



Review Of BBSRC Strategy For Investing In Fellowships

BBSRC
Polaris House
North Star Avenue
Swindon
SN2 1UH
www.bbsrc.ac.uk

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ABBREVIATIONS

AFLF	Anniversary Future Leader Fellowship
AHRC	Arts and Humanities Research Council
BBSRC	Biotechnology and Biological Sciences Research Council
DJF	Daphne Jackson Fellowship
DJT	Daphne Jackson Trust
DPF	David Phillips Fellowship
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
FEC	Full Economic Cost
FLIP	FLexible Interchange Programme
FT	Full Time
GL	Group Leader
HoD	Head of Department
MRC	Medical Research Council
NERC	Natural Environment Research Council
Postdoc	Postdoctoral Researcher
PT	Part Time
RM	Research Manager
RO	Research Organisation
RS	The Royal Society
RSE	The Royal Society of Edinburgh
STFC	Science and Technology Facilities Council
TF	Translational Fellowship

REVIEW OF BBSRC STRATEGY FOR INVESTING IN FELLOWSHIPS

EXECUTIVE SUMMARY

Background

Using input from a wide ranging community survey and workshop, BBSRC has carried out a fundamental review of its strategy for investing in Fellowships. The review aimed to establish the community's views regarding why BBSRC should support Fellowships and provide ideas as to how BBSRC can invest in Fellowship programmes in a way that will maximise the impact gained from the investment made. The review included determining whether funding is being directed to the most appropriate career stage in the most appropriate ways, and it asked a range of fundamental questions such as should BBSRC support Fellowships, and if so where and how BBSRC should target its investments. Conclusions and recommendations are presented in this report based upon analysis of the community consultation and discussions by the review's Steering Group and BBSRC's Bioscience Skills and Careers Strategy Panel.

Key outputs

A community consultation received over 700 responses, 97% of which supported BBSRC's continued investment in Fellowships and 94% of which thought there would be a significant negative impact on UK bioscience if BBSRC were to stop supporting Fellowships.

Numerous benefits from investing in Fellowships were identified for both BBSRC and those invested in. These included giving Postdoctoral Researchers their first opportunity to conduct independent research, new Group Leaders the chance to establish research programmes without the additional burden of teaching and administrative duties, and encouraging researchers to develop long term research programmes within areas of BBSRC remit. That at least 65% of BBSRC David Phillips Fellows go on to permanent academic positions immediately after or during their Fellowship indicates this investment in new Group Leaders is being successful in establishing new academic leaders.

Strongest support was for investing in early career Fellowships. However, it was also considered to be beneficial for BBSRC to provide some Fellowship opportunities to established academics. This would provide an opportunity for the Fellow to undertake novel research, and bring prestige for both the researcher holding the Fellowship and BBSRC for being associated with a high profile researcher conducting high impact research. It would also "complete the pipeline" of BBSRC Fellowship opportunities available to researchers at different career stages.

Review of Fellowship eligibility criteria and application processes suggested that placing limits on the number of years of research experience that an applicant for a new Group Leader Fellowship can have serves little purpose, and acts to rule out many talented researchers; leaving them with no Fellowship opportunities to support establishment of their own group. Furthermore, it was hoped that in the assessment of Fellowship applications more recognition would be given to the "overall impact" that an applicant has had, rather than focussing only on publication record. This would result in more weight being attributed to activities such as teaching and mentoring, skills that are both required as part of an academic career. It was recognised, however, that to compare candidates with varying

levels of research experience fairly and consistently in this way would require very clear guidelines and an effective review process.

Discussions around the requirements for Fellowship award included the view that Research Organisations hosting Fellows who are establishing new Research Groups should make increased formal commitments to the Fellows. These commitments could be in terms of career development, mentoring, and financial support. This would increase the investment that the Research Organisation has in the Fellow, improving their chance of a successful Fellowship and enhancing subsequent career progression.

Conclusions

- i. There is overwhelming support for Fellowships from the community. This is particularly due to the opportunity Fellowships give researchers to advance their careers and conduct innovative research
- ii. Support for early career researchers i.e. to support independent Postdoctoral Researchers and to establish new Group Leaders should be BBSRC's priority, but opportunities should be available to researchers at all career stages. Fellowships were thought to be most effective when aiding transitions (i.e. career stage, research topic, returning to research)
- iii. There is great demand for a source of funding that would allow Postdoctoral Researchers to independently generate preliminary data that can subsequently be used to support full early career Fellowship applications
- iv. Returners to research are an important area which Fellowships are well suited to support. Fellowships are not the best mechanism by which to target skills gaps and capacity build, although the potential usefulness of limited calls in highly specific areas of need is recognised
- v. Early career Fellows undertaking research in a variety of scientific areas are needed to ensure future strategic priorities can be met and the requirement for applicants to address specific topics can limit this diversity
- vi. A budget of £9M p.a does not seem sufficient given BBSRC's total expenditure of £518M¹ p.a, and training the next generation of research leaders is an important part of BBSRC's mission
- vii. The current number of David Phillips Fellowships awarded per year is not enough for the scheme to have a significant impact in supporting new Research Groups undertaking BBSRC remit research
- viii. There are various mechanisms by which an increased number of Fellowships could be supported. These include an increased Fellowship budget, caps on individual Fellowship value and a requirement for leveraged funds (from the host Research Organisation and other sources such as industry, charities etc.). If more Fellowships

¹ www.bbsrc.ac.uk/web/FILES/Publications/1314-bbsrc-annual-report-accounts.pdf

are to be invested in there needs to be a greater understanding of the potential impacts of these options

