuring continued strategic oversight.

Part D: Reducing complexity and bureaucracy in research funding

Research landscape, strategy and governance

66. The Society welcomes the changes proposed in the Nurse Review that will help strengthen UK research strategy and the interface between the scientific community, policymakers and politicians. However, many of the details of the proposed new structures have yet to be developed and will need careful consideration over the coming months.
67. The Society therefore sees the Nurse Review and this Green Paper as the beginnings of a longer conversation between the Government and the research community about the future of the UK research system. The Society can play an important role in these discussions by offering convening power and independent expert advice.
68. The Society welcomes the following aspects of the new proposals in particular:
 - The continued scientific and organisational autonomy of individual Research Councils.
 - Closer links between the assessment of the health of disciplines as measured by REF and supported through QR, and the provision of competitive research grant funding provided by Research Councils.
 - Closer links between Innovate UK and the Research Councils.
 - Greater strategic oversight of the development of important new areas of research, interdisciplinary research and national capability.
 - The formation of a high-level oversight body for science chaired by a senior minister. This will put science closer to the heart of government, which will be valuable given the importance of research and innovation to the economy and society
69. The Nurse Review's proposals for clearer decision making, and more comprehensive mapping and horizon scanning, should increase transparency and accountability within the UK research system. This should help reduce the potential tension between a strengthened interface and the "Haldane Principle", which should be robustly maintained. The interactions between scientists and policy makers should be a two-way exchange.
70. In developing a clearer picture of the UK research landscape, the Government should ensure its efforts are comprehensive and avoid generating a fragmented picture. Drawing upon expertise beyond Government and the Research Councils will be important to guard against this unintended consequence.
71. While excellence should be the primary guiding principle for decisions around research investment, there are opportunities for research funders, institutions, cities and businesses to work together to cluster facilities and expertise, and embed strategically important research centres across the UK. Aligning the planning and resourcing of science and regions could help turn regions into hubs of excellence with distinctive opportunities for investment from the UK or overseas, including partnering within Europe.
72. The Society welcomes the Nurse Review's suggestion that Research UK (RUK) should be led by a highly distinguished scientist, capable of delivering a managerially efficient organisation and interacting effectively with the Government.
73. Within the new structure, Research Council leadership positions should also be filled by the highest calibre scientists and these roles should be shaped to attract such individuals by offering appropriate remuneration and sufficient autonomy to deliver Councils' missions.
74. The status of the leaders of the individual Research Councils in the new architecture should be equal to that of the current positions. Naming of heads rather than Chief Executives in the Nurse Review suggests a downgrading, which would harm the status of the positions.

75. Autonomy and status of the leadership positions can in part be achieved through separate, stable and substantial budgets in their subject areas. Research Council leaders require long-term (of three to five years) budget security in order to effectively plan and deliver their research strategies.
76. The Research Councils are highly-respected global brands in their own right. To be a recipient of one of their grants or fellowships, or to be employed directly by them, is currently highly respected. Rebranding or down-grading of any of the Research Councils' status could negatively impact on this global recognition, which could harm the competitiveness of UK research. Research councils also need to maintain their ability to employ people in the research institutes for which they are responsible.
77. The composition of the RUK Board will be crucial and should include individuals with appropriate corporate governance skills and high-quality scientific leaders familiar with the academic, philanthropic and business research communities, as discussed in the Review.
78. If the research and teaching functions of HEFCE are to be split, then the Government should ensure that there is coordinated strategic oversight of both these interacting areas. This will require the independence and expertise of the research and innovation functions of HEFCE to be maintained during and following the transition.
79. Currently the successful Higher Education Innovation Fund (HEIF) receives funding from both the teaching and research functions of HEFCE so thought needs to be given to how this mechanism is transitioned intact and its benefits maintained.
80. Thought also needs to be given as to how the devolved structure of the HEFCs will be integrated into the cross-UK structure of RUK.
81. It is likely to be a number of years before Research UK is fully operational. Delay and uncertainty pose a serious risk to the UK research system, as do unintended consequences of changes not fully thought through. To reduce these risks, the Government must be transparent and consultative with the research community throughout policy development and implementation. A clear and detailed timeline for the changes should be set out and adhered to. A project manager could also be appointed to smooth the transition.

