ACKNOWLEDGEMENTS

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UKRI-BBSRC Skills and Careers Unit

August 2020
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GLOSSARY

BSC - Bioscience Skills and Careers
DPF – David Phillips Fellowship
DF – Discovery Fellowship
ECR subgroup – People and Talent Strategic Advisory Panel, Early Career Researchers subgroup
EDI – Equality, diversity and inclusion
fEC – full Economic Costing
FLF – Future Leaders Fellowship
PAT SAP – People and Talent Strategic Advisory Panel
R&I – Research and Innovation
EXECUTIVE SUMMARY

BBSRC fellowships invest funds in individuals making the transition to independence. In this way it supports a pipeline of talented researchers to become future leaders in the biosciences. BBSRC has recently reviewed its fellowships investment strategy, to ensure that they will optimally serve the biosciences community going forward. The review gathered evidence from a wide range of sources to assess:

- Successes of existing schemes;
- Areas for improvement and/or change;
- The ongoing role of BBSRC fellowships in the context of the wider fellowship and funding landscape.

The review demonstrates that fellows from the current programmes are very successful. BBSRC fellows produce excellent research outputs and demonstrate significant personal and professional development. Furthermore, a large proportion achieve promotions, open-ended contracts or more senior fellowships at the end of their projects. This was particularly notable for Discovery Fellowships (DFs) where many fellows, despite the scheme being oriented toward more junior researchers, achieved open-ended contracts immediately after their fellowship. Interviews with previous fellows highlighted that BBSRC fellowships provide training and support beyond that of other similar programmes, and opportunities such as the fellows conference and mock peer review panels were rated highly by individuals.

However, the review also identified areas where the programmes are less successful. One of the main issues highlighted during consultations was the small number of individuals funded. It was considered that the current programmes are not completely demonstrating cost-effectiveness and there is a risk of unconscious bias reducing diversity of the fellow talent pool, and ultimately the biosciences research community. Analysis also identified significantly fewer female applicants to the David Phillips Fellowship (DPF) scheme.

The review also demonstrated a significant overlap between the DPF and UKRI Future Leader Fellowship (FLF) schemes. The programmes are broadly similar in their aims and both support a similar career transition. The UKRI FLF programme, however, is on a much larger scale covering all research areas with a much larger total budget than the DPF scheme. The UKRI FLF scheme funds many fellows carrying out projects similar to BBSRC DPFs, both in terms of remit and translatability. Overall, those consulted as part of the review regarded continued funding for a small number of DPFs not appropriate investment for BBSRC. The current fellowship landscape includes UKRI FLFs that are currently funded and provide an alternative fellowship route.

The following recommendations are made as a result of the review:

- It is important that BBSRC continues to support future leaders through fellowship schemes, to attract and develop a flexible and diverse workforce for modern bioscience.
- BBSRC should aim to support a greater number of individuals when designing future fellowship programmes.
- BBSRC’s future offering should support individuals in exploring their career options and developing skills required to pursue non-academic, as well as academic career paths.
- If UKRI FLFs continue to be funded and applicants within the BBSRC remit continue to be successful, then the value of DPFs to the biosciences community is reduced, and BBSRC should consider where best to invest its fellowships budget. d.
- BBSRC should seek to ensure that potential applicants to its fellowship programmes are clear about which scheme, if any, is appropriate to them.
- BBSRC should consider how its fellowships can best support the research culture agenda by:
  - Selecting applicants with an awareness of how they might improve research culture through their own actions;
  - Providing training to its fellows.
BACKGROUND

Fellowships are an important mechanism by which UKRI-BBSRC supports future leaders in the biosciences. The programmes are designed to support early career researchers in developing independence in their work and a scientific niche. BBSRC currently invests approximately £7M per annum in fellowships delivered primarily through David Phillips Fellowships (DPF) and Discovery Fellowships (DF).

Current BBSRC Fellowship Programmes

The Discovery Fellowship (formerly Anniversary Future Leaders Fellowship) programme is aimed at individuals who wish to carry out independent research in a host lab. These fellowships are available to early career researchers once they have completed their PhD. The David Phillips Fellowship programme supports researchers to establish their own independent lab. The key features of each are summarised in the table below.

<table>
<thead>
<tr>
<th>Discovery fellowship</th>
<th>David Phillips fellowship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent research in a host lab</td>
<td>Establishing an independent research group</td>
</tr>
<tr>
<td>~10 awarded per year</td>
<td>3-4 awarded per year</td>
</tr>
<tr>
<td>£300k (80% fEC)</td>
<td>£1m (80% fEC)</td>
</tr>
<tr>
<td>Proposals may not include equipment or staff costs</td>
<td>Proposals may include equipment costs and funding for one member of staff</td>
</tr>
<tr>
<td>Introduced in 2014 as the Anniversary Future Leaders Fellowship</td>
<td>Has existed in a similar format since 1992</td>
</tr>
</tbody>
</table>

Although there are no restrictions on the number of years post-PhD for either scheme, due to the different levels of independence required, BBSRC expects those applying for the DF to have less experience than those applying to the DPF.

BBSRC also funds other fellowship schemes, such as Enterprise Fellowships and the externally run Daphne Jackson Fellowships. These schemes are not explicitly reviewed here but are considered as part of the wider context.

Fellowship review

This review aims to further understand the role of the DPF and DF programmes in a wider context and to identify new and innovative ways BBSRC might increase the impact of its fellowship offerings.

A previous review of BBSRC fellowship investment was carried out in 2014. It used a survey and workshops to gather views and ideas from the BBSRC community. The previous review recommended that BBSRC should be flexible in terms of eligibility and career stage to support a wide range of researchers, and that BBSRC should consider increasing its level of investment in fellowships to accommodate this. It also supported the idea of providing funding to allow future applicants to independently generate pilot data that could be used to support fellowship applications.

Finally, it recommended that a formal commitment of support should be obtained from a host research organisation to ensure fellows have access to the facilities, mentoring, training and other support they require. This is now standard in all fellowship applications.

Since the previous review, there have been significant changes in the fellowship landscape, both within BBSRC and more widely. In 2014, BBSRC introduced the DF programme to support fellows in completing an independent research project in a host lab. In February 2019, the first round of UKRI Future Leader Fellowships (UKRI-FLF) were announced with the UKRI-FLFs funding fellows across all Research Council remits including BBSRC.
Furthermore, the wider research and innovation (R&I) landscape is changing. The government continues to prioritise increasing investment in R&I. This will require the research community to increase its capacity. One way to support this is through the bolstering of the pipeline of excellent researchers through investment in fellowships. Furthermore, R&I will continue to be a priority during the UK’s recovery from the COVID-19 pandemic.