- ix. It should be expected that Fellowships receive some form of financial support from other organisations, the level of support expected is likely to vary with the seniority of the Fellowship
- x. Not all host Research Organisations make a sufficient commitment to Fellows to ensure they are appropriately looked after and receive worthwhile mentoring and support
- xi. Fellowships can encourage researchers to prioritise BBSRC remit research throughout their career
- xii. The pilot 2014 Anniversary Future Leader Fellowship is important for supporting researchers to make their first steps to independence, but less than one year of postdoctoral research may not be enough to effectively judge the quality of Fellowship candidates
- xiii. Upper limits of research experience for Fellowship applicants could be ruling out interdisciplinary researchers, people who have completed their PhD in another country or taken unconventional career paths, and those who become competitive and have excellent ideas later in their career
- xiv. Career tracking is needed to effectively determine the impact of Fellowships

Recommendations

- i. More Fellowships to support early career researchers and returners to research should be funded. These should be flexible to support a range of researchers and to ensure there are Fellowship opportunities for all talented scientists who show promise of being future leaders
- ii. To avoid ruling out talented individuals there should be more flexibility regarding Fellowship eligibility. When assessing candidates with variable levels of research experience, emphasis should be placed on the most recent track record of a candidate to increase the ease by which such individuals can be compared
- iii. BBSRC should consider increasing its level of investment in Fellowships to the Research Council average
- iv. There should be Fellowship opportunities across the whole of a researcher's career, from those wishing to conduct their first independent research to established academics

- v. Funding should be available for the generation of pilot data to support subsequent Fellowship / funding applications. This is particularly needed at the Postdoctoral Researcher career stage
- vi. Research Organisations wishing to host Fellows need to give a formal commitment regarding the support and mentoring system that will be in place to provide support

INTRODUCTION

1. Fellowships represent one mechanism by which research funders can support individuals to develop their career and conduct independent research. Funders currently provide independent Fellowships to support researchers at a variety of career stages, from those just finishing their PhD, to those with well-established academic careers.
2. Currently BBSRC invests its £9M p.a Fellowship budget primarily through the David Phillips programme². This supports a small number of the best researchers who have demonstrated their potential to be future research leaders, traditionally within the academic sector, to establish new Research Groups undertaking novel research programmes. Previous David Phillips Fellows have gone on to hold a variety of successful academic positions³.
3. Other, smaller, schemes are either run by BBSRC or in partnership with other organisations. BBSRC has run the FLExible Interchange Programme (FLIP)⁴ award since 2012 to support the movement of researchers from one environment to another, and in partnership with others supports the Daphne Jackson Fellowship (DJF) to help those who have had a career break of over two years to return to active research⁵, and Enterprise and Industry Fellowships to support company spin-out and industry interactions^{6,7}. Details of all Fellowships currently supported by BBSRC can be found in Annex 1, and a comparison of BBSRC's Fellowship budget with those of other funders is given in Annex 2.
4. Advice from a number of sources including independent reviews, learned societies and special interest groups, as well as input from BBSRC's Strategy Advisory Panels, has suggested a need for using Fellowships to make more targeted interventions, for example at specific career stages or for strategic purposes (e.g. to encourage researchers into strategically-important fields where UK capability is lacking)^{8,9,10,11}. This feedback led to two pilot schemes being run in 2014; the Anniversary Future Leader Fellowship (AFLF)¹² to support early career researchers to carry out independent postdoctoral research in a host lab, and the Translational Fellowship (TF)¹³ to support the establishment of independent groups carrying out translational research. For the pilot TF the focus was on the translation of basic plant

² www.bbsrc.ac.uk/funding/fellowships/david-phillips.aspx

³ Evaluation of BBSRC's David Phillips fellowship scheme, Report from BBSRC Review Panel of experts (2011), www.bbsrc.ac.uk/web/FILES/Reviews/david-phillips-evaluation.pdf

⁴ www.bbsrc.ac.uk/business/people-information/flexible-interchange-programme.aspx

⁵ www.daphnejackson.org/fellowships/

⁶ www.bbsrc.ac.uk/innovation/maximising-impact/enterprise-fellowships/

⁷ <https://royalsociety.org/grants/schemes/industry-fellowship/>

⁸ UK Plant Science: Current status & future challenges, UK Plant Science Federation (2014)

⁹ Strategically important and vulnerable capabilities in UK bioscience, Report from the BBSRC Bioscience Skills and Careers Strategy Panel (2009)

¹⁰ Minutes of BBSRC Bioscience Skills and Careers Strategy Advisory Panel April Meeting (2014),

¹¹ A 5-Year Wheat Research Strategy for BBSRC, Report from BBSRC Food Security Strategy Advisory Group (2012), <http://www.bbsrc.ac.uk/documents/2013-bbsrc-wheat-strategy-pdf/>

¹² www.bbsrc.ac.uk/funding/fellowships/anniversary-future-leader-fellowship.aspx

¹³ [Reference/webpage no longer available – Feb 2016]

science into crop research. These programmes were run as pilots to gauge community interest and determine whether BBSRC investment in these areas can add to the impact of our wider investments. Figure 1 gives an overview of the Fellowships supported by BBSRC in 2014.

- With these pilot calls now having run, and with increasing pressure on BBSRC's

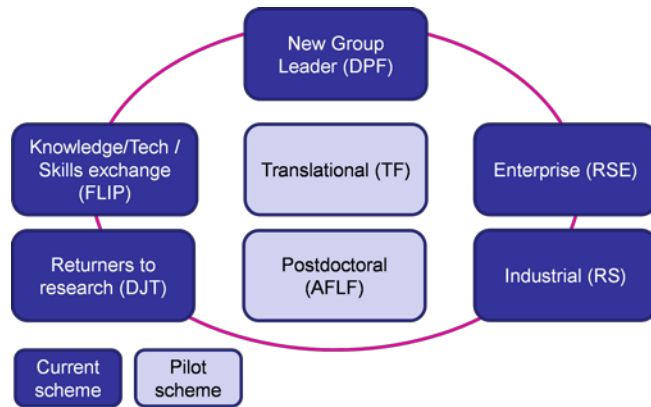


Figure 1. Fellowship schemes supported by BBSRC in 2014

Fellowship budget, it is timely to undertake a review to ensure BBSRC's investment in Fellowships is being directed at the most appropriate career stages, in the most impactful way that helps support a vibrant research and innovation sector in the UK. This report presents the background to this review, details the activities undertaken, and

presents an analysis of the community survey and workshop held as part of the review process.

