



# **Reward and Recognition of Public Engagement**

## **Report for the Science for All Expert Group**

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# 1 Introduction

## 1.1 Objectives

The two main objectives of the literature review are to pull together findings and recommendations from previous studies to explore:

- the barriers to recognition of effective public engagement within academia, industry and health and public services; and
- the role of reward and recognition as a factor in influencing decisions to participate.

Hence the main focus is on researchers' perspectives.

## 1.2 This report

Section 2 of this report outlines the methodology used for this review and lists the sources used.

Section 3 looks at the drivers for public engagement over the last 25 years – these drivers come from within the scientific community and also from Government and research funders.

Section 4 describes the main findings and is split into a number of sub-sections each focusing on a different aspect of the findings, these sub-sections are:

- personal motivation;
- personal rewards;
- barriers to individuals;
- institutional motivation;
- institutional rewards; and the section concludes with a discussion of
- knowledge gaps.

Section 5 is intended to stimulate debate and discussion within the Recognition Working Group and in consultation with the RCUK project manager it was agreed that this section 5 should set out PSP's interpretation of the implications of this review.

## 2 Methodology

### 2.1 Sources

The project specification set out a number of potential sources for the literature review, these were:

- “*Factors affecting science communication by scientists and engineers*”<sup>1</sup>;
- the SEARCH<sup>2</sup> project;
- baseline reports from the evaluation of the Beacons for Public Engagement<sup>3</sup>; and
- “*Public Culture as Professional Science*”<sup>4</sup>.

The specification stated that while additional sources would be welcomed, extensive original research was expected. A limited amount of additional research was undertaken, primarily to augment the evidence base in the areas of historical, policy and international contexts and to include the views of researchers working in the private sector. The possible future policy context within which public engagement will operate was also considered. The additional sources considered were:

- “*The Public Understanding of Science*”, the Royal Society, (1985) also known as the Bodmer Report
- “*Report of the Committee to Review the Contribution of Scientists and Engineers to the Public Understanding of Science, Engineering and Technology*”, the Office of Science and Technology, (1995) also known as the Wolfendale Report
- “*Science and Society*”, House of Lords Select Committee on Science and Technology (February, 2000) also known as the Jenkin Report
- “*The Government Response to the House of Lords Select Committee on Science and Technology, Third Report, Science and Society*”, Department of Trade and Industry (October, 2000)
- “*The Role of Scientists in Public Debate*”<sup>5</sup>, a research study conducted by MORI for the Wellcome Trust and the Office of Science and Technology (2000)
- “*Measuring Third Stream Activities: Final Report to the Russell Group of Universities*”, SPRU, University of Sussex (April, 2002)
- “*Report from the Expert Group Benchmarking the Promotion of RTD<sup>6</sup> Culture and Public Understanding of Science*”, the European Commission (July, 2002)
- “*What’s There to Talk About: Public Engagement by Science-Based Companies in the UK*”, a research study conducted by The Virtuous Circle for the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) (2004)<sup>7</sup>

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<sup>1</sup> A nationally representative self-completion quantitative survey of scientists and engineers working in UK higher education institutions (HEIs) and qualitative telephone interviews with some respondents, plus face-to-face interviews with key stakeholders, conducted by PSP for the Royal Society, the research councils and the Wellcome Trust and published as four separate reports: The report of the Consultative Group convened by the Royal Society: “*Survey of factors affecting science communication by scientists and engineers*” (June 2006); PSP’s report “*Factors affecting science communication Report on the qualitative research*” (December 2005); PSP’s report “*Factors affecting science communication Data Report*” (May 2006); and a technical report (February 2006). The data tables are also available on the Royal Society website.

<sup>2</sup> Science and Engineering Researching Change, University of Bristol “*is a two part project focusing on science and engineering engagement activities undertaken by university staff and the impacts of these activities within universities, on their culture and perceptions of engagement work*” [SEARCH website].

<sup>3</sup> We were provided with data from baseline surveys undertaken at the institutions participating in the Beacons for Public Engagement (BPE). This data includes data from research, teaching and administrative staff and is not statistically representative of any groups or of all staff at the individual institutions, but it does provide interesting indications of recent staff attitudes to complement the more robust data available from the two representative surveys of researchers.

<sup>4</sup> The final report of the ScoPE project (September 2009) by Kevin Burchell, Sarah Franklin and Kerry Holden, BIOS, LSE, funded by the Wellcome Trust.

<sup>5</sup> The survey for this research was interviewer-administered.

<sup>6</sup> RTD stands for research and technological development.

- “*Measuring societal engagement – proposed indicators for resource allocation and academic merit rating*”, Vetenskap & Allmänhet VA<sup>8</sup> (June, 2007)
- “*A qualitative baseline report on the perceptions of public engagement in University of East Anglia academic staff*”, Lisa McDaid, The Research Centre, City College Norwich (December, 2008)
- “*Careers in Research Online Survey (CROS) 2009: Analysis of Aggregated UK Results*”, Vitae<sup>9</sup> (2009)
- “*Public Praises Science: Scientists Fault Public, Media*”, report of the American Association for the Advancement of Science (AAAS)/Pew Charitable Trust surveys of scientist members of the AAAS and the public in the USA (July, 2009)
- “*Communicating Knowledge: How and why UK researchers publish and disseminate their findings*”, Research Information Network (September, 2009)
- the STEMNET website<sup>10</sup>
- The Higher Education Funding Council for England (HEFCE) website for information regarding the Research Excellence Framework (REF)

## 2.2 Reviewing the literature

The central task was to scrutinise the various sources to identify what motivates researchers to undertake public engagement, with a particular focus on the rewards – whether financial, personal or career enhancing. We have also considered the barriers to public engagement.

The perspectives of individual researchers do not sit in isolation; there is a broader policy landscape, which involves Government departments, research funders and research employers. Consideration of this broader landscape is critical when assessing the implications of this review’s findings.

## 2.3 Terminology

Within the time span covered by the documents reviewed language and terminology has changed. However, the principal aims remain constant: a society that grants researchers a licence to operate; and the attraction of future researchers.

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<sup>7</sup> Only the overview report had been considered at the time of drafting, the full report is being sent to PSP.

<sup>8</sup> Report, presenting a discussion about possible indicators the Academic Career Inquiry (*Befattningsutredningen*) and the Resources Inquiry (*Resursutredningen*) in Sweden.

<sup>9</sup> Vitae is funded by the UK Research Councils and managed by CRAC: The Career Development Organisation dedicated to lifelong career development and active career-related learning.

<sup>10</sup> STEMNET co-ordinates the STEM Ambassadors programme to support scientists and engineers wishing to become involved in public engagement, particularly with schools/young people. There are 44 case studies of STEM Ambassadors on the STEMNET website, which provide an insight into Ambassadors’ views.

## 3 Historical Influences and the Political Context

### 3.1 Introduction

This section looks at the drivers for public engagement over the last 25 years – these drivers come not only from the scientific community but also from Government, bodies in the public and third sectors that fund scientific research and research-based companies in the private sector.

Much of the public understanding/engagement activity over the past quarter of a century that has involved the direct participation of researchers has relied on volunteers. Funding schemes have existed to encourage this input and these have largely taken two forms: grants provided by Government, research funders and learned societies; and supportive frameworks that have offered researchers training, advice and logistical support, such as the STEM Ambassadors.

As section 4.2.2 makes clear, the voluntary nature of researchers' contributions to public engagement can be a barrier for some researchers. We reviewed some of the earlier reports in the field in order to see whether they had established the expectation of voluntary efforts.

### 3.2 Bodmer Report

The starting point for the recent history of science and society could be taken as the publication of the Bodmer Report. The report was based on written and oral evidence supplied by a variety of individuals and organisations and a review of relevant literature. Those giving evidence might be described as representing the scientific establishment, with the input from individual researchers largely confined to more senior academics.

In the opening paragraph of a chapter titled "*The Scientific Community*" the authors state that:

*"... our most direct and urgent message is for the scientists -- learn to communicate with the public, be willing to do so, indeed consider it your duty to do so."*  
Bodmer Report (1985)

This quote is fundamental to much of what we have found in terms of personal motivation, which is the sense of duty that individuals feel with regard to 'giving something back' to a discipline or, less frequently, to an institution that has allowed a researcher to build a career. The Bodmer Report also describes scientists as being "*democratically accountable*" to the public whose taxes support research and states that:

*"It is clearly a part of each scientist's professional responsibility to promote the public understanding of science."*  
Bodmer Report (1985)

There is a clear implication in the Bodmer Report that communication, and more latterly engagement, should be part of a publicly funded researcher's job rather than a voluntary adjunct to other tasks, whatever their area of research.