A recent surge in interest in improving the culture and environment in which researchers work also makes it appropriate for BBSRC to review the extent to which the schemes support a healthy research environment. This includes ensuring assessment is considering principles of equality, diversity and inclusion, supporting funded fellows in pursuing fulfilling careers, and providing appropriate training including around how to encourage a healthy research culture in their future labs.

The changes in the fellowship and wider research landscape make this review timely. The review aims to describe the role that BBSRC fellowships are playing and could play in the future within this context.

Review methodology and data sources

The review has drawn on data from a wide range of sources to inform its recommendations. Data analysis was carried out on successful and unsuccessful proposals from both BBSRC schemes. Contextual information was also collected about other fellowship programmes, including data from the UKRI-FLF. Further details regarding methodologies can be found in the Annex.

These data analyses were presented to the committees and panels described below:

- Committee E – the panel who assess fellowship proposals and carry out fellowship interviews. The committee also play a role in mentoring current fellows and monitoring their progress.
- People and Talent Strategy Advisory Panel (PAT SAP) – formerly BSC SAP – provide strategic advice to BBSRC on issues relating to people and talent.
- PAT SAP Early Career Researcher (ECR) subgroup – composed of postdocs and BBSRC Discovery fellows.

Data analyses were also presented to stakeholders from across the BBSRC community including senior researchers, early career researchers and research office staff in a workshop. These groups were instrumental in drafting the recommendations and options (see Annex A.3 for further details). Options for how to proceed were then presented to BBSRC Council.
SUMMARY OF CONCLUSIONS

The conclusions drawn from this review are based on analysis of available data held on UKRI-wide and BBSRC-specific management information systems, as well as substantial qualitative information from key stakeholders in the BBSRC community (including the Bioscience Skills and Careers/People and Talent Strategy Advisory Panel, the Early Career Researchers group, Committee E, current and former Fellows and a community workshop). This section lists the main conclusions drawn and summarises the key evidence sources used.

**Conclusion 1:** BBSRC has a role in supporting bioscience researchers at different career stages on a pathway to independence.

**Conclusion 2:** Existing BBSRC fellowship programmes (both DF and DPFs) are very successful in supporting the careers of fellows by:
- Providing fellows with the funds to produce independent research outputs.
- Providing additional support for fellows in the form of:
  - mentoring;
  - cohort activities;
  - mock peer review etc.

**Conclusion 3:** Existing BBSRC fellowships perform poorly when considering:
- The low success rate and small number of individuals supported;
- Equality, Diversity and Inclusion, especially the ratio of female to male applicants;
- The small number of individuals supported may have a negative impact on the diversity of future bioscience leaders.

**Conclusion 4:** Fellowships are one of only a small number of opportunities for ECRs to access independent funding from BBSRC.

**Conclusion 5:** In the changing fellowship and wider landscape, BBSRC must carefully consider its role going forward.

**Conclusion 6:** The best course of action is highly dependent on whether UKRI FLFs continue.
CONCLUSION 1: BBSRC has a role in supporting bioscience researchers at different career stages on a pathway to independence.

Key points:

- BBSRC has a role in supporting bioscientists throughout their career path, particularly at key career transition points (PhD towards independence);
- BBSRC should invest in ECRs to build a bioscience community with the skills, knowledge and agility to respond to future societal challenges;
- Fellowships provide opportunities for a small number of individuals to focus on developing the skills and independence necessary to be successful in academic research;
- There needs to be clarity about which schemes are supporting which career stage, and the differences between schemes.

BBSRC’s vision is to push back the frontiers of biology to deliver a healthy, prosperous and sustainable future. BBSRC’s delivery plan recognises that the development of people is vital to delivering this future. To do so, BBSRC must invest in individuals throughout their careers including supporting a pipeline of talented researchers to become future research leaders. Ultimately, these individuals will contribute to bioscience research on projects funded by BBSRC and other funders, or through contributing to research and innovation elsewhere in the economy.

For the purposes of this review, an early career researcher (ECR) is defined as an individual who has completed their PhD but is not yet eligible to apply for standard BBSRC grants. Across all consultations, it was unanimously agreed that part of BBSRC’s role is to support bioscience researchers during this critical stage of their career.

BBSRC needs to support a pipeline of future research leaders. It is critical that researchers are supported from the start of their doctoral studies, throughout their ECR experience and eventually in establishing themselves as group leaders in academia (for those that are able to and wish to do so) or in other research and innovation environments. Gaps in providing support risks losing talented individuals from the system with the potential to reduce the productivity of the bioscience community.

Individuals at the ECR stage are particularly vulnerable. ECRs are often employed as postdoctoral researchers on short-term contracts making this a particularly unstable time in a researcher’s career. This coincides with a time when individuals may be making significant personal transitions (such as starting a family). Combined, these factors risk depriving the community of excellent researchers if appropriate support is not in place.

The early career period is one of intense personal development. If remaining in research, the next step is often independence as an academic principal investigator. The transition from postdoc to group leader is a significant one. The role of group leader requires researchers to not only develop a research niche, but also to develop broader skills such as grant writing, financial management and management of people.

During the ECR stage, researchers build their research and transferable skills, develop a scientific portfolio and explore their career options. Stakeholders that were consulted (particularly Committee E colleagues who assess fellowship applications for BBSRC) reflected that those ECRs who have had opportunities and the support to develop and demonstrate these skills are at a significant advantage in securing competitive positions, whether a fellowship or an academic role. They are, on the whole, better prepared with the skills needed as a group leader. Individuals who have greater opportunities to demonstrate independence, collect preliminary data and undertake networking activities or form independent collaborations, are also at a significant advantage.

BBSRC fellowships provide significant support in these aspects to a small number of individuals at this career stage. They provide the necessary funds and time to focus on development in this critical stage, both in terms of scientific and professional development.

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1 BBSRC’s delivery plan
It is not clear to applicants what the difference is between the DF and DPF programmes. The DF and DPF programmes are designed to support different parts of the early career pipeline. However, applicant queries suggest that the differing aims of the DF and DPF are unclear. The number of these types of queries appear to have increased since the cap on years of postdoc experience have been removed, indicating that this may have been serving as a guide to applicants.
CONCLUSION 2: Existing BBSRC fellowship programmes (both DF and DPFs) are very successful in supporting the careers of fellows by:

- Providing fellows with the funds to produce independent research outputs.
- Providing additional support for fellows in the form of:
  - mentoring,
  - cohort activities,
  - mock peer review etc.

Key points:

- Most David Phillips fellows secure an open-ended academic position at the end of their fellowship.
- Most individuals secure either a more senior academic position or fellowship following their Discovery Fellowship.
- Fellows value highly the additional, non-financial support offered by BBSRC fellowship schemes. In particular, the mentoring scheme, networking opportunities and opportunities to observe peer review panels.
- Similar support mechanisms, such as a mentoring scheme and networking opportunities are currently being added to the UKRI FLF scheme. It is unclear how successful the larger UKRI FLF scheme will be in recreating the personalised experience received by a small cohort of BBSRC fellows.