REVIEW OBJECTIVES

- The review sets out to develop a vision and strategy for BBSRC Fellowship investment. This will guide BBSRC's future Fellowship programmes and help ensure that maximum impact and value is being gained from the investment made. As such the objectives of the review are to answer the following:

- Should BBSRC invest in Fellowships?
- Who should BBSRC invest in and why?
- What is BBSRC's "return on investment" for supporting Fellowships?
- How should BBSRC invest in Fellowships?
- How can BBSRC demonstrate value for money in Fellowship investments and can this be improved?
- Other than funding, what else could/should BBSRC do to support its Fellows?
- How can BBSRC ensure diversity in application and appointment?
- How can BBSRC maintain a balanced portfolio in terms of career stage and the science supported?

- By addressing these questions the review can inform the basis for BBSRC's strategy for investing in Fellowships and it can be ensured the suite of Fellowship opportunities offered are fit for a variety of purposes and meet the science and innovation needs of the UK.

8. Throughout the review the process has been guided by a Steering Group who reported to BBSRC's Bioscience Skills and Careers Strategy Panel. The membership and Terms of Reference of this Steering Group can be found in Annex 3.

REVIEW APPROACH

9. Two stages of community consultation fed into the review; a wide ranging survey and a subsequent workshop, both of which were guided by the Steering Group. A general survey was carried out as well as specific ones targeted to gain feedback from Research Group Leaders (GL), Research Organisation (RO) Heads of Department (HoD), and RO Research Managers and Administrators (RM). Those responding to the general survey were primarily Postdoctoral Researchers (postdocs). A community workshop that included representation from a variety of interest groups and people with a wide range of views and opinions regarding Fellowships was then held to analyse and critically evaluate the survey findings.
10. Each survey contained the same core questions and aimed to gain feedback on why BBSRC should support Fellowships, the type of Fellowships that should be provided, and what the strengths and weaknesses are of the current suite of Fellowships provided by BBSRC. The group specific surveys included questions centred around the benefits to Research Groups / Departments of hosting Fellows, the impacts that having a Fellowship can have on careers, and the attractiveness, or otherwise, of BBSRC Fellowships.
11. A total of 704 responses were received by the community consultation surveys. Of these, 448 identified as Group Leaders, 41 identified as Heads of Department, 13 identified as Research Managers / Administrators, 193 identified as postdocs and 9 classified themselves as being within other groups. Information gained from the surveys was collated, analysed and made available to those attending the subsequent workshop that held in-depth discussions around the following key questions:
 - Should BBSRC support Fellowships?
 - At which career stage(s) should Fellowships be available?
 - How can the impact of Fellowships be maximised?
 - How should Fellows be supported?
 - Should Fellowships be targeted?
 - Starting from scratch: how would you support Fellowships?
12. The community workshop was primarily attended by postdocs and Group Leaders with wide ranging views regarding Fellowships. Workshop participants were split into several groups and, facilitated by members of the review Steering Group or BBSRC, addressed a number of the key questions (see Annex 4 for the workshop schedule) during a series of breakout sessions. These discussions informed the conclusions and recommendations reached by the review.

COMMUNITY CONSULTATION OUTCOMES

13. Results of the consultation are discussed with regards to the key workshop questions. Where tables and graphs are presented the results are broken down into those responses from Group Leaders, Heads of Department, Research Managers / Administrators and Others (Other, mostly postdocs).

Should BBSRC support Fellowships?

14. There was overwhelming support for BBSRC Fellowships from across all sectors of the bioscience community, with 97% of survey respondents supporting BBSRC's continued investment in this area (Table 1) and 94% thinking that there would be significant negative impacts to UK bioscience if BBSRC were to stop supporting Fellowships (Table 2).

Of those returning a response		
	% Yes	% No
GL	96.4	3.6
HoD	97.4	2.6
RM	100.0	0.0
Other	98.5	1.5
Overall	97.1	2.9

Table 1. Should BBSRC support Fellowships?

Of those returning a response		
	% Yes	% No
GL	92.5	7.5
HoD	92.5	7.5
RM	100.00	0.00
Other	96.5	3.6
Overall	93.8	6.2

Table 2. Would there be any significant impacts if BBSRC stopped funding Fellowships?

15. The overall view was that Fellowships are required to support career progression and provide essential assistance at transition points in

researcher careers. These points include; gaining research independence, moving between postdoc and Group Leader, returning to research after a career break, and moving into a new field of research. It was also considered that Fellowships are an effective way of encouraging researchers to develop long-term research programmes within areas of BBSRC remit. However, it was felt that if BBSRC is to continue investing in Fellowships, then support should be broader than that offered by BBSRC prior to 2014 i.e. before the piloting of the Anniversary Future Leader and Translational Fellowships.

16. Of those few suggesting BBSRC should not support Fellowships, the main justifications for this centred on the fact that BBSRC has historically awarded low numbers of Fellowships and that the isolation from teaching and administration that Fellowships give can result in institutional divisions. However, although it was recognised that teaching is an important skill that can help researchers to gain permanent positions at Research Organisations, the ability to focus solely on research was thought to be one of the unique and important aspects of Fellowships. This was felt to be particularly important for early career researchers who can struggle to balance teaching and academic workloads. Although currently David Phillips Fellows are able to take part in up to six hours of teaching activities per week, and many do to gain experience, it was considered important that teaching and additional administrative duties be optional, limited, and that the Fellow has control over how much time they dedicate to these tasks. It was therefore considered that a requirement for Fellows to take part in increased levels of teaching would remove an

important opportunity to focus solely on research and that it would greatly reduce the impact of the Fellowship.

At which career stage(s) should Fellowships be available?