### 3.3 Wolfendale Report

The "*Report of the Committee to Review the Contribution of Scientists and Engineers to the Public Understanding of Science, Engineering and Technology*" was published some ten years after the Bodmer Report and two years after 'public understanding' first appeared as a policy issue in a science white paper "*Realising our Potential*" published in 1993. The remit of the committee was to:

*"... review the steps currently being taken to equip and encourage professional scientists, engineers and research students to contribute to improved public understanding of science, engineering and technology, and to suggest how these might be improved **consistent with available funding**"<sup>11</sup>."*

Wolfendale Report (1995)

Like the Bodmer Report, the Wolfendale Report trawled widely for evidence, again the scientific establishment was the primary source of evidence, with science and engineering institutions invited to contribute, alongside all UK HEIs. In addition "*the top fifty research and development companies in the UK*" were consulted. It was however, to be a further four years until research was commissioned that directly investigated the views and attitudes of working researchers, in "*The Role of Scientists in Public Debate*", published by the Wellcome Trust in 2000 and co-funded by the Trust and the OST.

The Wolfendale Report re-iterated Bodmer's call for science communication to be incorporated within the responsibilities of professional researchers and made explicit proposals suggesting ways in which this might be achieved, this section of the report is re-produced below.

*"3.8 The following proposals are offered as a basis for further discussion within universities and Research Council institutes:*

*3.8.1 success in promoting the public understanding of science or engineering should be recognised in terms of appointment and promotion prospects, which should depend on a mix of research, publications, teaching, administration and public understanding skills. It would be for individual institutions to decide the relative weighting of each of these components but we suggest that all should be taken into account*

*3.8.2 since public understanding relates closely to research, we invite the Higher Education Funding Councils to consider, in discussion with higher education institutions, whether public understanding should not be an element in the Research Assessment Exercise... . Alternatively, given the strong training emphasis in our proposals, the Funding Councils might prefer to see public understanding as a component of the Teaching Quality Assessment. In any event, the Committee attaches great importance to the Funding Councils finding some way to recognise individual institutions' success in the field of public understanding."*

Wolfendale Report (1995)

With allowances for changing terminology over the years, there is little difference between these proposals and many subsequent conversations. The basic premise that engagement should be embedded within a researcher's activities has been established for some time, but this premise has not led to this being translated into, for example, job descriptions.

### **3.4 Jenkin Report**

In 1999 the House of Lords Science and Technology Committee undertook an inquiry stimulated by concern about the level of public trust in scientific advice to Government. The sub-committee was chaired by Lord Jenkin of Roding and its report was published in February 2000 under the title of "*Science and Society*". The report concluded that:

*"Public interest in science in the UK is high. Survey data reveal, however, negative responses to science associated with Government or industry, and to science whose purpose is not obviously beneficial. These negative responses are expressed as lack of trust."*

Jenkin Report (2000)

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<sup>11</sup> Emphasis added by PSP

The recommendation often cited that sums up the focus on institutional support is recommendation (l):

*“That direct dialogue with the public should move from being an option add-on to science-based policy-making and to the activities of research organisations and learned institutions and should be a normal and integral part of the process.”*  
Jenkin Report (2000)

However, recommendation (k) says:

*“That the Funding Councils should reward the work of those who have successfully brought the results of their research to a wider audience.”*  
Jenkin Report (2000)

This repeats the message of the Wolfendale Report of a role for the funding councils in supporting public engagement.

### **3.5 Government response to the Jenkin Report**

The Government response to the Jenkin Report supports greater direct engagement with the public and notably says:

*“It is important for this [sharing research with the public] to be supported at the highest levels in universities and research laboratories, and seen to be both a personal responsibility and also one that can be enhanced by a wider programme supported by the institution.”*  
Department of Trade and Industry (October, 2000)

This response lays responsibility on research employers, but does not suggest any addition to, or diversion of, funding. This repeats the “consistent with available funding” message in the remit of the Wolfendale committee.

### **3.6 Recent Ministerial comments**

Within the last two years, there have been indications that public engagement and the related provision of policy advice are regarded as sufficiently important to be recognised as an element of research quality.

#### **3.6.1 John Denham 2008**

In a speech to the Royal Society for the encouragement of Arts, Manufactures and Commerce (the RSA) in January 2008, the then Secretary of State at the Department of Innovation, Universities and Skills (DIUS), John Denham raised the issue of recognition for researchers who supported policy makers.

*“My concern is there may be disincentives in the system that emphasise published and peer-reviewed work over public policy advice. The work that some scientists and academic departments do to support policy makers can be undervalued.*

*“The Research Assessment Exercise (RAE) is currently being reviewed by HEFCE and as part of this I feel we need to have a discussion on whether there is more to ensure that this essential work is properly recognised.”*

Rt. Hon. John Denham, Science and Society: bridging the gap, RSA 16 January 2008.

Eighteen months later, this potential use of research assessment procedures to recognise the communication of research implications was extended to public engagement.

### 3.6.2 Lord Drayson 2009

In the summer of 2009, the Science Minister, Lord Drayson spoke of embedding public engagement within the new Research Excellence Framework (REF).

“[Lord Drayson] said the Government was ‘*changing the way*’ it judged academic performance because it took the agenda of public engagement ‘*very seriously*’. ‘*We believe that scientists have a duty - particularly when they are funded by taxpayers - to engage in the public arena, to engage in communication of the challenges and the potential ethical concerns about their science, and that will be included in the REF,*’ he said.

Speaking to Times Higher Education after the debate, he said there was no question that a public engagement component would be included in the system to replace the research assessment exercise as the principal means of distributing quality-related research (QR) funding, and that it was down to funding councils (e.g. HEFCE) to work out the detail.

However, Lord Drayson stressed that participation in public-engagement activities would ‘*remain voluntary*’.

Lord Drayson, World Conference of Science Journalists, 1 July 2009 – quoted in Times Higher Education 9 July 2009.

### 3.7 Conclusions

A series of reviews, inquiries and policy documents over the past 25 years have all highlighted the importance of public engagement. However, it is only within the last two years that there have been indications from Government that work to embed public engagement and the related area of policy support, might be included in the assessment of quality research.

## 4 Findings

### 4.1 Introduction

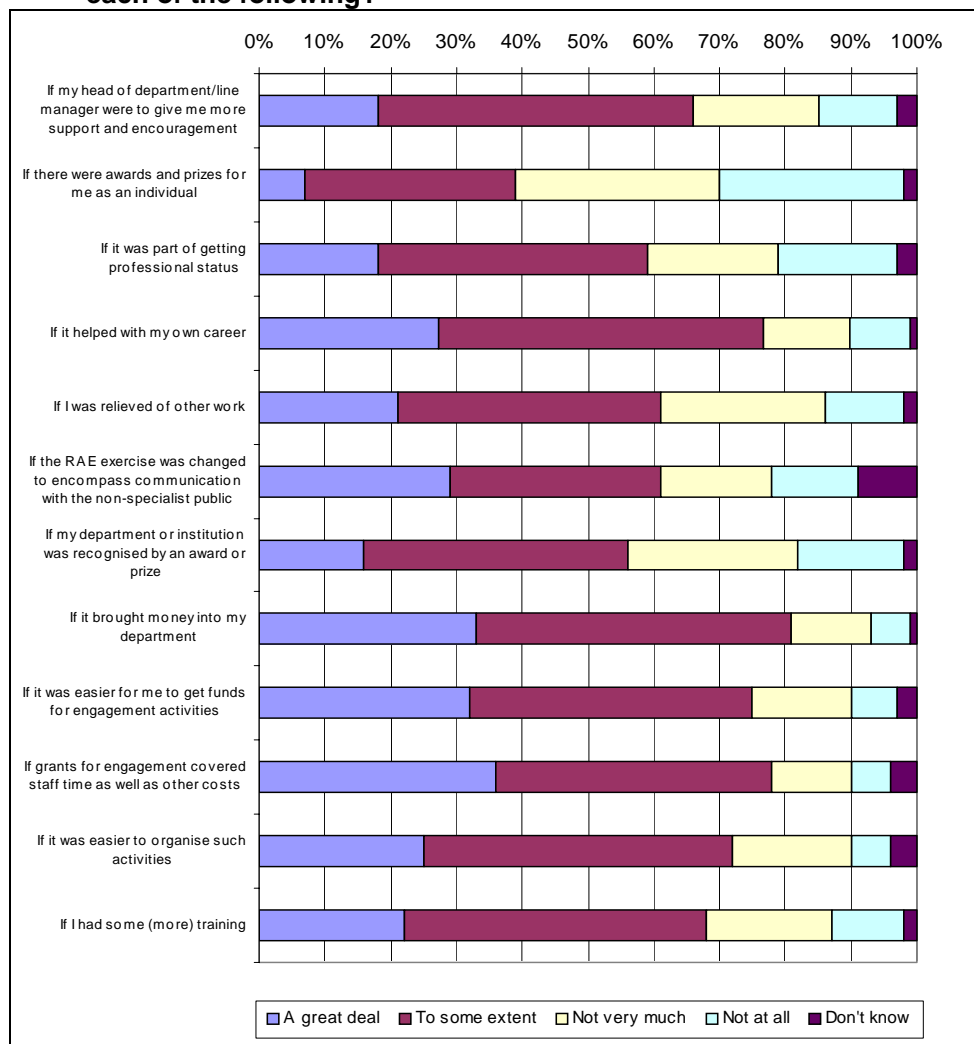
This section is divided into six sub-sections, each deals with a different aspect of the review's findings.