A very high proportion of DFs and DPFs achieve more senior fellowships or open-ended contracts at the end of their fellowship. The evidence used for this review was restricted to cohorts from 2010 onwards to enable better integration with other data sources such as ResearchFish and BBSRC’s business intelligence platform. Table 1 provides data on transitions of fellows into subsequent academic positions, and survey evidence on the utility of BBSRC’s investment in the fellowships.

Table 1 Transition to further academic employment and role of BBSRC fellowships

<table>
<thead>
<tr>
<th>Data available on:</th>
<th>Discovery Fellows</th>
<th>David Phillips fellows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secured further lecturer level post and/or promotion</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>&quot;How useful was the fellowship in helping you to secure your subsequent employment position?&quot;</td>
<td>4.2/5 (20 survey responses)</td>
<td>4.8/5 (6 survey responses)</td>
</tr>
<tr>
<td>&quot;Do you think holding the BBSRC fellowship allowed you to boost your career progression?&quot;</td>
<td>Yes – 19 Fellows (20 survey responses)</td>
<td>Yes – 6 Fellows (6 survey responses)</td>
</tr>
</tbody>
</table>

Career tracking and destination data for ECRs is a known problem for the sector. The most reliable picture of career destinations for ECRs remains the Royal Society’s 2010 Scientific Century report, which suggests that <15% of ECRs will secure an open-ended academic research position. On this basis, the Discovery Fellowship scheme has been particularly successful in supporting researchers to make this transition.

**BBSRC fellows and quality of research outputs.** It has not been possible to evaluate consistently the outputs derived as a result of BBSRC fellowships, due to the variable quality of reporting in ResearchFish (see Annex A.5). However, given the high success rate in recruitment into academic positions (or more senior fellowships) and the role that quality research outputs has in these processes, it is reasonable to expect that outputs derived as a result of BBSRC’s fellowship investment are of at least an acceptable standard.

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2 Described as a “systemic challenge” in the recent revision of the Researcher Development Concordat
3 Royal Society. Scientific Century (2010) Fig 1.6
BBSRC fellowships give individuals the time and space to develop the research skills they require for their future careers\(^4\). Discovery Fellows valued the time to work on their own, independent, research proposals. For them, the scheme provided an opportunity to build a track record of independent research and demonstrate success in grant funding applications. Research training was in the form of on-the-job learning under the mentorship of a host PI.

David Phillips Fellows were able to also gain experience of supervising other staff, students and developing research leadership. David Phillips Fellows also developed skills in the administrative, management and leadership aspects of their new role.

The on-the-job learning aspects of the DPF are supplemented with additional training in leadership and management, teamwork and a media training course provided by the Royal Society. Fellows felt that these opportunities were valuable but could be improved. The leadership and management opportunities provided were felt to be too generic and could be more focused to the research environment\(^5\).

Fellows felt that they would benefit from more specialised training in research leadership and management, financial and project management, negotiating, managing difficult conversations and more examples of successful public engagement. Some fellows also noted that their ROs had significant existing provision. When addressing these skills gaps, BBSRC should be mindful of providing these opportunities within the fellowship scheme itself against setting appropriate standards of the level of support ROs are expected to provide.

BBSRC fellows value the additional support provided by BBSRC fellowships over other funders, including:

- **Mentoring and networking opportunities**

  Networking opportunities provided to fellows were described as very useful, allowing fellows to feel part of a cohort, build relationships with their peers and support each other. The opportunities provided to fellows were the biannual fellows conference and a smaller, cohort-specific, fellowship kick-off meeting. These were seen as an informal learning opportunity by many as fellows could discuss the challenges they faced or learn how their peers overcame the challenges that they anticipated. This was particularly useful for fellows to learn about the different approach ROs took to staff development, promotion and tenure, and supported the fellows in navigating the career challenges involved.

  Fellows are also supported with a BBSRC assigned mentor. Discovery fellows are mentored by a previous David Phillips fellow, whereas David Phillips fellows are mentored by a member of BBSRC’s Committee E. Most fellows interviewed valued their assigned mentor. The few that did not, reported having enough access to mentorship through their RO or existing connections. Mentors were useful in providing a perspective outside of the fellows RO and/or institutional politics and further supported fellows in navigating career transitions and in negotiations with their host department.

- **Peer review**

  Discovery Fellows felt that the most valuable training opportunity provided by the scheme was the invitation to observe a responsive mode (RM) grant panel. This demystified the funding process for fellows and informed their future grant applications. To a lesser extent they also appreciated the opportunity to review applications to the DF scheme, however this takes the form of a mock exercise and was felt to be less valuable. Discovery fellows felt that they would benefit from additional opportunities to attend RM panels.

- **Other**

\(^4\) Data in this section is summarised from interviews with fellows, summarised in Annex A.4

\(^5\) Fellows compared this opportunity unfavourably to the Research Leadership course provided by EMBO.
All fellows interviewed appreciated the approachability and support provided by the BBSRC office staff. Possibly due to the smaller size of the BBSRC fellowship cohorts, BBSRC is able to provide more personal support to fellows and build stronger relationships, which gave fellows a "friendly face" in the office to contact with any issues such as leave policies or additional grant applications. Office staff were also able to support fellows in interactions with ROs, helping to ensure that fellows received the support they were promised at application.

**BBSRC fellows are valuable to BBSRC during and beyond the end of their fellowship.**

Fellows provide strategic advice from the perspective of an early career researcher both through membership of the ECR subgroup of PAT SAP and during specific sessions in the fellows' conference. Many fellows also remain within the BBSRC community and contribute throughout their careers. For example, a previous BBSRC David Phillips fellow is the current deputy chair of Committee E.
CONCLUSION 3: Existing BBSRC fellowships perform poorly when considering:

- The low success rate and small number of individuals supported
- Equality, diversity and inclusion (EDI), especially the ratio of female to male applicants.

The small number of individuals supported may have a negative impact on the diversity of future bioscience leaders.

Key points:

- Investment in DPFs and DFs accounts for approximately 1.5% of BBSRC’s total annual research budget.
- The number of individuals supported is very low in comparison to other UKRI councils and compared to similar schemes offered by other funders such as the Wellcome Trust.
- The success rates for both the DPF and DF schemes are far below the average for funding calls across BBSRC. In previous years, the success rate for the DPF has been as low as 5.9%.
- Success rates for men and women are similar for both DF and DPF. However, there is a significant lack of female applicants to the DPF scheme. The low success rate and perceived competitive nature of the call may be contributing to this poor applicant diversity.
- The low number of fellows that BBSRC supports prevents meaningful assessment of the representation of other characteristics relating to equality, diversity and inclusion.
- The small number of fellows selected may have significant negative effects on the diversity of bioscience leaders in the future.