17. To address the question of which career stage Fellowships are best supporting, the support provided by Fellowships was split into the following categories;

- Independent postdoctoral research with increasing levels of postdoctoral research experience e.g. support for independent research within a host lab, as currently supported by BBSRC Anniversary Future Leader Fellowships for those with up to five years of postdoc research experience
- Establishment of new Group Leaders e.g. to support researchers in setting up their first Research Group, as currently supported by David Phillips and Translational Fellowships for those with up to 10 or 12 years of combined PhD and postdoc research experience respectively
- New research by established Group Leaders e.g. to allow established researchers to dedicate time to address new scientific questions and take their research in a new direction
- Returning from career breaks e.g. as supported by BBSRC via the Daphne Jackson Fellowship
- Knowledge exchange, e.g. as supported by FLIP and the Industrial and Enterprise Fellowships
- Training, e.g. to support the learning of new skills such as supported by FLIP and the Enterprise Fellowship

18. Survey respondents were asked to rank the Fellowship types between 1 and 6, with 1 being viewed as the top priority for Fellowship support. There was some variation between groups of respondents, with postdocs more likely to support independent postdoctoral Fellowships, with the most popular stage for support being for postdocs with more than five years of postdoc research experience, while for all other groups the establishment of new Group Leaders was viewed as being most important. The combined results from all the surveys are given in Table 3. After the clear primary preference for supporting independent postdoctoral Fellowships across all levels of experience (342) and the Establishment of New Group Leaders (257), support for those returning from career breaks ranked consistently as being the third most important stage for support. It should also be noted that although Fellowships supporting Knowledge Exchange and Training were ranked quite lowly by respondents to the survey, the positive impact that Enterprise Fellowships have, both on the Fellow and the academic Research Organisation with which they are associated, was discussed by several groups during the workshop.

19. Both the surveys and discussions during the workshop viewed independent postdoctoral Fellowships for those with less than one year of postdoc research experience as being of low importance. This was due to a perceived difficulty in assessing an applicant's abilities prior to a period of postdoctoral research. However, of the 12 AFLFs awarded as part of the 2014 pilot, two went to applicants who were

yet to complete their PhD at the time of application and interview, indicating that researchers are able to propose exciting research and interview well at this early stage of their career. It was also felt by the committee responsible for reviewing AFLF applications that as long as the application process includes an interview stage, then the key factor of how independent and ready for a Fellowship the applicant is can be accurately assessed no matter how much postdoctoral research experience they do or do not have. How those who start their Fellowship with no postdoctoral research experience progress in comparison to others with more research experience will need to be tracked to determine if concerns around applicants this early in their research career are valid.

	Independent postdoctoral research for those with up to one year of postdoc experience	Independent postdoctoral research for those with between one and five years of postdoc experience	Independent postdoctoral research for those with more than five years of postdoc experience	Establishment of new Group Leaders / Research Groups	New research by established Group Leaders	Return from career breaks	Knowledge exchange	Training
1- Most important	34	164	144	257	36	32	3	21
2	56	140	143	148	72	92	20	19
3	50	120	112	101	83	154	32	36
4	82	78	97	70	87	129	65	78
5	88	62	55	46	105	112	112	100
6	78	44	66	27	109	99	113	146
7	71	76	32	24	86	39	200	151
8 - Least important	224	4	35	9	98	31	129	135

Table 3. Given BBSRC’s limited resources, what is most important for BBSRC to support through Fellowships (rank most important to least important)?

20. Overall discussions at the workshop were largely in line with the survey results. It was considered that early career researchers should be the focus of Fellowships as postdoctoral Fellowships can give researchers a first opportunity to independently demonstrate their abilities, while Fellowships for new Group Leaders allow researchers to establish research programmes within Research Organisations that may not otherwise appoint new Research Groups. In addition to this, the value of supporting returners to research was recognised. It was also considered though that there should be some Fellowship support, beyond that already provided by FLIP and Industry Fellowships, to support researchers at all stages of their career (i.e. including those with well-established permanent positions) in taking their research in a new direction. Benefits for providing established academics with Fellowships that allow them to concentrate on research were thought to include the opportunity for the Fellow to undertake novel research, prestige for the researcher in holding the Fellowship and prestige for BBSRC in being associated with a high profile researcher conducting high impact research. It was not felt that many such Fellowships would need to be available, but that it would be beneficial to have a few in order to “complete the pipeline” of Fellowship opportunities available to researchers at different career stages.

21. Although new research by established Group Leaders was not identified as a high priority area by part of the survey (Table 3), in response to the question of “are there

types of Fellowship BBSRC does not offer which we should?" the lack of Fellowship support at this stage was highlighted, closely followed by a lack of support for independent postdoctoral research by those with more than five years of postdoctoral experience.

How can the impact of Fellowships be maximised?

22. Discussions around this item focussed on the impacts that Fellowships currently have on the Fellows and their hosts, as well as the ways by which these impacts, and others, may be maximised. In general feedback and discussions echoed those held around the best career stages at which to support Fellows in that it was considered that to maximise impact it was best to support Fellows at the transition points of their career. However, a major concern highlighted by both the survey and workshop was that current eligibility rules that place limits on the number of years of research experience an applicant can have rule out large numbers of experienced and talented researchers. This leaves many with no Fellowship opportunities to support independent research.

23. Among Group Leaders and Heads of Department there was the strong opinion that Fellowship holders make more of a contribution (e.g. intellectually) to Research Groups or Departments (Table 4) than those at equivalent careers stages without a Fellowship. The opinion from Heads of Department was that independent postdoctoral researchers make the greatest additional contribution (Table 5).

Of those returning a response

	% Yes	% No
GL	75.9	24.1
HoD	86.7	13.3
Overall	77.3	22.7

Table 4. Do postdoctoral Fellowship holders tend to make more of a contribution, e.g. intellectually, to your Research Group than Postdoctoral Researchers without their own Fellowship?

Independent Postdoctoral Researcher with up to one year of postdoctoral research experience prior to joining your Department	Independent Postdoctoral Researcher with between one and five years of postdoctoral research experience prior to joining your Department	Independent Postdoctoral Researcher with more than five years of postdoctoral research experience prior to joining your Department	New Group Leaders	Established Group Leaders	Those returning from a career break	Other
1	8	6	6	3	2	0

Table 5. Which of the following types of Fellowship holder tend to make more of a contribution, e.g. intellectually, to your Department than those who are at a similar career stage without a Fellowship (tick all that apply)?