These aspects are:

- personal motivation;
- personal rewards;
- barriers to individuals;
- institutional motivation;
- institutional rewards; and the section concludes with a discussion of
- knowledge gaps.

Figure 4.1 shows the degree to which different rewards might motivate scientists and engineers to become more involved in public engagement. Features that emerge as important are appropriate funding, recognition and support in institutional and national systems and the development of an infrastructure that could train and support researchers undertaking public engagement.

**Figure 4.1 To what extent would you personally be encouraged to get more involved in activities to engage the non-specialist public in science and engineering by each of the following?**



Source: Factors affecting science communication

## 4.2 Personal motivation

Research into researchers' perspectives on public engagement suggests that there is a widespread sense of duty associated with public engagement. There is also an increasing feeling in the scientific community that research funders require evidence that this duty is being fulfilled.

### 4.2.1 Duty

One of the main findings of the Wellcome Trust/OST survey of scientists in 2000 was that:

*"The vast majority of scientists believe it is their duty to communicate their research and its social and ethical implications to policy makers, and to the non-specialist public."*  
The Role of Scientists in Public Debate (2000)

The responses to two attitude statements in the questionnaire particularly highlight this, with 91% of respondents agreeing that *"Scientists have a responsibility to communicate the social and ethical implications of their research to policy makers"* and 84% agreeing that *"Scientists have a duty to communicate their research and its implications to the non-specialist public"*.

In the 2005 survey for *"Factors affecting science communication by scientists and engineers"* 69% of respondents agreed with the more strongly worded statement that *"Scientists have a moral duty to engage with the non-specialist public about the social and ethical implications of their research"*.

Considering the BPE baseline surveys, 254 out of 404 respondents who answered the question felt that *"duty"* motivated them to get involved with public engagement either *"a great deal"* (66) or *"to some extent"* (188).

These numeric indications of duty are backed up in qualitative research, the qualitative report for *"Factors affecting science communication by scientists and engineers"* states that:

*"At the most basic level some researchers said that there was the need to 'convey the use of taxpayers' money'".*  
Factors affecting science communication Report on the qualitative research (December, 2005)

An aspect of accountability, and thus the duty of researchers, was described as sharing enthusiasm, in part this was demonstrating that:

*"Science is done by people who are besotted with what they do."*  
Factors affecting science communication Report on the qualitative research (December, 2005)

However, in the same report, some researchers were quoted as describing a need to be *"evangelical"*.

Even though many researchers regard public engagement as a duty, it is not one that all researchers are seen to be capable of fulfilling. The Wolfendale Report took quite a strong line with regard to public accountability but accepted that there might be exceptional situations.

*"The Committee, in making these proposals, recognises that not all scientists, engineers and research students are equally skilled at communicating to a wider public though they may be outstanding in their particular field. Extreme cases of inability to communicate are likely to be few. Nevertheless, grant-providers will wish to take that into account and to exercise judgement accordingly. In principle, however, all who receive grants from public funds should accept a responsibility to explain to the general public what the grant is enabling, or has enabled, them to do, and why it is important, and how it fits into the broader area of knowledge."*  
Wolfendale Report (1995)

## 4.2.2 A requirement

“Duty” implies an internal compulsion to act, in essence a personal desire to do the right thing. A different motivating factor for individuals is the perception that an external agency requires them to participate in public engagement activity. This requirement may be from funders or from their employers.

There is little quantitative evidence for this motivating factor. Drawing on the BPE baseline surveys, 298 out of 419 respondents who answered the question agreed that “*I consider public engagement (PE) to be an important part of my job*” either “*a great deal*” (107) or “*to some extent*” (191). This proportion contrasts with the relatively small number who reported that public engagement was officially included within their job and the way they are assessed. Tables 4.1 and 4.2 below show the responses for academics<sup>12</sup> and administrators and support staff respectively.

**Table 4.1 Academics**

Is public engagement::	Yes	No	Don't Know	Total
Included in your job description?	58	279	80	417
An appraisal target?	65	279	65	409
A criterion for promotion?	56	241	114	411

Source: BPE baseline survey

**Table 4.2 Administrators and support staff**

Is public engagement::	Yes	No	Don't Know	Total
Included in your job description?	69	83	9	161
An appraisal target?	28	111	19	158
A criterion for promotion?	10	118	33	161

Source: BPE baseline survey

Qualitative research, particularly the final report of the ScoPE project and “*Factors affecting science communication Report on the qualitative research*” found that individuals perceive public engagement to be a part of their professional role.

A scientist interviewed for “*Public Culture as Professional Science*”, agreed not only that “*public engagement is part of what it now means to be a scientist*”, but that it is “*absolutely*” “*an aspect of the profession*”. Other participants in the project reported similar perspectives, although the interviewees highlighted that they did not believe that it was part of the job for all researchers.

“*Public Culture as Professional Science*” also reports how some research funders have played a role in driving expectations.

*"If you look at any grant application form nowadays, in biomedical sciences, there is always a section for how you engaged the public".*

*"... on grant applications and that kind of thing there's a whole huge space for your public engagement ... so people are definitely encouraged".*

Public Culture as Professional Science (2009)

<sup>12</sup> Academics are those who described their main role as “*research*”, “*research and teaching*” or “*teaching only*”.

The role of research funders also emerged in *“Factors affecting science communication Report on the qualitative research”* where one scientist summed up a common sentiment saying that *“funding now comes with strings”*. These ‘strings’ put pressure on researchers and/or institutions to undertake public engagement to ensure that grant criteria are met.

*“Factors affecting science communication Report on the qualitative research”* also re-iterates the message from tables 4.1 and 4.2, that public engagement is not being recognised as a formal part of an academic job.

*“A certain amount is done on goodwill, but ultimately goodwill falls down when it is not recognised”.*

*“It’s not my job, it’s not what I’m paid for”.*

*“A lot of this stuff happens in our spare time.”*

Factors affecting science communication Report on the qualitative research (2005)

The *“Public Culture as Professional Science”* report highlights similar sentiments of public engagement being extra curricula.

*“It’s not in anyone’s job plan”.*

*“... you do feel a bit like you’re doing it as a favour”.*

Public Culture as Professional Science (2009)

There seems to be a fundamental disjuncture as many in academia believe that public engagement is part of their role and that others, including research funders, expect them to treat it as such, but public engagement is rarely formally recognised as part of an academic job.

Echoing the quote from the Wolfendale Report in the preceding section, subsequent qualitative research suggests that it is unlikely to be appropriate to make public engagement a requirement placed on all researchers.

*“It was also recognised that it would not be desirable for communication work to be compulsory for all researchers. Some would simply not have the appropriate skills and their abilities should be channelled in more useful directions.”*

Factors affecting science communication Report on the qualitative research (2005)

Indeed, *“Public Culture as Professional Science”* found that some scientists were very aware that they, or some colleagues, were unsuited to public engagement activities:

*“I’m not that comfortable with [public engagement], I prefer [my colleague] to do that sort of thing, he’s much better at it than I am.”*

*“Last night it would have been more sensible for [my colleague] to stand up but, although [he] is a brilliant scientist, he grew up [overseas] and he is a bit shy, and he is not terribly good in that sort of [public] environment. Therefore it works better if he gives me a few slides and I do the talking.”*

Public Culture as Professional Science (2009)

There are also STEM Ambassadors who recognise that some researchers are better equipped than others to undertake public engagement.

*“If you cannot drum up sufficient enthusiasm to inspire – let someone else do it.”*

*“I’d encourage anyone with a background in science or engineering to at least have a look at what STEMNET offer in the way of opportunities.”*

STEMNET web site

### **4.2.3 Funding**

There are, and have been, a number of funding schemes to support public engagement, and its pre-cursor movements, such as public understanding of science. However, most, if not all, of

these grant schemes did not provide funding for staff time and arguably this has contributed to the feeling in the research community that running public engagement activities is a voluntary activity. The “*Factors affecting science communication*” survey and the associated qualitative research with scientists found that scientists were motivated by winning funding for their institution, as researchers are rewarded by their institution for winning funding. For example one researcher said “*If there was some money in outreach that institutions could profit from, this would provide incentives for institutions*”. Another emphasised that “*Employers are interested when there is money brought in*”.

Some researchers also questioned other aspects of grant models for public engagement activities. Their competitive nature and the frequent requirements for partners and identified audiences demands considerable early effort with no guarantee of funding. While research funding operates on a similar model, there are qualitative differences between public engagement applications and applications for research funding. Firstly, hopes and expectations have been raised with partners and potential audiences; a rejection therefore sends a bad message widely and one researcher reported that “[I have] *been made to look an idiot with partners*”. Secondly, pitching public engagement applications is more difficult because it is outside most researchers’ experience. Another scientist said that “*research grants are easy to construct, we know the people, for public engagement you go in cold*”.

“*Factors affecting science communication Report on the qualitative research*” also drew on interviews with institutional players in universities such as senior managers and press officers. These interviewees reinforced this last point, reporting that many of the skills and much of the knowledge required for good public engagement are not the same as those needed for research, but that the funding models used are the same as for research.