Each year, BBSRC invests ~£7m in fellowships. This amounts to approximately 1.5% of the total annual research budget (Figure 1). The budget has remained the same since 2015; prior to 2015, the budget was ~£9M.

Figure 1 Total BBSRC spend in 2017/18, broken down by recipient type (inner circle) and by investment mechanism (outer circle).

The number of fellowships supported by BBSRC is low when compared to similar fellowships offered by other funders (and where data were available). Not all funders have schemes that are suitable for comparison. Of those schemes that were considered suitable for comparison, the success rates were analysed and shown in Table 2. Success rates for DPFs were lower than all equivalents analysed.
A more detailed comparison of success rates with the FLF programme can be found in Conclusion 6.

The small number of individuals funded impacts the cost-effectiveness of the scheme. The DF and DPF programmes together cost an estimated £250k to run, based on the mean 3.5% operational costs calculated for BBSRC programmes. Compared to many other BBSRC schemes, DF and DPF programmes are resource intensive, including peer review (panel and interview costs), office administration and cohort activities such as the Fellows Conference, as well as the annual appraisal meetings and mid-term reviews. Efficiencies of scale would be possible if, at some stage, more fellowships were awarded.

Female and male applicants have similar success rates but significantly fewer women apply to the DPF. As shown in Figure 2, the success rates of male and female applicants to both schemes are broadly similar, although it appears male applicants have a slight advantage over female applicants in the Discovery Fellowships scheme and vice versa for the David Phillips Fellowships scheme.

Figure 2 Success rates by gender 2011-2019

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Table 2 Success rates of fellowships

<table>
<thead>
<tr>
<th>Programme</th>
<th>Approximate BBSRC equivalent</th>
<th>Number awarded/year</th>
<th>Success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBSRC DF</td>
<td>-</td>
<td>~ 10</td>
<td>Mean 12.5% (8.2% - 16.1%)</td>
</tr>
<tr>
<td>BBSRC DPF</td>
<td>-</td>
<td>3-4</td>
<td>Mean 7.2% (5.9 - 8.5%)</td>
</tr>
<tr>
<td>MRC Skills Development award</td>
<td>DF</td>
<td>~ 18</td>
<td>N/A^6</td>
</tr>
<tr>
<td>MRC Career Development Award</td>
<td>DPF</td>
<td>~ 13</td>
<td>~12%</td>
</tr>
<tr>
<td>NERC Independent Research Fellowship</td>
<td>DPF</td>
<td>~12</td>
<td>~8.5%</td>
</tr>
<tr>
<td>UKRI FLF (BBSRC remit)</td>
<td>DPF</td>
<td>20-30</td>
<td>Overall: 18%</td>
</tr>
<tr>
<td>Wellcome Trust Sir Henry Dale^7</td>
<td>DPF</td>
<td>~ 40</td>
<td>BBSRC remit: 24%</td>
</tr>
</tbody>
</table>

^6 Skills development awards are now devolved to ROs and therefore success rates do not apply

^7 Previously delivered as approx. 45 RS URFs p.a. with a success rate of 10%

^8 For further detail, see Annex A.7
Examining when women are lost from the application process for the Discovery scheme reveals that female candidates are slightly less successful at interview, although when aggregated over the lifetime of the scheme, this difference is marginal.

A greater cause for concern is the lack of female applicants to the David Phillips scheme; the 2019 call recorded just 35% of applicants identifying as female. This trend has remained broadly stable over time and is seen in similar schemes, to a lesser extent, such as the Future Leaders Fellowship (noting that this scheme is open to all disciplines, where gender discrepancies are considerably more pronounced than in the biosciences).

Consultation with the diversity in research advocacy group ‘TIGERinSTEMM’ suggested a range of factors was behind the lack of female applicants:

- Women may be more likely to suffer from imposter syndrome and discouraged by the perceived competitiveness and low success rates of the David Phillips scheme.
- The language around the flexible working features of the scheme, especially around parental leave, may not be explicit enough.
- The scheme has an expectation of significant support from the hosting Research Organisation. Women may feel less confident in putting themselves forward for support from their RO or held back by internal gatekeeping.

In collaboration with TIGERinSTEMM, the language used in the call documentation has been revised and new application material, described below, has been developed for the 2020 call for both schemes.

The application data for the ethnic background of candidates was not explored fully due to the low number of fellowships awarded and the changes to the categories used to collect data over the lifetime of the David Phillips Scheme.

The small numbers of individuals supported may have an impact on the diversity of future bioscience leaders. BBSRC Fellowship schemes support a small number of high potential researchers who are selected at a very early stage in their careers. Workshop participants and PAT SAP members were particularly concerned that this may make the process vulnerable to the effects of unconscious bias.

Workshop participants highlighted that the small numbers and low success rate may be contributing to the hyper-competitiveness of (academic) research careers. At this stage in a researcher’s career, their success can be significantly influenced by many factors other than the scientific potential of an individual. For example, an excellent publication record and preliminary data are considered favourably when assessing fellowship applications. However, the ability of a prospective fellow to have achieved this is highly dependent on the lab in which they completed their PhD or postdoctoral research and the citation practices of their discipline.

Some DFs appear to be operating at a similar level to DPFs and frequently achieve similar positions at the end of the fellowship. The DPF scheme aims to support individuals in establishing their own lab. It provides funds for an independent programme of work, as well as one member of staff. The DF scheme, on the other hand, aims to support those earlier in the journey to independence. Although DF work on an independent programme of research, it is expected that they will receive a significant amount of support, including mentorship and supervision from the host PI, as well as access to equipment. In this way, DFs are not expected to be operating at the level of a PI.

However, since the launch of the DF scheme in 2014, 21 (out of 65) Discovery Fellows have been costed at a pay grade equivalent to a group leader. This suggests that their host institutions expect them to be operating at the level of a PI. BBSRC has also received queries asking whether DFs are eligible for standard BBSRC funding schemes (e.g. responsive mode). This further exemplifies the confusion in the community about the level at which BBSRC expects DFs to be operating. In any future revisions to the programme, clarity around the purpose of any differentiation between

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9 https://www.tigerinstemmm.org/
fellowships should be considered, as should any unintended consequences (e.g. differences between application rates from men and women).
CONCLUSION 4: Fellowships are one of only a small number of opportunities for ECRs to access independent funding from BBSRC

Key points:

- The majority of ECRs supported by BBSRC are not eligible for standard BBSRC funding and are employed on grants secured by others.
- ECRs employed on grants are reliant on their PIs for access to training and development opportunities.
- Fellowships give ECRs an opportunity to demonstrate independence, gather autonomous data, and focus on their own development. However, there are very few of these opportunities available.
- The community felt that BBSRC should prioritise supporting a greater number of individuals.