24. In describing the reasons for this additional contribution it was stated that Fellowship holders display increased independence and motivation, and that Fellows have the ability to drive forward new projects and the research of others through increased interactions with colleagues in their Research Group / Department. Support for Fellowships therefore has a beneficial impact on the host institution over and above that of the funding received alone.

25. Feedback from previous Fellowship holders indicated that various types of Fellowship were all viewed as having had a significant effect on the holder's career (Table 6), and the first destination information for BBSRC David Phillips level Fellowships indicates that at least 64.6% of Fellows go on to permanent Higher

Education positions (the true value is likely to be higher than this as 19.7% of destinations were unknown).

	Independent postdoctoral research	Setting up a new group	New research within existing group	Returning from a career break	Knowledge exchange	Other
Yes	209	162	79	16	19	23
No	12	2	3	0	2	0
% deemed not to have had a significant impact	5.4	1.2	3.7	0.0	9.5	0.0

Table 6. Did the Fellowships you have held have a significant impact on your career?

26. Feedback received and discussions held at the workshop did however indicate that the impact on the Fellows could be higher. This was based on the feeling that in some situations, particularly at new Group Leader level, Fellows may not always get the best level of support and mentoring from their host. One discussed mechanism to address this would be requiring the RO to make increased formal commitments to their new Group Leader Fellows. These could be either financial or in terms of mentoring and other personal support. In both cases it would be expected that increasing the resources invested in the Fellow should help ensure the host RO takes an active interest in the continued development and success of the Fellows they host. In order to not put ROs off from supporting Fellowship applications it was thought that if any financial contributions from host ROs were requested, then the contribution required would need to be carefully balanced with the level of Fellowship and risk to the RO. For example, not much, if any, contribution should be required for early career Fellowships where the researcher is less proven, while substantially more should be requested for Fellowships aimed at established Group Leaders with a proven track record.

27. It was considered that one mechanism of increasing the impact of BBSRC

Of those returning a response

	% Yes	% No	% Don't know
GL	48.2	21.4	30.4
HoD	51.2	26.8	22.0
RM	69.2	0.0	30.8
Other	58.4	8.9	32.7
Overall	51.7	17.8	30.5

Table 7. Should BBSRC partner with other organisations in the delivery of Fellowships?

Fellowships could be through increased partnerships, with 52% of survey respondent suggesting such partnerships should be made (Table 7). It was suggested that these partnerships should centre on forming links between both Research Organisations and Industry, and

BBSRC and other research funders. This would increase impact by strengthening academia-industry links and more instances of joint funding could allow increased numbers of Fellowships to be supported.

How should Fellows be supported?

28. Discussions around how Fellows should be supported focused on the stages at which support should be provided, the types of Fellowship support that should be available, and the mechanisms by which they could be funded. As highlighted during discussions around impact, a large part of this discussion centred on the eligibility rules associated with BBSRC's Fellowship schemes and also the demand from the

community for additional forms of support for postdoc level researchers who may not have a research proposal at a sufficiently advanced stage to successfully apply for an AFLF or other Fellowship.

29. It was considered that the most attractive aspects of the Fellowships currently offered by BBSRC are the duration of the award, David Phillips Fellowship are for up to five years, and the level of funding, AFLFs can claim up to £300k and there is no limit for DPF proposals (Table 8). Although the prestige of the awards was viewed as being a major attraction by Heads of Department and Research Managers / Administrators, this view was not shared by academics at earlier stages in their careers; this is consistent with anecdotal evidence that BBSRC Fellowships are not considered to be as attractive in terms of prestige as those provided by some other funders¹⁴.

Of those returning a response

	Duration of award	Eligibility criteria	Level of funding	Prestige of award	Other, please specify
%					
GL	36.0	8.5	28.9	14.5	12.1
HoD	19.5	9.8	17.1	41.5	12.2
RM	27.3	0.0	9.1	54.5	9.1
Other	29.8	23.7	15.2	23.7	7.6
Overall	33.2	12.7	24.1	19.3	10.8

Table 8. Which aspect of a BBSRC Fellowship do you think is most attractive to potential applicants?

30. The eligibility criteria of BBSRC Fellowships were not viewed as attractive by survey respondents; this was strongly supported by discussions at the workshop. It was felt that the upper limits of postdoctoral research experience placed on AFLFs, DPFs and TFs (up to five years active postdoctoral research and up to 10 / 12 years of active research experience respectively) rule out many good candidates who have excellent ideas for independent research.
31. Limiting the postdoctoral research experience of David Phillips Fellowship applicants to effectively two positions (i.e. four years of PhD experience and two postdocs of three years) was seen as being particularly rigid; ruling out applicants who have been “unlucky” with one of their postdocs and giving them insufficient time to allow them to subsequently prove themselves. It was also felt that the eligibility period restrictions rule out those who have a particularly multidisciplinary research background, who have changed research field in their career, or who have carried out private-sector research. Assessing such applications on a case by case basis, for example by allowing those who have clearly switched field additional years of postdoctoral research experience, could help prevent this. However, in implementing this there would be the risk of increasing the administrative burden of the scheme and making the eligibility criteria less transparent.
32. The general consensus regarding eligibility was that it should not matter at what stage in your career you have a good idea for independent research, as long as the proposal is excellent. However, suggestions to remove research experience eligibility limits need to be balanced with feedback stating that that BBSRC Fellowships should

¹⁴ Evaluation of BBSRC’s David Phillips fellowship scheme, Report from BBSRC Review Panel of experts (2011), www.bbsrc.ac.uk/web/FILES/Reviews/david-phillips-evaluation.pdf

preferentially support the development of those at early stages in their career and BBSRC's wish that "*Postdoc positions should be considered as stepping stones in a career*" as stated in the BBSRC Vision for Postdoctoral Researchers¹⁵.