*“The Research Councils and the Wellcome Trust try to do public engagement like they do their scientific research.”*

Factors affecting science communication Report on the qualitative research (2005)

#### **4.2.4 Prizes and honours**

Personal aggrandisement does not seem to be a strong motivating factor, reflecting the strong sense that public engagement is a duty. Figure 4.1 clearly shows that individual “*awards and prizes*” are the weakest motivators from a range of choices offered. This is not to say that they have no capacity to motivate researchers to become involved in public engagement, but they are less likely to promote involvement than other options.

### **4.3 Personal rewards**

The preceding sub-section makes it clear that personal benefits have not been primary motivating factors for individual researchers. However, those who have been involved in public engagement do report that they have benefited both professionally and personally from their involvement.

#### **4.3.1 Professional advancement**

The report of the Consultative Group convened by the Royal Society “*Survey of factors affecting science communication by scientists and engineers*” explored perceptions of the “*personal benefits of communicating research*”. In response to this open response question the largest single reply (32%) was that “*it helps with my career*”. The second largest (29%) response was that it “*attract[s] possible funding*” – a significant factor in potential career advancement. Indeed, 38% of researchers agreed with the statement “*public engagement could help with my career*” compared to 24% who disagreed. It is interesting to note that 30% responded with a middle ranking “*neither*”, leaving a slightly positive, but unsure picture. The BPE baseline surveys give a similar picture with 159 researchers saying that public engagement “*helps with my career*” either “*a great deal*” (22) or “*to some extent*” (137) whilst 132 responded “*not very much*” and 89 “*not at all*”.

Other qualitative research tends to reinforce this rather mixed picture. The SEARCH Report “*Science and Engineering Engagement: A snap shot of some engagement activities and the*

*context of engagement*” written in 2007 highlights that “*in some universities ... engagement was a route to progression*”. The report goes on to say that it is not clear how public engagement should be assessed and that “*Frequency or volume of engagement activities may not in themselves be efficacious bases for promotion*”.

“*Factors affecting science communication Report on the qualitative research*” highlighted these two opposing views. Some researchers spoke of public engagement activities raising their profiles within institutions and that they benefited from this. One summed it up thus: “*exposure helps*”. However, a number of scientists and engineers reported being told that public engagement work could hinder their careers. Public engagement was described by some as “*a second best if you can't make it in the academic system*”. One interviewee reported being told by senior colleagues that “*it [public engagement] won't do your career any good*”.

Figure 4.1 shows that the possibility of professional advancement, or at least a clearer picture of how public engagement might support professional advancement, could act as a motivating factor with 59% saying that they would be encouraged to get more involved in engagement activities “*if it was part of getting professional status, such as chartered engineer or membership of my professional body*”. Similarly 76% would be encouraged “*if it helped with my career*”.

The importance attached to this experience is reflected in other qualitative data. One of the STEM Ambassadors employed in the private sector highlighted the contribution of engagement work to achieving professional recognition.

“*[It] demonstrates commitment to the promotion of engineering as a profession (ticks boxes with the institutions for professional registration).*”  
STEMNET web site

The Vitae report “*Careers in Research Online Survey (CROS) 2009: Analysis of Aggregated UK Results*” includes a table indicating researchers’ agreement with the question “*To what extent do you agree that your institution recognises and values the contributions you make to ...*” with fourteen potential facets of academic life listed out. Respondents felt that the most valued aspects of their work were those related to research, for example “*publications*” (69% agreed), “*World-class research*” (55% agreed), “*Research culture within the department*” (56% agreed), “*achieving the institutions research strategy*” (53% agreed) and “*external collaborations*” (53% agreed). Four in ten (41%) agreed that “*public engagement with research*” was valued placing it in the same broad area as things like “*promoting the institution*” (44% agreed), “*Supervising students*” (42% agreed) and “*Supporting others (e.g. informal mentoring)*”. Public engagement was believed to be recognised and valued more than some major facets of academic life such as “*Knowledge transfer and commercialisation activities*” (35% agreed), “*Managing resources*” (34% agreed), “*Teaching and lecturing*” (33% agreed) and “*Managing staff*” (28% agreed).

#### **4.3.2 Research skills**

One way that public engagement has been reported to help career development is by helping people to improve as researchers. This may be directly through supporting the acquisition of new insights and perspectives that stimulate thinking, or indirectly through the building of new networks and contacts that support individual researchers.

“*Factors affecting science communication Report on the qualitative research*” notes that “*some scientists believed that communication work helped them to become better researchers. Having the depth of insight needed to communicate effectively with non-experts meant that these scientists could make new inroads*”. One researcher was quoted as saying that experience of engagement activities “*has changed the way I think about things*”.

“*Public Culture as Professional Science*” gives a more equivocal picture. One exchange between a researcher and an interviewer is quoted.

**“Interviewer:** - *it sounds as if you’re saying that there’s pretty much nothing that a non-scientist can say to you that will have any value to you as a scientist. Is that putting it too strongly?*

**Researcher:** - *I’m just trying to think, is there any reason why I would reject that statement, and it’s probably essentially correct.”*

Public Culture as Professional Science (2009)

Other researchers disagreed as the following quotes highlight.

*“Well, the public brings a vision of a bigger picture. The public, as I understand it, sees the landscape maybe without the details on it. Details are below their resolution level but they see the bigger landscape. Whereas the research community very often sees the details very sharply, has a focus on the details and often forgets about the landscape. That’s how I see it and that’s why public input is needed to keep that large landscape in mind.”*

*“I think it improves the science in the sense that it adjusts the focus of the science. ... We’re absolutely convinced that the project is stronger and better for having done that serious public engagement early on in the process.”*

Public Culture as Professional Science (2009)

The report of the Consultative Group convened by the Royal Society: *“Survey of factors affecting science communication by scientists and engineers”* reported that in the survey 53% of researchers agreed that *“Engaging with the non-specialist public might help researchers make new contacts for their research”* compared to 21% who disagreed.

### 4.3.3 Communication skills

The Wellcome Trust/OST survey of scientists shows that when asked an unprompted question about the personal benefits of communicating research and its implications to the public, 11% of respondents said that *“[it] gives me experience in communicating”*.

A number of the STEM Ambassadors profiled highlighted that their experiences had improved their communication skills and their confidence.

*“Increased confidence in public speaking and my communication abilities. If I can speak and hold the attention of eighty 17-18 year olds, the next presentation I give should be a breeze.”*

*“Increased ability to explain concepts at a basic level.”*

*“It was also good for developing my confidence.”*

STEMNET web site

The SEARCH Report written in 2007 reported *“many observations about the ways in which individuals developed their interpersonal and communication skills”*.

*“Factors affecting science communication Report on the qualitative research”* noted that some researchers reported a link between a general ability to communicate and the skill to teach in an inspiring, creative way. It was suggested that using public engagement and other outreach work as a way to develop teaching skills might be a valuable side effect of these activities. In a similar vein, the SEARCH Report quoted a bioscientist as saying:

*“Doing it [public engagement] has made me more engaged and enthusiastic. Helps me learn to explain to people ... helps my teaching.”*

Science and Engineering Engagement: A snap shot of some engagement activities and the context of engagement (2007)

The Wolfendale Report also reported that evidence provided to the committee *“indicates that promoting the public understanding of science often has its own reward in terms of increased self-confidence”*.

#### 4.3.4 Enjoyment and satisfaction

One of the strongest personal rewards that have been reported by researchers is personal enjoyment of the experience but some report personal satisfaction, which suggests that they feel they have made an impact on their audiences as well as enjoying themselves.

This is not a new phenomenon, the Wolfendale Report quoted evidence that showed that staff and students explaining science to “*passers-by at special events set up for National Science and Engineering Week, in the main and despite initial reluctance in some instances, found that they enjoyed the experience*”.

In the Wellcome Trust/OST survey of scientists in 2000 the third most widely reported benefit (22%) of communicating research was “*satisfaction/enjoyment*”<sup>13</sup>.

The report of the Consultative Group convened by the Royal Society: “*Survey of factors affecting science communication by scientists and engineers*” reported that when researchers were asked the degree to which they agreed with the statement “*Engaging the non-specialist public in science is personally rewarding*” almost two thirds (63%) agreed with the statement, with only 7% disagreeing.

In the BPE baseline surveys, 355 out of 398 researchers who answered the question agreed that that they were motivated to take part in public engagement because “*I enjoy it*” either “*a great deal*” (171) or “*to some extent*” (184).

Enjoyment also comes up as a factor in some qualitative research. A number of the STEM Ambassadors highlighted this in the case studies of their work.

*“I enjoyed speaking with the students.”*

*“I also really enjoyed the feeling of seeing the children leave the class talking about what they had just done ... gave me an insight into how rewarding teaching can be.”*

STEMNET web site

Some Ambassadors also expressed satisfaction.

*“It was a very rewarding day ... I went home knowing I had encouraged and helped many students.”*

*“It was great to see that pupils’ opinions of ‘what an engineer is’ had changed dramatically.”*

STEMNET web site

“*Public Culture as Professional Science*” also provides quotes that highlight the personally rewarding nature of public engagement activities.