ECRs are not eligible for standard BBSRC grants. Individuals who have not secured a lectureship (or equivalent) post are unable to apply for BBSRC standard grants, such as responsive mode. There are a small number of opportunities available, notwithstanding fellowships, including block funding delegated to institutions (for example Impact Acceleration Awards, Future Talent Mobility Awards (FTMA)), which directly fund early career researchers independently of their PI. However, access is dependent on whether the institution was successful in being awarded one of these funds and the support provided by the host PI. For example, there are currently only 14 research organisations with active FTMA.

Most of the 2000 PDRAs supported by BBSRC are employed on standard grants. They are heavily reliant on the Principal Investigators (PIs, who control the budget) for both permission and funds for training and other personal development activities such as conference attendance. This also requires that the PI budgeted for these activities in their original proposal.

ECRs employed on grants have fewer opportunities for personal development and independence than fellows. Evidence from surveys\(^\text{10}\) shows that there can often be conflict between the PI and a postdoc. PIs are required to meet the objectives of their grant funding and to achieve the outcomes of their research including publications – an incentive that may work against developing the careers of their research staff or providing space and time for training opportunities which take their researchers out of the lab.

Furthermore, due to the short-term nature of many postdoctoral employment contracts, PIs do not always see the benefits of more general training, particularly when it relates to an individual’s personal development and not directly relevant to the project. Overall, this may disincentivise PIs from encouraging ECRs employed on their grants to take advantage of the development opportunities available to them.

Therefore, despite BBSRC encouraging professional development for postdoctoral researchers, they are likely to have significantly less support than a BBSRC fellow. As described above, a researcher’s early career is a time when they would benefit significantly from opportunities to explore different career options, develop skills and networks, and work independently.

The community felt that more early career individuals should be supported. During the strategic workshop, participants were asked to prioritise measures of success for a BBSRC fellowship scheme in the future. They unanimously agreed that supporting more ECRs was the most important factor. In particular, they felt that there were too few opportunities for ECRs to demonstrate independence or apply for independent funds for personal development. For further details, see Annex A.3.

However, BBSRC must consider whether fellowships are the best mechanism for tackling this problem. It must also consider what role Research Organisations should play in providing this support as significant responsibility lies with them as employers to train and develop their staff. BBSRC must

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\(^{10}\) Such as the Wellcome Trust Research Culture survey
ensure that any support provided is additional to this and does not relinquish employers from the responsibility of providing critical support themselves.
CONCLUSION 5: In the changing fellowship and wider landscape, BBSRC must carefully consider its role going forward

Since the previous review of fellowships in 2014, the research landscape has shifted significantly. Therefore, it is important to examine whether the current mechanisms for investment are optimally serving the community. This section discusses some of the changes in the wider landscape which might influence how BBSRC invests in fellowships.

Key points:

The research landscape is rapidly changing. The following factors should be considered when BBSRC invests in fellows and early career researchers more widely:

- The formation of UKRI and the trend towards more centralised funding opportunities.
- UKRI’s commitment to implementing the Researcher Development Concordat.
- The wider research culture agenda and the development of UKRI’s research culture strategy.
- The 2.4% GDP target for research and innovation and BBSRC’s role beyond academic research.
- The impact of the Covid-19 pandemic on research and innovation and the role of ECRs in the sector’s recovery.

UK Research and Innovation (UKRI) investments in talent. Since UKRI was formed in April 2018, there have been a number of large cross-council investments in research and innovation, including through the UKRI FLF scheme. The availability of these multi- and inter-disciplinary funds, and a recognition of the benefits of working across discipline-boundaries, is changing the way researchers plan and carry out their research. It is important for BBSRC to specifically develop and support bioscience researchers and research. However, careful consideration should be given as to how best to do so in a changing landscape, for example, by equipping researchers with the skills and tools needed to work in a more interdisciplinary way.

The impact of the introduction of UKRI FLFs is also significant and discussed in greater detail in the following sections.

In 2019, UKRI signed the Concordat to support the career development of researchers11. The concordat requires UKRI to, amongst other obligations, “Consider the balance of their relevant funding streams in providing access to research funding and its impact at all career levels”12 and consider how to encourage and support researchers to move to careers outside of academia.

This raises two separate questions in relation to the BBSRC fellowships:

- Is BBSRC is sufficiently funding the career stage supported by its fellowship schemes?
- Do BBSRC fellowships aim to support individuals into academia, or into research and innovation more widely?

According to the evidence gathered as part of this review, the perception in the community is that the balance of funding is not currently optimal, as discussed in detail in Conclusion 4.

Currently, both fellowships schemes are very focused on developing the skills individuals need to be successful academic group leaders. This is evident both in the assessment process and in the portfolio of successful projects. Both PAT SAP and workshop participants felt strongly that BBSRC fellowships should be playing a role in supporting ECRs more widely to explore different research and innovation environments. This is most important for those at a very early career stage, including BBSRC DFs. However, it was also felt that it is valuable for newly established group leaders, such as DPFs, to have an opportunity to make connections outside of academia and transition into different sectors.

12 Concordat to Support the Career Development of Researchers 2019
The government has put research and innovation at the heart of its strategy to commit to increasing R&D spend. UKRI can support an increase in expenditure, including through direct investment and business engagement. Furthermore, to increase capacity in the research and innovation system, the UK will need a greater number of highly skilled individuals working across the research and innovation sector. Programmes such as BBSRC’s fellowship schemes are crucial in maintaining a pipeline of talented bioscientists and training them with the skills they need to deliver an increased R&D spend. It was clear from discussion as part of the review that the community did not feel that the number of individuals supported through BBSRC fellowships was sufficient to meet this ambitious aim.

Furthermore, funding ECRs including fellows will be crucial in supporting the research and innovation sector to recover from the effects of the Covid-19 pandemic.

There is significant interest in the community around improving research culture. For example, the Wellcome Trust recently published a report describing the outcomes of a survey of the community around research culture and has launched the Research on Research institute to investigate some of these challenges\(^ \text{13} \). Furthermore, UKRI is soon to publish its own research culture strategy.

Those consulted as part of the review felt that BBSRC fellowships could play a role in tackling some of these major challenges (see Annex A.3). The relatively small scheme could, for example, be used to trial some initiatives or changes in assessment process that might positively influence research culture. Furthermore, fellows can also become ambassadors and champions of good research culture. They will become the leaders in research and innovation in the future and therefore will have a significant impact on culture simply through their attitudes and actions, for example, in the ways they manage and support their groups. Workshop participants felt it was very important that we design BBSRC fellowship programmes to empower individuals to drive forward the research culture agenda.