33. Discussions were also held around how BBSRC might adapt or introduce new schemes to maximise the number of Fellows supported and the career stages at which opportunities are available. Although requirement for ROs to fund a set proportion of the cost of Fellowships was not strongly supported, it was suggested that a limit be placed on the maximum amount that can be requested by DPF proposals, and that proposals should include concrete information on the mentoring and support systems that will be in place for the Fellow at the RO. This would have several beneficial effects including; formalising the support received by the Fellow, helping ensure they are adequately supported and advised by their host; encouraging applicants to seek additional funding from other sources to contribute to the cost of the Fellowship; reducing the cost of each DPF to BBSRC, allowing an increased number of Fellowships to be invested in.
34. The survey and workshop resulted in several new Fellowship types being suggested, the most common of which was support for postdocs to dedicate time and resources to the generation of pilot data for subsequent full Fellowship applications (e.g. for an AFLF or DPF). The view was that this would allow BBSRC to help Postdoctoral Researchers demonstrate independence in a low risk way, support postdocs who are at institutions that do not already offer similar support, and, if a requirement for some RO contribution were to be stated, encourage those institutes that do already offer such funding to use it to support BBSRC remit science.
35. Echoing responses to questions around Fellowships that BBSRC should offer in paragraph 21 there was also further support for BBSRC providing increased Fellowship support at all academic career stages, with the introduction of Fellowships to allow existing Group Leaders to focus on new research and build new research programmes.

Should Fellowships be targeted?

36. In answering this question it was considered whether BBSRC should target Fellowships to strategic priorities, specific academic / industrial needs or particular groups of people. The overwhelming result of these discussions was that the excellence of the individual and their proposed research should be the primary concern and that other factors should only be considered secondarily, if at all. To address specific skills gaps it was thought that other mechanisms are better placed to achieve this. The FLIP award was viewed as being suitable to address many instances where targeted Fellowships could be suggested, for example by allowing researchers to spend time in industry or in different academic settings to gain new skills and exchange knowledge.

¹⁵ <http://bbsrc.ac.uk/funding/awardholders/research-staff.aspx>

37. Fellowships were not seen as a mechanism by which to increase the representation of women within senior academic roles and the use of Fellowships to specifically support minority groups was also not supported. In both instances, as long as it is ensured that no groups are unfairly biased by the application process, the causes of underrepresentation within academia were considered to be too fundamental to be addressed by a Fellowship programme.

38. With regards to targeting Fellowships to BBSRC strategic priorities, the overall response, 60.2%, from the survey was that Fellowships should not be used to address these (Table 9). It should be noted though that there is a clear split in

Of those returning a response

	%Yes	%No
GL	30.3	69.7
HoD	47.5	52.5
RM	27.3	72.7
Other	61.3	38.7
Overall	39.8	60.2

Table 9. Should BBSRC target the Fellowships offered to our strategic priorities?

opinion between Group Leaders / Heads of Department, who are strongly against such targeting, and those in the “other” category, who are for the most part postdocs and are more in favour of targeting. These views were largely repeated in the workshop, although the overall view was against the use of Fellowships to target strategic priorities, or address specific needs. There was some agreement that in certain instances Fellowships could be introduced for a limited period to capacity build in specific areas where a clear need has been identified. However, it was considered that in general if the pool of Fellows supported is large enough then areas of need will naturally be addressed as research funding is sought.

Starting from scratch: how would you support Fellowships?

39. In order to gain as many views as possible, workshop participants were given the opportunity to discuss with BBSRC their ideas around how they would design a suite of Fellowships that would be fit to address all the needs identified by the discussions held throughout the day. During discussions a number of general points for consideration were brought up, as well as ideas for specific schemes and mechanisms of delivery.

40. With regards to what programmes should be offered it was again considered that there should be Fellowship support for researchers at all stages of their career; from postdoc to Professor level. However, it was recognised that with the cost of supporting a Fellowship likely increasing as the career stage supported progresses there would need to be a careful balance between the number of early career researchers and established Group Leaders / Professors supported to ensure that the focus remains on early career scientists. To fund an increased number of Fellows it was stated that applicants could be encouraged to gain funding from novel sources, such as crowd funding.

41. An approach to funding by which the cost of new Group Leader Fellows is split, at varying levels, with ROs was also discussed. Using this model it would be understood that based on the level of RO funding received, the Fellow would be expected to spend a corresponding amount of their time teaching (e.g. a Fellow funded 50% by an RO would be expected to spend up to 50% of their time on

teaching activities). Such an approach could also make the RO feel they have more invested in the Fellow and the Fellow would have experience of additional roles within the organisation on top of their research, which could aid subsequent movement to a permanent position.

42. It was also suggested that during assessment of Fellowship proposals more weight should be given to the “overall impact” that an applicant has had, rather than focussing only on publication record. This would lead to greater recognition of activities such as teaching and mentoring; skills that are required as part of an academic career and which can help Fellows to gain permanent positions. Comparing the “overall impact” of candidates was understood to be difficult though, and very clear guidelines would be needed to maximise the chance that this could be assessed fairly and consistently.
43. In terms of specific schemes and mechanisms for delivering Fellowships, ideas suggested included support for collaborative Fellowships that would be open to all career stages and which could be facilitated by sandpit events, and increasing the support currently provided to returners to research so that costs such as consumables and conference travel expenses are covered. As throughout the review process, there were extensive discussions and support for Fellowships to help researchers, particularly postdocs, to generate pilot data. The idea of a scheme to support research-focused sabbaticals at any point in a researcher’s career was also discussed again. It was thought that a single such scheme could be open to all researchers and so would address the suggestion that BBSRC should offer research-focused Fellowship opportunities to all career stages. All schemes should require the RO to demonstrate that they have effective mentoring systems in place, and new Group Leaders supported by Fellowships should be treated in the same way as established academic staff e.g. they should take part in faculty meetings etc.
44. A recurring idea throughout the review process was that the upper postdoctoral research experience eligibility limits of Fellowships be removed, and there were discussions around how this may be managed in practice. This included the idea that to manage an expected increase in demand for the schemes, limits could be placed on Research Organisations as to the number of Fellowship proposals that can be submitted by them each call; forcing them to do an internal triage of applications prior to submission. Also, to increase the ease by which reviewers and assessment committees can make comparisons between applicants with greatly varying levels of experience it was suggested that they should only consider publication track records over the preceding few years of an applicant’s career (e.g. three to five). In this way the process would be assessing an applicant’s productivity for the period of time most relevant to their application and discounting those publications from many years ago.