*“It’s hugely rewarding.”*

*“It actually is very rewarding to do these things.”*

Public Culture as Professional Science (2009)

Taking together the STEM Ambassadors case studies featuring ambassadors working in the private sector alongside the more extensive work considering academic perspectives shows that the enjoyment of participating in public engagement is a significant factor for many researchers.

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<sup>13</sup> It is important to remember that the responses to this question were unprompted.

## 4.4 Barriers to individuals

We have seen that there are factors that motivate researchers to participate in public engagement and rewards that they take away from their participation. There are also barriers to participation, these include:

- competing pressures on time;
- a lack of appropriate skills;
- the need for additional support; and the confounding factor of
- seniority.

### 4.4.1 Time

Competing pressures on time features in both of the representative surveys as a critical barrier to undertaking public engagement activities.

In the Wellcome Trust/OST survey of scientists in 2000, 60% of researchers agreed that *“The day-to-day requirements of the job leave me with too little time to communicate the implications of my research to others”*.

In the survey for *“Factors affecting science communication by scientists and engineers”* in 2005 researchers were asked: *“In relation to the other things you have to do in your working life how important is it to you that you find time to engage with the non-specialist public?”* A relatively small proportion (10%) said *“Not at all important”*, but far more (42%) said *“Not very important”*. In addition, 64% said that *“[the] need to spend more time on my research”* was stopping them *“from getting (more) involved in activities that engage the non-specialist public”*. This suggests that little had changed in the time between the two surveys. Almost a third of researchers (29% and the largest single response) thought that the main drawback to engaging with the non-specialist public was that *“it takes up time better used on research”*. This prioritisation of research also comes through very strongly in the qualitative research, *“Factors affecting science communication Report on the qualitative research”*.

In the BPE baseline surveys, 218 out of the overall total of 598 respondents reported that needing to spend more time on research and teaching was a barrier to participating in public engagement, with 122 reporting this to be the *“Most significant barrier”*. This was easily the most frequently cited barrier, with the only other barrier cited by more than 100 respondents (125) being that *“I would have to do it in my own time”*. So again, finding the time is important.

*“Factors affecting science communication Report on the qualitative research”* found that the most frequently mentioned factor relating to academic life across the board, and thus a major issue in public engagement, was the research-led culture in British academia. Quotes included the following:

*“Scientists are judged by their ability to attract grants.”*

*“Anything else that detracts from research funding reduces regard.”*

*“People are incredibly anxious about the RAE.”*

*“[I] will always be judged on research outputs”.*

Factors affecting science communication Report on the qualitative research (2005)

Similar messages are very evident in the *“Public Culture as Professional Science”* report:

*“To achieve reasonable success as a scientist is something like an 80-hour week, minimum, I think. Just trying to keep your head above water with teaching, research grants, research papers, and various commitments on public panels, like research council panels or one of the funding bodies.”*

*“It clashes in some ways with what we do, my day job, which is to do science and research, publishing and all that. So if I spend lots of my time talking to the media and dealing with*

*these debates and all this other stuff, then it detracts from the time I can spend dealing with my own research and my lab ..."*

*"You do public engagement on a sort of voluntary basis ... but it does also really eat into your research time."*

Public Culture as Professional Science (2009)

#### 4.4.2 Skills

When issuing its clarion call to scientists, the Bodmer report recognised that *"Communicating science to the lay public is not easy"*. This theme was taken up in the Wolfendale Report, which called explicitly for training in communication skills. The message was repeated in the Jenkin Report in 2000 and the 2002 report from the European Commission's *"Expert group Benchmarking the Promotion of RTD Culture and Public Understanding of Science"*.

Researchers themselves seemed rather more confident in their abilities judging by their responses to the Wellcome Trust survey of scientists in 2000 where 76% declared themselves *"very"* (19%) or *"fairly"* (57%) *"well equipped to communicate the scientific facts of your research to the non-specialist public"*. This is despite the fact that few respondents had been trained *"in communicating with the non-specialist public"* (16%) or *"in dealing with the media"* (10%). By 2006 the confidence levels had fallen with only 51% feeling themselves *"very well equipped"* (8%) or *"fairly well equipped"* (43%) to *"engage with the non-specialist public"*. Most (73%) researchers had not had training relating to communicating with non-specialist audiences, yet 68% thought that *"some (more) training"* would encourage them to get more involved in activities to engage the non-specialist public.

The follow-up qualitative research suggested that existing training, largely focused on media training, may not be appropriate for researchers' needs. One scientist said that public engagement needed *"a more creative approach and different skills"*. Accessibility of training was also a factor; one researcher said that they could not get to the courses run by their Research Council because of conflicting priorities, while another researcher suggested that funders should take training out to researchers, using *"short targeted sessions"*.

It is possible that the work of the Beacons for Public Engagement will add to the understanding of researchers' training requirements. In the qualitative research undertaken for the CUE East Beacon, the following extract started a section titled *"Continuing Professional Development"*.

*"The most frequently mentioned areas in need of training were communication skills and working with the media; although these might just reflect people's interpretation of public engagement. Most felt that academics should already be equipped with communication skills, particularly those involved in teaching. **The communication skills thought to be required for public engagement that were most frequently cited included 'empathy' and 'understanding your audience'.**"*

A qualitative baseline report on the perceptions of public engagement in University of East Anglia academic staff

#### 4.4.3 Other support

A major finding of the *"Factors affecting science communication by scientists and engineers"* project was the requirement for a stronger infrastructure to support public engagement.

The majority of respondents to the survey (59%) agreed that they would *"need help to develop a science engagement project"* (16% disagreed) and an even larger majority (69%) said that they *"would be happy to take part in a science engagement activity that was organised by someone else"* (only 9% disagreed).

It was in the follow-up qualitative research where researchers described the types of support mechanisms that would help researchers to become involved, summed up by one interviewee in the phrase *"[we] need an infrastructure"*.

Some examples of components of the infrastructure that were mentioned were: "mentors"; the provision of access to "technical help" for example animators; and resources to "hire science communicators to develop materials".

#### 4.4.4 Seniority

Both the 2000 and 2006 surveys of academic scientists and engineers found that more senior academics in these disciplines were more likely to take part in public engagement activities than their more junior peers. Table 4.3 below is drawn from the 2006 "Factors affecting science communication Data Report", in which levels of activity were banded into high, some and none. The table clearly shows that junior researchers were more likely to have taken part in no activity and senior researchers were much more likely to report high levels of activity.

**Table 4.3 Activity levels of senior and junior researchers**

	Level of involvement with activities to engage the public with science			
	Total sample	No activity (or only institution open day)	Some activity	High activity
Senior staff	30%	14%	31%	65%
Junior staff	70%	86%	69%	35%

Source: Factors affecting science communication

In the associated qualitative research it emerged that junior researchers tended to see public engagement as less of a personal priority than other aspects of their work. This is not surprising given the drive to generate research that would underpin their career. A second issue was that some junior researchers suggested that their view would not be "respected" and that "people with greater experience have greater depth and breadth" and were thus more appropriate participants in public fora.

Exactly the same issues emerge in "Public Culture as Professional Science", where even though some of the interviewees highlight the important role that more junior scientists can play in dispelling stereotypes associated with age and gender, others recognise the additional pressures on more junior researchers:

*"... what you need are the young people, you need the vigorous, exciting people who are really having to make an impact through their science but at the same time communicating that enthusiasm and everything else to the public or to students or whoever."*

Public Culture as Professional Science

*"The challenge is horrid, because young scientists are at the bench and they haven't got time, they are busy writing papers and grants. They reject the grants, they turn the paper down, and they have to go and do more experiments, and then you tell them to spend a whole evening in entertaining the public."*

*"One of the post docs said, well what are we supposed to do, what is the priority because if we do too much public understanding of science we get no credit for it whereas if we just concentrate on the science we do. So what do you advise us as young scientists to do? That's a difficult thing. I said you have to do what you feel comfortable with, but you have to say really, since their future depends on the scientific output, they can't spend very much time doing public understanding of science."*

Public Culture as Professional Science

In essence the barriers facing more junior researchers are the same as those facing all researchers thinking about public engagement, but they are more intimidating, given the less secure positions in which junior researchers find themselves.

## 4.5 Institutional motivation

### 4.5.1 Academia

*"Factors affecting science communication Report on the qualitative research"* found that both individual researchers and institutional figures discussed the motivation for HEI involvement in public engagement.

A frequently mentioned benefit of communicating the nature of modern science and an understanding of its place in society was the recruitment of future students. A researcher in the chemical sciences talked of the drive behind working with school as boosting the undergraduate intake - *"the feedstock"*.

Using public engagement to raise the profile, both nationally and locally, of institutions was also seen as valuable. One senior academic reported that public engagement is widely regarded as less important than other activities, but that it does provide an opportunity to *"build a profile for the institution"*. In this context engagement is dominated by the concept of media work. This senior academic said that good national media coverage can help institutions build a wider reputation. Local media tends to be seen as a mechanism for building local relations and offsetting negative *"town and gown"* impressions, for example the impact of students on local housing.