\(^ {13} \) [https://wellcome.ac.uk/reports/what-researchers-think-about-research-culture](https://wellcome.ac.uk/reports/what-researchers-think-about-research-culture)
CONCLUSION 6: The best course of action is highly dependent on whether UKRI FLFs continue

The UKRI FLF programme was announced in June 2018. The Future Leaders Fellowship programme is a £900 million fund that is helping to establish the careers of world-class research and innovation leaders across UK business and academia. It funds fellows from across the whole remit of UKRI, including those working within BBSRC remit.

Here, we bring together evidence to suggest that, if the UKRI FLF programme were to continue at this scale, the added value of the 3 to 4 DPFs funded each year by the BBSRC is minimal. Therefore, in this scenario, BBSRC should consider investing funds currently used to award DPFs for alternative activities.

Key Points:

- The UKRI FLF and DPF programmes are broadly similar and are aimed at a similar group of individuals.
- The scale of the UKRI FLF scheme is large compared to the DPF:
  - the number of UKRI FLF successful proposals per year within BBSRC remit is significantly higher than the number of DPFs awarded;
  - the overall success rate is significantly higher.
- UKRI FLFs have some benefits, not provided by the DPF, which might make them more attractive to potential applicants, including a guaranteed tenure-track position and opportunities for an additional 3-years funding over and above the initial 4-year fellowship.
- There are many successful UKRI FLF proposals which are:
  - significantly or wholly within BBSRC remit,
  - fundamental bioscience as opposed to directly translatable.
- The community agrees that the UKRI FLF programme provides significant funding for bioscientists transitioning to independence, and that the small number of DPFs funded by BBSRC do not add significant added value.

Fellowship details and eligibility. Broadly, the DPF and UKRI FLF are very similar fellowship programmes, as outlined in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>UKRI FLF</th>
<th>DPF</th>
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<tbody>
<tr>
<td>Fellowship length</td>
<td>4 + 3 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Maximum amount awarded per fellowship (100% fEC)</td>
<td>£1.5m (+ potential for additional 3 years funding on top of this)</td>
<td>£1.25m</td>
</tr>
<tr>
<td>Eligibility</td>
<td>Early career academics and innovators who are transitioning to or establishing independence; Senior academics and innovators are not permitted to apply; May work in industry or academia; Must hold a PhD or equivalent</td>
<td>Must not have held, or been offered a lecturer-level position; Must be hosted by an academic institution (eligible to receive BBSRC standard funding); Must hold a PhD</td>
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Table 3 Comparison of BBSRC David Phillips Fellowships and UKRI Future Leader Fellowships

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14 These figures are displayed as 100% fEC for ease of comparison but are awarded slightly differently in each scheme, mainly due to differences in awarding salary costs. Also note that the FLF figure is displayed as a maximum but the actual amount applied for varies significantly given the different remit areas covered by the programme.
Scale and number awarded. Overall, the UKRI FLF scheme has a significantly larger budget and awards a greater number of fellowships each year within BBSRC remit than the DPF scheme. UKRI FLF fellowship proposals within BBSRC remit also have a greater success rate than DPFs. The key differences between the two programmes are summarised in Table 4.

<table>
<thead>
<tr>
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<th>UKRI FLF</th>
<th>DPF</th>
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<tbody>
<tr>
<td>Total programme budget</td>
<td>~£80m/year (£900m over 11 years across all council remits ~£18.4m/year on fellows with some BBSRC remit based on data from rounds 1 to 3</td>
<td>£7m/year (around 1.5% of total BBSRC budget) of which approximately £3m funds DPFs</td>
</tr>
<tr>
<td>Number of fellowships awarded</td>
<td>Approx. 15 per year full BBSRC remit and a further 10-15 with some proportion of the proposal within BBSRC remit</td>
<td>3 per year</td>
</tr>
<tr>
<td>Success rates</td>
<td>Overall, mean: 18% BBSRC primary\textsuperscript{15}, mean: 24% BBSRC additional\textsuperscript{16}, mean: 24%</td>
<td>Mean 7.2% (range 5.9 - 8.5%)</td>
</tr>
</tbody>
</table>

Table 4 Comparison of UKRI Future Leader Fellowships and BBSRC’s David Phillips Fellowship

Open-ended positions. To demonstrate their support, the Host Organisation of a UKRI FLF is required to commit to funding an increasing percentage of the applicant’s salary, starting at 20% in years 1 and 2, and increasing to 75% in year 7 if an extension is granted. There is an expectation that fellows will be transferred to open-ended contracts, subject to specific requirements of the host, upon completion of the fellowship.

In contrast, BBSRC does not ask for any commitment from the host in terms of a contract beyond the duration of the funded fellowship. It is therefore the responsibility of the fellow to negotiate with their host during their award. However, BBSRC does provide significant support for this, for example through mentoring. As a result, a significant proportion of David Phillips fellows achieve an open-ended position at the end of the fellowship, although only a proportion of these are at their original host organisation.

Remit\textsuperscript{17}. The UKRI FLF scheme accepts applications across the whole remit of UKRI. Given the focus of the FLF scheme on multi- and inter-disciplinary work, it might be expected that projects that fall wholly in BBSRC remit are less successful in the scheme. However, manual coding of successful FLF applications showed that a significant proportion of successful FLF projects fall solidly within BBSRC remit and that the number of these kinds of proposals is greater per year than those awarded by the DPF scheme. Furthermore, text-mining analysis of the total written content of proposals demonstrates that the words used in both UKRI FLF and DPF proposals do not differ significantly suggesting that similar areas of BBSRC remit are funded in both schemes.

Translatability\textsuperscript{18}. The UKRI FLF scheme places emphasis on tackling “difficult and novel challenges”, and supporting “adventurous, ambitious programmes”. One consequence of that might be that fundamental bioscience proposals are disadvantaged, and more translation-ready projects prioritised instead. Manual coding of proposals shows that there is a greater proportion of UKRI FLF proposals which plan to directly engage with business or will develop research which will be directly translatable compared to DPFs. However, the number of successful projects which are primarily basic bioscience

\textsuperscript{15} BBSRC Primary proposals are those on which BBSRC led the peer review process. This label indicates that a significant proportion of the proposal is within BBSRC remit.

\textsuperscript{16} BBSRC additional proposals are those on which another council led peer review, but where BBSRC was consulted. This indicates that some proportion of the proposal was within BBSRC remit.

\textsuperscript{17} See Annex A.8 for further details

\textsuperscript{18} See Annex A.8 for further details
still significantly outnumbers the DPF. For example, in 2018 and 2019, there were 7 DPFs awarded in total, compared to 20 FLFs focusing on basic bioscience (12 of which were BBSRC primary, and 8 of which were BBSRC additional).

This demonstrates that the FLF scheme is still funding a significant number of fellows undertaking fundamental bioscience, and suggests that should the DPF not exist, fundamental bioscience projects would still be funded via the FLF scheme.