The dual support system

82. The Society welcomes the Green Paper's intention to maintain the dual support system. The system has served UK HEIs well by providing core funding based on track record to allow institutions to develop their own areas strategically and partner with charity and private funders. Furthermore, the REF component of the system provides a relatively transparent, self-regulated way of determining the level of core QR institutions receive.
83. Bringing QR and Research Council funding under one strategic umbrella would allow better study of the health of disciplines, and ensure the dual funding streams most effectively support research excellence. QR funding is intended to provide the freedom for institutions to pursue research according to their self-directed strategy, not to provide top-up funding to cover the costs of research in more expensive disciplines. Greater strategic oversight could therefore help tackle the current need of some universities to cross-subsidise more expensive disciplines with resources from, for example, disciplines that are less expensive or from the fees of overseas students.
84. However, robust mechanisms – potentially through primary legislation – are needed to ensure Quality-Related, Research Council and Innovate UK funding streams are managed and administered independently, both now and in the future. Crucially, the autonomy of the leadership of these separate funding streams must be maintained.

85. Despite its administrative burden²⁹, the Society believes that peer-review should remain at the heart of the REF, although judiciously selected metrics should supplement decision making.
86. The changes in the research system offer an opportunity to embed broader incentives for researchers that not only generate excellent research but also achieve other goals, such as fostering a research culture with ethics and good conduct at its heart.
87. The Society is planning to provide a more detailed position on the REF as evidence to the recently announced Stern Review of university research funding.

The value of open data in research management and assessment

88. Making the data behind published research results publicly available should be rewarded in the REF. Greater openness in research information management is a basis for doing science more creatively, efficiently and productively.
89. Universities and research institutes can play a major role in supporting an open data culture by recognising data communication by their researchers as an important criterion for career progression and reward as well as having openness as the default position. Funding and infrastructure for sustainable data curation also needs to be considered.
90. Assessment of university research through the REF should formally reward those who make the data behind their results open. Such reward should be on the same scale as for journal articles and other publications. Moreover, the metrics used should ensure that the default approach is that datasets which underpin submitted scientific articles are:
 - accessible, assessable, intelligible and usable;
 - give credit by using internationally recognised standards for data citation;
 - provide standards for the assessment of datasets, metadata and software that combine appropriate expert review with quantitative measures of citation and reuse; and
 - offer clear rules on the delineation of what counts as a dataset for the purposes of review, and when datasets of extended scale and scope should be given increased weight.
91. The Society welcomes calls for making Open Researcher and Contributor ID (ORCID) mandatory for all researchers in the next research evaluation exercise³⁰. In January 2015 the Society became the first UK publisher to require researchers submitting articles to its journals to provide ORCID IDs.

Research Council engagement with stakeholders

92. The Society welcomes the Nurse Review's call for greater engagement between the Research Councils and stakeholders such as researchers, the public, charities, businesses and other government bodies.
93. Proposals for RUK to take overall responsibility for ethical and conduct issues in science, and for surveying public opinions about science, are welcome. Public support for research is essential for the long-term health of the UK research environment. Public engagement in the development of

²⁹ However, it should be noted that the burden of the REF is not as great as that of the peer review undertaken for response-mode funding of the Research Councils.

³⁰ The Metric Tide recommended that the use of ORCID IDs be mandatory in the next REF http://www.hefce.ac.uk/pubs/rereports/Year/2015/metrictide/Title_104463.en.html

policy for science should take place early in the process and should offer a genuine opportunity to actively influence the trajectory and conduct of research.

Investment

94. The Society welcomes plans to support many of the priority areas identified in its submission to the Treasury consultation on the Spending Review³¹, such as interdisciplinarity, agility in funding and building capacity.
95. The proposed “common research fund” through which these goals might be achieved should aim to capture on a larger scale the virtues of previous Research Councils UK cross-Council themes while avoiding the tendency of these themes to get captured by individual research councils or the communities they represent. The scale should be similar to, or slightly larger than the RCUK cross-Council Programmes, and implementation should be undertaken at the level of RUK.
96. If it is to be agile, the common research fund should invest in genuinely open interdisciplinary research before it becomes obvious, as well as “grand challenges”. To provide funding for research in emergency situations, the common research fund will need to be able to respond quickly, in a coordinated manner, and the proposed changes in funding structures might help achieve this goal.
97. Changes to the architecture must be matched by ongoing and ambitious investment if they are to strengthen the UK research base. While the outcome of the recent Spending Review is welcome for science, UK investment in research has clear economic and social benefits so should be increased to align with other leading knowledge economies. The Society has called on the Government to increase its total investment in R&D to 0.67% of GDP by 2020.

For further information, please contact Becky Purvis, Head of Public Affairs (rebecca.purvis@royalsociety.org).

³¹ The Royal Society 2015 [Investing in the UK's intellectual capital](#)