OUTCOMES

45. Interest in participating in the review workshop and the extensive response to the community survey, to which over 700 overwhelmingly positive replies were received,

demonstrates strong interest from the research community in the continuation of Fellowship support and the importance of the schemes BBSRC invests in. Although a large range of views were presented in these activities, there were some consistent messages that are given in the following conclusions.

46. There was the view that the annual BBSRC Fellowship budget of £9M is unlikely to be sufficient to achieve all that the workshop discussions suggested was needed and the recommendations made. Relating to this, questions were asked during the review about how much BBSRC allocates to its Fellowship programmes in comparison to other Research Councils. This information is given in Annex 2 and indicates that as a proportion of total spending, the BBSRC Fellowship budget is one of the Research Councils' lowest.
47. The conclusions presented here represent the views obtained through both the survey and workshop, while the recommendations made are as a result of the open discussions that were held as part of the workshop and the subsequent discussions around this held by the review Steering Group and BBSRC's Bioscience Skills and Careers Strategy Panel. The recommendations made include those that would be easy to implement, such changes to Fellowship eligibility criteria, to those that are much longer term, such as changing the behaviour of Research Organisations so that they all feel more invested in the Fellows they host and so have more of a long-term interest in their professional and career development.

Conclusions

- i. There is overwhelming support for Fellowships from the community. This is particularly due to the opportunity Fellowships give researchers to advance their careers and conduct innovative research
- ii. Support for early career researchers i.e. to support independent Postdoctoral Researchers and to establish new Group Leaders should be BBSRC's priority, but opportunities should be available to researchers at all career stages. Fellowships were thought to be most effective when aiding transitions (i.e. career stage, research topic, returning to research)
- iii. There is great demand for a source of funding that would allow Postdoctoral Researchers to independently generate preliminary data that can subsequently be used to support full early career Fellowship applications
- iv. Returners to research are an important area which Fellowships are well suited to support. Fellowships are not the best mechanism by which to target skills gaps and capacity build, although the potential usefulness of limited calls in highly specific areas of need is recognised
- v. Early career Fellows undertaking research in a variety of scientific areas are needed to ensure future strategic priorities can be met and the requirement for applicants to address specific topics can limit this diversity

- vi. A budget of £9M p.a does not seem sufficient given BBSRC's total expenditure of £518M¹⁶ p.a, and training the next generation of research leaders is an important part of BBSRC's mission
- vii. The current number of David Phillips Fellowships awarded per year is not enough for the scheme to have a significant impact in supporting new Research Groups undertaking BBSRC remit research
- viii. There are various mechanisms by which an increased number of Fellowships could be supported. These include an increased Fellowship budget, caps on individual Fellowship value and a requirement for leveraged funds (from the host Research Organisation and other sources such as industry, charities etc.). If more Fellowships are to be invested in there needs to be a greater understanding of the potential impacts of these options
- ix. It should be expected that Fellowships receive some form of financial support from other organisations, the level of support expected is likely to vary with the seniority of the Fellowship
- x. Not all host Research Organisations make a sufficient commitment to Fellows to ensure they are appropriately looked after and receive worthwhile mentoring and support
- xi. Fellowships can encourage researchers to prioritise BBSRC remit research throughout their career
- xii. The pilot 2014 Anniversary Future Leader Fellowship is important for supporting researchers to make their first steps to independence, but less than one year of postdoctoral research may not be enough to effectively judge the quality of Fellowship candidates
- xiii. Upper limits of research experience for Fellowship applicants could be ruling out interdisciplinary researchers, people who have completed their PhD in another country or taken unconventional career paths, and those who become competitive and have excellent ideas later in their career
- xiv. Career tracking is needed to effectively determine the impact of Fellowships

Recommendations

- i. More Fellowships to support early career researchers and returners to research should be funded. These should be flexible to support a range of researchers and to ensure there are Fellowship opportunities for all talented scientists who show promise of being future leaders

¹⁶ www.bbsrc.ac.uk/web/FILES/Publications/1314-bbsrc-annual-report-accounts.pdf

- ii. To avoid ruling out talented individuals there should be more flexibility regarding Fellowship eligibility. When assessing candidates with variable levels of research experience, emphasis should be placed on the most recent track record of a candidate to increase the ease by which such individuals can be compared
- iii. BBSRC should consider increasing its level of investment in Fellowships to the Research Council average
- iv. There should be Fellowship opportunities across the whole of a researcher's career, from those wishing to conduct their first independent research to established academics
- v. Funding should be available for the generation of pilot data to support subsequent Fellowship / funding applications. This is particularly needed at the Postdoctoral Researcher career stage
- vii. Research Organisations wishing to host Fellows need to give a formal commitment regarding the support and mentoring system that will be in place to provide support