Applicant incentives mean that excellent candidates may choose the FLF over the DPF. To manage demand across the two schemes, applicants may only apply to either the DPF or the UKRI FLF in each calendar year\(^{19}\). When taking the above into consideration, there are some clear advantages to applying for an FLF over a DPF. If candidates are unable to find enough information to compare the two schemes, it is possible that the low success rate of the DPF scheme disadvantages applicants who could be successful in gaining an FLF.

Those consulted during the review agreed that the DPF was providing little added benefit over the UKRI FLF scheme. This was particularly notable in the workshop where participants unanimously agreed that if FLFs were to continue, the DPF programme should be discontinued in its current form. See Annex A.3 for further details of the consultation discussions.

\(^{19}\) The future leaders scheme requires demand management on the part of ROs, although consultation with TIGERinSTEMM suggests that this is also informally the case for the DPF despite no official demand management policy published by BBSRC.
ANNEX

A.0 Contents

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A.1 Introduction

This Annex details the basic data analyses and methodologies carried out as part of the review.

A.2 Data sources overview

The evidence base for this review was built around 5 sources of data.

1. Application data from internal UKRI systems (Siebel/OBIEE) was the primary data source for applicant demographics and success rates.
2. Interview data from phone interviews with 7 completed David Phillips fellows and 13 completed Discovery fellows was the primary source of evidence for the experience and career journey of candidates.
3. ResearchFish® data was used as a source of outputs for BBSRCs fellowship investment.
4. Fellowship start finisher surveys were used as an ancillary data source for candidate experience.
5. Application text from DPF and FLF applications.

Each data source has strengths and limitations on the insight that can be gleaned.
A.3 Consultation summaries

A.3.1 Advisory Panel discussion

A number of different internal and external groups were consulted as part of the review.

- People and Talent (formerly Bioscience Skills and Careers) Strategy Advisory Panel (PAT SAP) were consulted in the initial stages of the review to help inform its direction and provided advice on completed data analysis. In the later stages of the review, the panel were presented with the proposed recommendations and options for comment and were instrumental in finalising the options presented to BBSRC Council.
- The Early Career Researcher subgroup of PAT SAP was also consulted in order to gain a perspective from the community who might consider applying to one of the fellowship programmes.
- Committee E assess fellowship applications, act as mentors to DPFs and play a role in monitoring the progress of current fellows. Therefore, they have significant insight into the assessment process and understand how fellows progress through the programme. Committee E were consulted at an early stage in the review to inform its direction.

A.3.2 Workshop

A review workshop was held in March 2020.

Attendees included:

- Senior researchers and PIs, including head and deputy heads of departments.
- Early career researchers, including BBSRC and external fellows.
- Committee E members.
- PAT SAP members, and members of the ECR subgroup.

Workshop attendees were presented with significant amount of the analysis completed at this stage and asked to use it throughout a structured workshop to develop ideas for future fellowship programmes.

When asked to define what a successful future fellowship scheme would look like, the following 9 criteria were deemed to be the most important:

1. A greater number of ECRs are supported. The group did however discuss the need to balance this against spreading a budget so thinly as to be ineffective.
2. The pool of ECRs supported is diverse (as above, in terms of people and thought)
3. Productivity is high – the group discussed this in terms of direct productivity (outputs such as papers, data sets, patents etc.) and more indirect productivity (e.g. collaboration may lead to a similar set of outputs, but one-step removed from the ECR) which may be more difficult to measure.
4. Supported ECRs have a diversity of career destinations, are aware of their options and have an opportunity to explore these.
5. ECRs develop transferable skills including independence, leadership and communication.
6. BBSRC sets the agenda for improving research culture in the biosciences and the schemes empower ECRs to positively influence it.
7. ECRs have opportunities to network and have appropriate mentoring.
8. BBSRC partners with a diversity of stakeholders (academic, industry and more) and engages them to support ECRs.
9. Bioscience ECRs feel that they are supported and are “comfortable” in their role.

A summary of the outcomes and main points discussed:

- The theme of the need to support more ECRs arose repeatedly throughout the day and was a key measure of success for most tables when analysing options.
- There was a significant focus on supporting very early career researchers (i.e. those in the first postdoc) through any new programmes. The DF programme appears to meet these aims.
• The group strongly felt that an increased total amount of financial support would be required to make a significant impact.
• A lot of ideas revolved around small pots of money for pump priming and for training of ECRs. There were also suggestions of follow-on-funds and transitional fellowships for more advanced researchers.
• The improvement of the research culture should be one of the key aims of BBSRC funding in this space.
• It is very important that these funds are managed by the ECRs themselves to ensure that funds were used in line with the best interests of the ECR, and not the PI.
• The group also thought it was very important to consider how we are to measure the success of the schemes, and that this certainly should not rely simply on recording the number of papers published as a measure of outputs.
• The group discussed that best way to proceed will depend on many factors, including changes in BBSRC budget and whether the FLF scheme will continue in the same way as it is now. These factors should be carefully considered when a decision is made.
A.4 Fellowship interviews

The interview data produced a very detailed dataset of fellow experience, which allowed interviewers to delve deeper into the topics raised and to explore the fellowship experience. The interviews were adapted iteratively to improve the experience for the fellow and to benefit from the experience of prior interviews, enabling the review to explore commonly raised themes in more detail.

Overall 13 Discovery fellows and 7 David Phillips fellows who had either completed or were close to completing their fellowships, were interviewed for 30-60 minutes between September and October 2019. Each fellowship scheme had the same interviewer throughout to ensure consistency, except for a David Phillips fellow, who was interviewed in November by a different interviewer for scheduling reasons.

Notes from all interviews were recorded and consolidated into a single document to draw out common themes and perspectives and to anonymise participants. This data is presented in the second part of this section. The interview questions are presented below.

A.4.1 Interview questions

Office introduction:
- Summarise the reasons for the call and ask data protection questions:
  - Data from our conversation today, and anonymised quotes may be used in the review and to develop case studies. Are you still happy to proceed?
    - Yes / No
  - Are you happy for us to contact you again, via email, regarding the development of a case study?
    - Yes / No

Fellow Introduction:
- When did you start your fellowship?
- Summarise the project very briefly.
- What are you doing now?
- Same RO/different RO? Why?
- UK based?
- If no, would you consider returning to the UK in the next 5-10 years? Do you think your fellowship influenced this decision?

Independence (Discovery fellows only)
- To what extent was your research “independent”? How did you develop the idea? Were you able to/did you take the research with you after your fellowship?

Skills (Discovery fellows only)
- Do you feel that you developed the skills you required during your fellowship? Are there any skills you wish you had learned or had training on?