### 4.5.2 Private sector

The limited evidence that we have found suggests that private sector organisations build their own definitions of the public for engagement activities and this depends on the nature and situation of the business. For some, the key groups are customers, for others it is their physical neighbours around their plants and for others it is more broadly defined stakeholders including those who might lobby against them.

## 4.6 Institutional rewards – academia

One of the interesting findings of *"Factors affecting science communication by scientists and engineers"* was that individual researchers saw the winning of rewards at an institutional level as a critical factor in encouraging involvement in public engagement.

Figure 4.1 shows that factors such as *"if it brought money into my department"* (81%) or *"if the RAE exercise was changed to encompass communication with the non-specialist public"* (61%) would motivate greater levels of involvement. Virtually two thirds also saw local management support as a strong motivator with 66% saying that that they would be motivated *"If my department/line manager were to give me more support and encouragement"*. The findings from the work we have reviewed suggest that additional support would be more likely if the public engagement activity brought tangible rewards to the manager's area of responsibility.

There was however, evidence in the survey that there is already a reasonable amount of local support as 56% of respondents felt that their institution was very or fairly supportive of public engagement work. However *"Factors affecting science communication Report on the qualitative research"* revealed barriers.

A number of scientists and engineers reported being told that public engagement work could hinder their careers. One junior researcher said that peers would say *"He is doing that because he could not build a good enough research career"*. One, now, relatively senior female researcher said *"I have been gently warned by senior colleagues that 'if you are female [in a certain topic] then you need to avoid light and fluffy topics"* with the implication that public engagement is seen as light and fluffy.

Hence formal recognition matters. The *"Public Culture as Professional Science"* report states that:

*“All of the interviewees suggested that public engagement activities should be more explicitly rewarded through structures within their own institutions and within funding institutions.”*

Public Culture as Professional Science

The mechanism identified in the report was the REF, this was however, seen as double-edged. A formal mechanism for recognising efforts could bring “*advantages ... in principle*”, but there were also concerns about equity. Some interviewees quoted in “*Public Culture as Professional Science*” suggested that it was easier for researchers in some disciplines than in others to get involved in public engagement due to the intrinsic interest of the public in different sciences. Others were concerned that formal mechanisms could constrain researchers as they designed activities to meet measurement criteria rather than public needs.

In the qualitative research undertaken for the CUE East Beacon, the impact that measurement has was recognised. One quote highlighted measurement as a potentially positive move because this would indicate that public engagement is taken seriously by the institution.

*“It’s the old story that when you start measuring things you start influencing them. The very fact that these things are not automatically being captured, that people aren’t being asked to indicate their degrees of engagement, is sending a signal to colleagues about the extent to which that is being taken seriously.” (Academic).*

A qualitative baseline report on the perceptions of public engagement in University of East Anglia academic staff

#### **4.6.1 Research Assessment**

From the Wolfendale report onwards there have been calls that the Research Assessment Exercise (RAE) should take account of science communication/public engagement activities. The RAE is now to be replaced by the Research Excellence Framework (REF). The HEFCE web site describes the likely impact measures within the REF in the following terms that go beyond simple economic impact to embrace far wider options for research dissemination, application and use.

*“Significant additional recognition will be given where researchers build on excellent research to deliver demonstrable benefits to the economy, society, public policy, culture and quality of life.”*

HEFCE web site

Thus the REF might provide the catalyst to bring public engagement fully into the mainstream of academia. Ironically this might not be universally welcomed if activity has to conform to certain expectations. In “*Public Culture as Professional Science*” a number of researchers expressed concerns about measuring and rewarding public engagement more formally. Some suggested that “*autonomy*” and “*latitude*” were important. Others were anxious that institutions be judged rather than individuals, as they were wary of compelling everyone to engage with the public, particularly those less suited to the activity. Concerns were also raised about the nature of measurement systems and whether these would simply lead to “*lip service*” being paid to public engagement and possibly a greater focus on “*quantity*” of public engagement rather than “*quality*”.

The issue of quality and quantity is thrown into sharp relief by the Vetenskap & Allmänhet report in Sweden “*Measuring societal engagement – proposed indicators for resource allocation and academic merit rating*”. The indicators suggested for public engagement are quantitative, for example amount of participation in events, media activity and popular books and articles, with weighting favouring those activities that involve the greatest amount of work. This weighting in favour of input, rather than outcome or impact is unlikely to be acceptable to either UK research funders or UK researchers.

#### **4.6.2 Third stream activities**

The quote from the HEFCE website in the preceding sub-section positions public engagement within the “third stream” of university activities, alongside other knowledge transfer activities,

including economic exploitation of research and the use of research within policy development. The assessment of third stream activity sits within the current debates about research impact and the degree to which it is appropriate to incorporate assessment of impact in the REF. Recent articles and correspondence in Times Higher Education<sup>14</sup> demonstrate the varying views within academia on this topic.

The Science Policy Research Unit (SPRU) at the University of Sussex, produced an extensive report for the Russell Group of Universities that was intended to provide “*an analytical framework and a comprehensive set of indicators that may assist in the tracking and management of university Third Stream activities.*” This report included some suggested indicators for non-academic dissemination, such as media coverage for academics and institutions and contributions to non-academic fora and publications. In the conclusions section of this report, the authors make it clear that they believed that developing third stream indicators was a far from trivial task, but one that the university sector needed to strive to lead. The report finishes with the warning that “*If it [the university sector] fails to take this leadership, it will forego the opportunity of shaping its own future.*”

## 4.7 Knowledge gaps

### 4.7.1 Private sector researchers

Little appears to be known about the mechanisms that operate within the private sector to support or reward individuals participating in public engagement. The STEMNET website reports that over 1,500 employers take part in the STEM Ambassadors scheme, yet we have found nothing in this review about whether or how these employers support and encourage staff to act as Ambassadors and the degree to which engagement work is recognised within job descriptions.

### 4.7.2 Academic researchers outside the STEM disciplines

Almost all of the research to date has focused on the views of academic researchers within the STEM disciplines. The BPE baselines do not provide data that is robust enough to draw any conclusions about the perspectives of academics in the non-STEM disciplines.

### 4.7.3 International comparisons

We could find no evidence of work from other countries that was comparable with the detailed research that has been undertaken in the UK on researchers’ perspectives.

## 4.8 Conclusions

From the evidence it can be seen that both Government and the scientific community regard public engagement as important. However, the current system of funding, recognising and rewarding public engagement activities has resulted in a volunteer culture. For the most part, the funding available does not cover time and effort is not explicitly or directly rewarded in career progression, although taking part in public engagement activities may develop skills and build a profile that are recognised within the academic system. For example, by improving communication skills and thereby grant applications or teaching ability. However, public engagement activities are currently competing for academics’ and researchers’ time with more directly rewarded and explicitly recognised activities.

There is some evidence that aligning the recognition of public engagement to other academic functions, especially research, could motivate greater involvement. Factors that are recognised in research as contributing to institutions’ reputations such as grant income and assessment of research excellence could be adapted to recognise income, and other value, generated by public engagement. Thus far, there have been no clear indications of how this could be achieved.

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<sup>14</sup> See for example letters pages for 8, 15 October and 5 November 2009, opinion piece by Claire Fox published on 1 October 2009 and news article titled “*Managers and scholars divided as resistance grows to impact agenda*” published on 5 November 2009.

## 5 Implications

### 5.1 Introduction

In this section we have synthesised the findings under four core issues, which together we suggest should inform short-term debate about reward for, and recognition of, public engagement. The outcomes of this debate will then set the framework within which policy on reward and recognition for public engagement is developed.

The core issues, each of which is covered in one of the following sub-sections are:

- The roles and priorities of academia and the private sector
- Embedded and voluntary activity in academia
- Individual and institutional responsibilities in academia
- Quantity and quality of public engagement activity

### 5.2 Academia and the private sector

The definition of science used in the science and society strategy encompasses both the academic and private sectors. However, there are, or should be, different emphases within the two sectors, reflecting different priorities.

Within academia, the primary agenda is engagement with **research** (regardless of discipline), this is recognised in the remit of the Beacons for Public Engagement and the recent re-naming of RCUK's Science and Society Team as the Public Engagement with Research Team. This focus on research rather than science should foster the involvement of researchers from all academic disciplines and support other university priorities such as widening participation and building community relations.

For the private sector, the priorities are fostering the long-term skills pipeline and, to some extent, corporate social responsibility. Activity to support the long-term skills pipeline will be driven by those industries that have the greatest concerns about their pipeline and will, as it already has, involve alliances between the private, public and charitable sectors. Priority sectors and subjects may well change over time as skills gaps change, although the current priority appears to be for the STEM-based industries.