Fellowship	Purpose	Eligibility	Value	Notes
Anniversary Future Leader Fellowship (AFLF)	Early career researchers who want to conduct their own independent research within a host laboratory	Up to 5 years active postdoctoral research experience	£300k 80% FEC over 3 years full time (FT)	Run as pilot in 2014
Daphne Jackson Fellowship	For scientists, technologists, engineers or mathematicians who have had a career break of 2 or more years for family, caring or health reasons and wish to return to research	3 years postdoctoral research experience and over 2 years career break	Salary and some other funding for 2 years part time (PT)	Administered by Daphne Jackson Trust, BBSRC support provided: £100k p.a.
David Phillips Fellowship (DPF)	Scientists who have demonstrated high potential and who wish to establish themselves as independent researchers	Up to 10 years of active research experience	No limit as long as fully justified over 5 years FT	
Enterprise Fellowship	To encourage the development of a new business, building on previously funded BBSRC research	Academic staff, research staff and postgraduates	Salary and extensive business training and mentoring over 1 year FT	Administered by Royal Society of Edinburgh, BBSRC support provided: up to £200k p.a.
FLexible Interchange Programme (FLIP)	Provide flexible opportunities for individuals moving between different organisations, disciplines and sectors at all stages in their career beyond PhD (or equivalent)	PhD or equivalent and be employed by one of the organisations participating in the interchange upon start of award	Typically up to £150k in total at 80% FEC for up to 2 years FT or PT	
Industry Fellowship	Academic scientists who want to work on a collaborative project with industry and for scientists in industry who want to work on a collaborative project with an academic organisation	Hold a PhD or equivalent, and a permanent post at an RO	Salary costs and research expenses up to the value of £2000 per year. 2 years FT, or up to 4 years PT	Administered by Royal Society, BBSRC support provided: £100k p.a.
Translational Fellowship (TF)	Early career researchers from academia or industry who have demonstrated high potential, and who wish to establish an independent academic career focused on the translation of fundamental bioscience research	Up to 12 years of active research experience	No limit as long as fully justified over 5 years FT	Run as pilot in 2014, focus on crop science

Fellowships supported by BBSRC in 2014

Council	Fellowship budget (£M)	Total expenditure (£M)	Percentage of total expenditure allocated to Fellowships
AHRC ¹⁷	6	110	5.4
BBSRC ¹⁸	9	518	1.7
EPSRC ¹⁹	54	936	5.8
ESRC ²⁰	10 [△]	223	4.5
MRC ²¹	40	871	4.6
NERC ²²	8	439	1.8
STFC ²³	5 [†]	560	0.9
Research Council Average	18.9	522.4	3.6

Research Council Fellowship Spending 2013/14

[†] Approximate value for 2014/15

[△] Value of 2014 Future Research Leader call

¹⁷ [Reference/webpage no longer available – February 2017]

¹⁸ www.bbsrc.ac.uk/web/FILES/Publications/1314-bbsrc-annual-report-accounts.pdf

¹⁹ www.epsrc.ac.uk/newsevents/pubs/epsrc-annual-report-and-accounts-2013-14/

²⁰ [Reference/webpage no longer available – September 2018]

²¹ www.mrc.ac.uk/news-events/publications/annual-report-and-accounts-201314/

²² www.nerc.ac.uk/latest/publications/strategycorporate/annualreport/annualreport.pdf

²³ [Reference/webpage no longer available – Feb 2016]

BBSRC REVIEW OF STRATEGY FOR INVESTING IN FELLOWSHIPS STEERING GROUP

Chair: Professor Mandy MacLean, University of Glasgow
Professor Richard Bardgett, University of Manchester
Professor Margaret Dallman, Imperial College London
Professor Jerry Roberts, University of Nottingham
Professor Alison Smith, John Innes Centre

STEERING GROUP TERMS OF REFERENCE

- Work with BBSRC to develop topics and questions for a community survey regarding Fellowship provision
- Advise BBSRC as to the participants of a Fellowship workshop consultation
- Analyse the outputs from this consultation
- Provide expert advice on a BBSRC vision and strategy for Fellowships
- Make recommendations to BBSRC Executive and Council on the future shape of BBSRC's Fellowship programmes

BBSRC Strategy for Investing in Fellowships: Workshop 13 November 2014		
09:30 – 10:00	Arrival with tea & coffee	
10:00 – 10:15	Welcome & introduction	
	OXFORD ROOM [groups 1 & 2]	LINCOLN ROOM [groups 3 & 4]
10:15 – 10:45	Breakout session topic 1: <i>Should BBSRC support Fellowships?</i>	
	- Why should BBSRC support Fellowships and what would the effect of not supporting them be?	
10:45 – 11:45	Breakout session topic 2: <i>At which career stage(s) should Fellowships be available?</i> <ul style="list-style-type: none"> - What career stages should be supported through Fellowships? Are any new schemes needed e.g. "Seed funding" to support postdocs with full Fellowship proposals? Is there enough support for returners to research & discipline hopping? - What eligibility criteria should there / should there not be? 	Breakout session topic 2: <i>At which career stage(s) should Fellowships be available?</i> <ul style="list-style-type: none"> - What are the impacts of Fellowships? - How can these impacts be measured? - Could BBSRC form new partnerships to maximise the impact from Fellowships?
11:45 – 13:00	Review of group outputs and working lunch in Oxford Room	
13:00 – 13:45	Breakout session topic 4: <i>How should Fellows be supported?</i> <ul style="list-style-type: none"> - Should Research Organisations have to make a formal commitment / contribution (e.g. salary, equipment and consumables, training) to Fellows? If so, what should these be? - What models of funding are best to support different Fellowships? Are Fellowships that require midterm review for extended funding (e.g. 3 years + 2 years) a good idea? - Should external placements be encouraged? 	Breakout session topic 5: <i>Should Fellowships be targeted?</i> <ul style="list-style-type: none"> - Should Fellowships be targeted to BBSRC strategic priorities? If so, what is the best split between strategic and underpinning bioscience? - Should Fellowships be targeted to areas of need that may be identified (e.g. in specific skill areas, to support technical and instrumentation specialists, to encourage industry collaboration etc.)? - Should Fellowships to be used to target any other areas and how could any targeting be achieved?
13:45 – 14:30	Review and tea & coffee in Oxford Room	
14:30 – 15:15	Breakout session topic 6: <i>Starting from scratch: how would you support Fellowships?</i>	
	- If designing a new group of Fellowships, what would they support and how?	
15:15 – 15:45	Report back in Oxford Room	
15:45 – 16:00	Close	

March 2015
BBSRC
Innovation and Skills Group
Skills and Careers Unit