This short review has shown that while the overall evidence base is patchy with regard to reward and recognition of researchers who participate in public engagement. There is almost no evidence regarding researchers working in the private sector. This means that with regard to the private sector, the main priority arising from this review is to establish an evidence base. **The remainder of this section focuses therefore on the implications of this review for academia.**

### 5.3 Embedded or voluntary activity

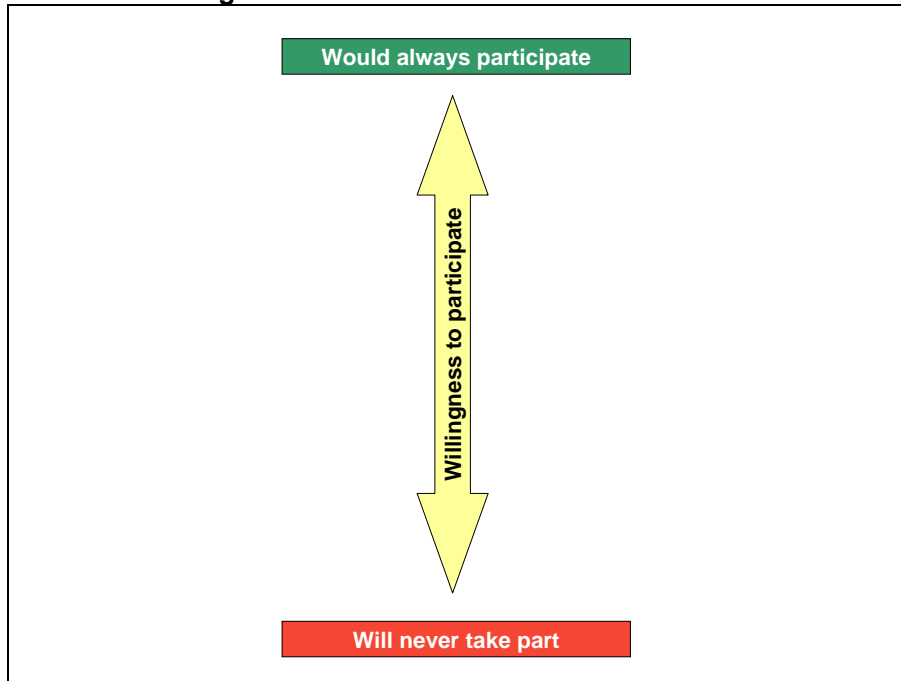
This review has shown that within academia public engagement has developed as a largely voluntary activity in the UK. A number of factors have contributed to this including:

- the grant regimes for public engagement, and its predecessors;
- the lack of formal processes for recognising and rewarding public engagement work; and
- the sense that contributing to public engagement is a duty incumbent upon publicly funded researchers.

If however, public engagement is as important as research funders, and many researchers themselves, seem to believe, then continuing to rely on a voluntary system is inappropriate. This review has shown that the competing pressures within academia will always squeeze the time available for voluntary activities and this will certainly have adverse impacts on the quantity of public engagement work, and possibly on its quality.

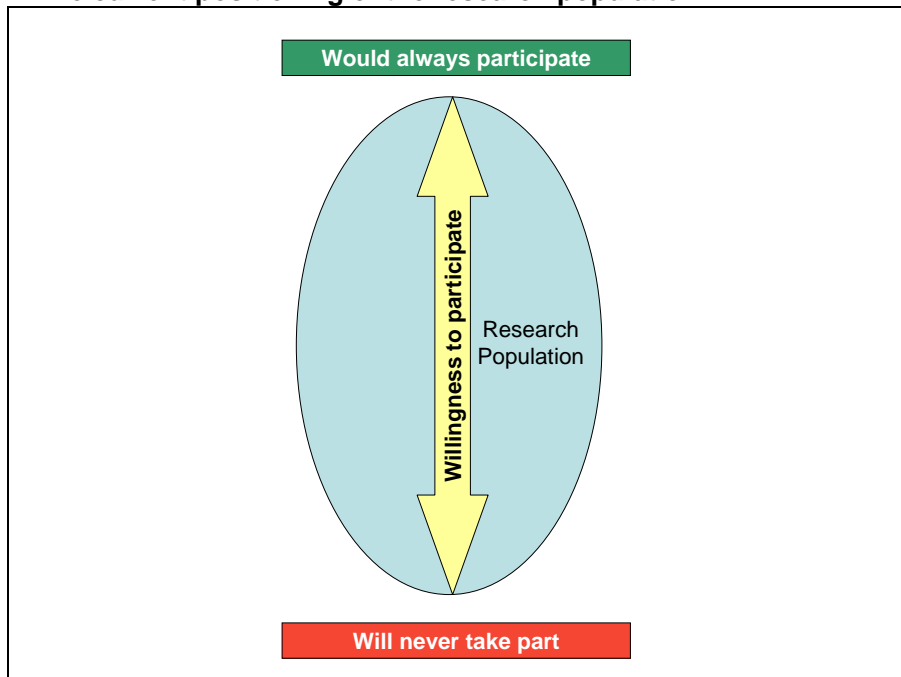
Researchers will fall on a scale of willingness to participate that extends from those who will simply never take part to those whose interest/desire is such that they will tend to overcome any barriers to participation. Figure 5.1 shows this basic scale.

**Figure 5.1 Scale of willingness**



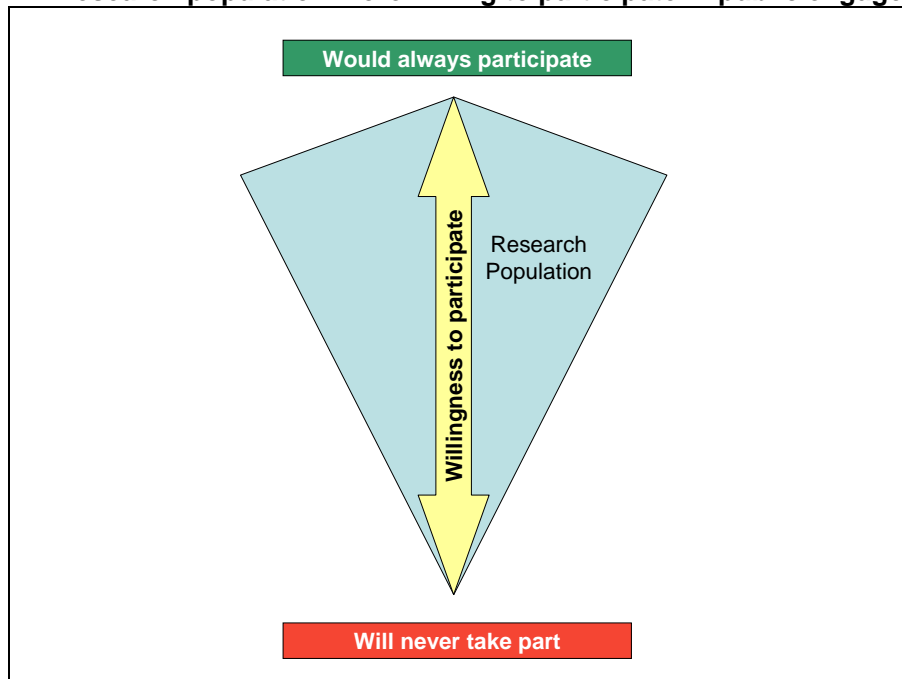
The distribution of researchers along this scale is unknown, but the various surveys of activity suggest that there are a small number of highly active academic researchers, a small number who are inactive and many that participate to some degree. Figure 5.2 is a representation of the current situation.

**Figure 5.2 The current positioning of the research population**



Improving the reward and recognition available to researchers is likely to shift the positioning of the overall population. Figure 5.3 depicts a more willing population distribution.

**Figure 5.3 A research population more willing to participate in public engagement**



The “*Science for All*” page on the ‘Science and Society in the UK’ website discusses professionalisation of public engagement, this is an important issue, but at this stage we are referring more to a culture that accepts that public engagement is embedded within academia and not simply a voluntary add-on.

## 5.4 Individual and institutional responsibilities

If public engagement is embedded within academia then the issue to consider is where responsibility lies for delivering engagement activity. Both the Bodmer and Wolfendale reports place heavy emphasis on the responsibilities of individual researchers, especially those in receipt of public funds. However, we have encountered widespread evidence that within the research community there is a belief that it is inappropriate to expect all researchers to participate in public engagement and that those least well equipped to contribute should not be expected to.

The suggestion that it is inappropriate to expect all researchers to participate in public engagement leads to the conclusion that responsibility for an effective public engagement programme is an institutional responsibility.

### 5.4.1 Institutions

This institutional responsibility could be positioned at a number of levels, the university, departments/faculties or research groups, but it is likely that responsibility will be multi-layered, with over-arching university policies and delegated implementation plans. The fine detail should be for universities, as autonomous institutions, to decide, but there must be clarity. Thus there will need to be clear messages to the university that as a recipient of public funding it is expected to undertake public engagement with research and that there need to be systems in place to reward those departments/groups and the individuals within them who deliver this public engagement.

The requirement upon the institution needs to be one that can be assessed and its delivery rewarded. At an institutional level failure to deliver the requirement could attract sanctions. Between them the funding and research councils have the capacity to provide both rewards and sanctions.

At the national level there is a spectrum of reasons for institutions to undertake public engagement, driven by different needs. We understand that the Science for All Expert Group is considering a categorisation of purposes of public engagement, in this context we think that the three purposes set out in the document “*What is public engagement?*”<sup>15</sup> are very helpful.

In summary RCUK’s suggested purposes are:

- to improve the supply of skilled people;
- to share knowledge; and
- to involve the public in decisions.

Within these broad purposes, different academic institutions will wish to achieve different objectives, which may include the following:

- recruitment to undergraduate provision;
- recruitment to post-graduate provision;
- widening participation;
- building community links;
- public involvement in institutional strategy development;
- public involvement in institutional research prioritisation; and
- public input to institutional representations to research funders and policy-makers.

We suggest putting the onus on institutions to define what they want to achieve from public engagement, within the very broad parameters set by the Science and Society Strategy. Thus ensuring that throughout an institution there are a clear set of strategic goals, that are seen to be benefiting that institution and its staff. Rewarding staff who then contribute to the delivery of these goals is a matter for the employing institutions.

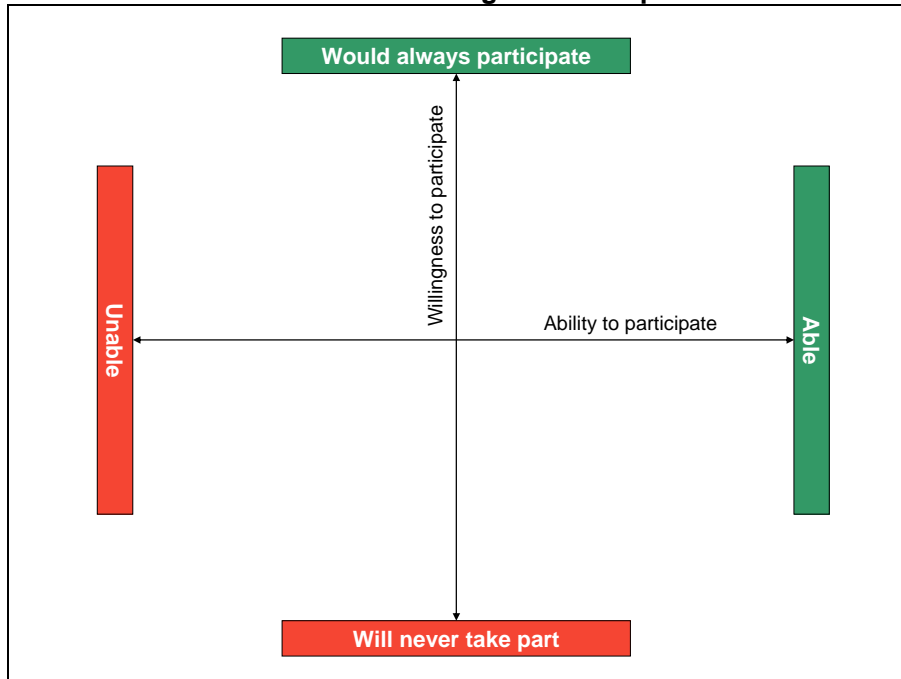
#### **5.4.2 Supporting individuals**

The quantity and quality of public engagement activity will depend on the aptitude of those delivering it. This means that the simple scale of willingness in figures 5.1 – 5.3 is insufficient to analyse the types of intervention that are needed to reward and recognise researchers. Figure 5.4 introduces a second scale, which is a researcher’s ability to participate in public engagement. Some may already have all the necessary skills and attributes, others will have none, but it is likely that just as most researchers already participate in public engagement to some extent, many will have some, but not always all, of the necessary skills and attributes. This review suggests that a particular gap may be understanding the needs of non-specialist audiences.

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<sup>15</sup> <http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/scisoc/peupdate.pdf>, also accessible from the ‘Public Engagement with Research’ page of the RCUK website

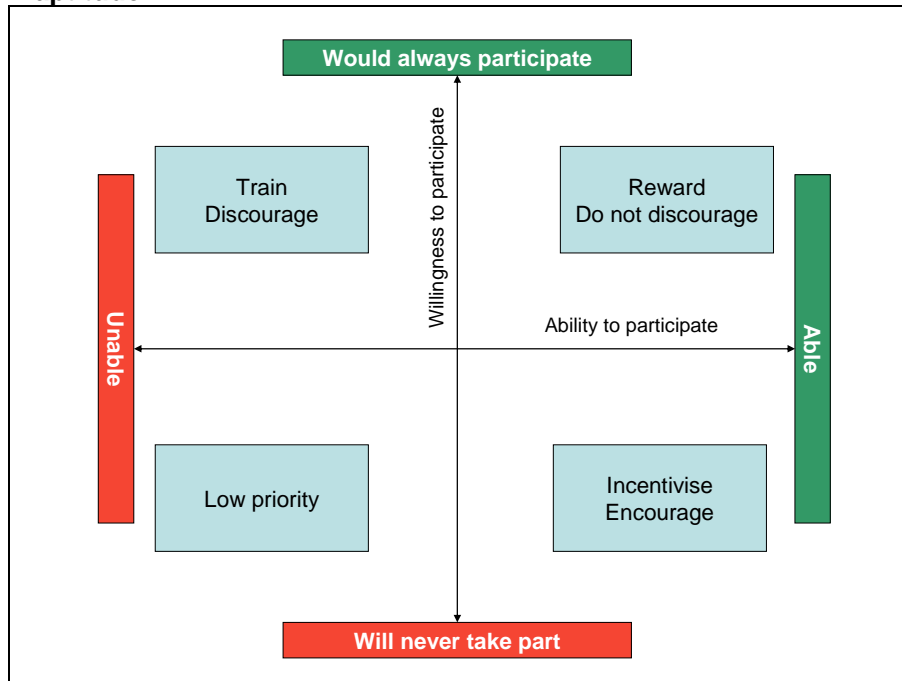
**Figure 5.4 A two-dimensional model of willingness and aptitude**



Researchers can be positioned within this two-dimensional model, but their initial positioning should not be regarded as their absolute position. The Science and Society Strategy emphasises the need to train, and otherwise support researchers taking part in public engagement activities. There will need to be different interventions within the institution to support researchers with different characteristics as shown in figure 5.5 below.

Researchers who are already willing and able, the upper right quadrant of figure 5.5, should be rewarded for their activity and institutional systems should not discourage their existing involvement. Those in the upper left quadrant who are willing but less able will need training and other support to move them to the upper right quadrant. If supporting the development of these people is ineffective then they should be discouraged from participating. Researchers who have the innate ability to participate, but are less willing will need to be offered incentives and encouragement. The final quadrant contains those with little aptitude who are also unwilling. These researchers should be regarded as a low priority, with reward and recognition focused on those who are more willing and/or more able.

**Figure 5.5 Interventions for researchers demonstrating different levels of willingness and aptitude**



At this stage in the development of public engagement, we do not think that there should be individual level sanctions against researchers who do not participate. The whole thrust of the phrase “reward and recognition” seems to us to be about identifying and supporting good practice at the individual level. However, as we have said in section 5.4.1, there should begin to be sanctions as well as rewards at an institutional level.

## 5.5 Quantity and quality

In section 5.4.1 we have highlighted the need for an institutional level requirement to participate in public engagement and assessment of the delivery of this requirement.

Simply measuring levels of public engagement activity will not be appropriate. This review has already highlighted concerns that assessing public engagement may lead to increased quantity of activity, but adversely impact on quality.

Quality of public engagement activity should be defined as whether or not the activity achieved its stated objectives. Section 5.4.1 proposes some institutional level objectives, the broad umbrella of the Science and Society Strategy will no doubt encompass other objectives developed by individual institutions.

Quantity of activity should be proportionate to the objectives, more is not necessarily better and requirements at the institutional level should make clear that quality, and then appropriate quantity to deliver this quality, of activity is paramount.

In order to identify whether public engagement activities are high quality, it is important that there are appropriate metrics and a commitment to evaluation.

### 5.5.1 Developing metrics

The SPRU report “*Measuring Third Stream Activities: Final Report to the Russell Group of Universities*” emphasised that developing metrics for all third stream activities was a difficult task. Given the conclusion that quantity of public engagement activity is an inappropriate measure, it might be thought that developing metrics for public engagement is close to impossible.

However, the objectives set out in section 5.4.1 are quantifiable, and while public engagement will not be the only institutional activity contributing to these objectives, evaluation of individual public engagement activities and measurement of the overall progress towards targets for these objectives will allow an assessment of the quality of public engagement.

This list of objectives is not exhaustive and as we have said, different institutions will, indeed should, have different sets of priorities to match their overall ambitions.

### **5.5.2 Evaluation**

The Science and Society Strategy states that:

*“It has historically been difficult to assess the impacts of science and society activity.”*  
BIS website

In part this has been because there has been an unwillingness to devote appropriate levels of resource to evaluation. In a voluntary world, where budgets were often small and their use limited, it is not surprising that resources were devoted to doing public engagement rather than evaluating its impact. If public engagement is to become embedded within academia, then appropriate evaluation, including the allocation of meaningful resources to the task must be a requirement.