Relationship with Research Organisation (Discovery fellows only)
- What was your relationship with your research organisation? Did they provide the support they promised at application?
- Did you feel confident enough to request the help promised to you?
- Did you have the knowledge and means to access this support?
Fellowship landscape

- (Discovery fellows only) Did you apply/receive offers for other fellowships? Why did you choose BBSRC’s fellowship over others?
- (David Phillips fellows only) If the DPF scheme had not existed, how would your career have developed?
- What barriers did you face when applying for the fellowship?

Research culture (David Phillips fellows only)

- What do you understand by the term research culture?
- To what extent did training and information provided by BBSRC (for example through the fellows’ conference) improve your awareness of good research culture practices?
- Have you changed your behaviour as a result or implemented any changes in your lab?
- Has this been maintained beyond the life of the grant? If not, what is stopping you from changing?

Funding (Discovery fellows only)

- Was £300k and 3 years sufficient to enable you to feel confident in applying for more senior fellowships or further funding?
- What could you have achieved if you had been given an extra £50k?

Networking

- To what extent were the networking opportunities provided by the fellowship biennial conference and induction meetings useful?
- Do you remain in contact with or have any previous or active collaborations with other fellows?

Mentoring

- (David Phillips fellows only) to what extent did you engage with your assigned mentor?
- (David Phillips fellows only) Can you give any specific examples where they provided advice or guidance?
- (David Phillips fellows only) Do you remain in contact with your mentor?
- (David Phillips fellows only) How useful have their inputs been for – research specific advice? and – career advice?
- (Discovery fellows only) To what extent did you find your mentor useful? What support did they provide? Do you remain in contact with them now?

Any other comments.
A.4.2 Responses summary

- Careers

**Discovery fellows:**

Except for one fellow who found a job in industry whilst preparing an application for more senior fellowships, and one fellow who had taken maternity leave and was yet to complete her fellowship, all the fellows interviewed had made the transition to establishing their own research groups. The routes to independence differed, from being awarded further competitive fellowships such as the BBSRC David Phillips, Wellcome Trust Henry Dale or UKRI Future leaders Fellowships, to applying for University “tenure track” fellowships and open-ended lecturer positions.

Every fellow interviewed highlighted how important the Discovery Fellowship was to their career and how important BBSRCs support was at this career stage. They highlighted the precarity implications of postdoctoral careers on equality, diversity and inclusion, and were very supportive of the scheme in supporting fellows to make the transition to independence. Some fellows felt they still faced barriers in applying for more senior fellowships and noted the importance of ensuring that BBSRC had a fellowship scheme that could support fellows for the 5-7 years of postdoctoral work needed to be awarded a more senior fellowship. They explained that although a number of schemes were available for applicants with no postdoctoral experience, the discovery fellowship was one of the few schemes available that addressed a gap for postdocs with around 3 years of experience who were not yet competitive for more senior fellowships. However, fellows were also wary of having to compete against more senior postdocs for Discovery fellowships.

Overall the Discovery Fellowship was considered very attractive to Bioscientists, filling an essential gap in the market of relatively broad eligibility criteria and providing funding for consumables. It was considered one of the better postdoctoral fellowships available and once on the program, applicants pointed out how BBSRCs support and training offering (see below) differentiated it very positively from similar schemes.

**David Phillips fellows:**

All fellows interviewed had secured further posts in research, many staying at the institution hosting their fellowship and building on their research. BBSRC’s fellowship support has been use flexibly, enabling part time work on the fellowship, career moves internationally and supporting flexible working for research staff. Fellowships have also been used to transition between fields and ways of working.

Some fellows felt that they could have had broadly the same career path without the fellowship, but that their experience would have been poorer. This was partly due the availability and high teaching loads of lectureships, which would have prevented the fellow from engaging with their research, and the lack of resources available from other fellowship schemes and lectureships, making it more difficult to hire staff. Some also commenten on the difficulties faced by ECRs internationally, and that the DPF enabled career moves not available in the research systems of other countries.

- Independence

**Discovery fellows:**

All fellows interviewed felt very independent in their research, frequently describing themselves as a one-person research team. Most said they had developed their ideas independently, with peer review support and suggestions from their host/donor lab and were able to take their work forward to build their current research groups. This differed by discipline as some areas like bioinformatics are more reliant on input from other team members, limiting the scope to work entirely independently. One fellow chose to stay in the same laboratory group as their PhD, which led to minor difficulty in taking their work forward and made them ineligible for ERC grants (ERC mandates a publication record with papers authored independently of the PhD supervisor).
Skills

Discovery Fellows:

Fellows described the most valuable training opportunity provided by the Discovery fellowship as space and time to develop their independence and research record. This was followed by developing project management, financial and research specific skills. These were all skills that were directly transferrable to their next role in establishing an independent research group.

The most valuable opportunity provided by the Discovery scheme specifically was felt to be the opportunity to sit in on a Responsive Mode grant assessment panel which fellows felt helped to demystify the peer review process and provided a valuable insight into how grant review panels worked. The main suggestion for improvement was that this opportunity could be offered more than once.

Fellows had mixed feelings about the other training opportunities available. Few fellows described the leadership training provided as useful, suggesting that it was not appropriate for a research context and could be strengthened with additional training on the management aspects of their role, specifically regarding supervision, financial and project management training. Two fellows compared the leadership training opportunity unfavourably with the more research focussed course provided by EMBO.

Fellows would have liked additional training in managing research teams and supervising students, negotiating and managing difficult conversations and in clearer expectations of what good public engagement was, with one fellow saying they would have liked to see “what successful public engagement looked like”.

Relationship with Research Organisation

Discovery Fellows:

Most fellows received the support they requested from their RO. At application stage, fellows were supported by their host in developing the grant documents, specifically regarding finance, administration etc. Fellows that received support had additional funding for overheads, equipment or some consumables.

Fellows who didn’t request additional support seemed unclear about what they could have asked for and had lower expectations, potentially because their proposed RO didn’t have a reputation of being particularly supportive to staff. Most fellows were confident of requesting support, but some felt that BBSRC could do more to clarify expectations of ROs in terms of what level of support was expected and in supporting the fellows to access that support.

The propensity of fellows to engage with training opportunities was dependent on the existing provision at their ROs, and fellows highlighted this varying provision. They also recommended that BBSRC could have a role in training early career staff in how to be successful in fellowship applications to address the differences in opportunity across the research landscape.

No fellows requested specific training from their ROs outside of opportunities provided informally by departments of mentors, relying on existing provision.

Fellowship landscape

Discovery Fellows:

The Discovery fellowship is unique in the (bioscience) funding landscape, with relatively broad eligibility criteria. Most postdoctoral level fellowships are restricted to the first few years post PhD and where the Discovery scheme differs is the extension of this eligibility to 5 years post PhD and the provision of additional budget beyond salary, which allows fellows to be less dependent on their host lab. The BBSRC fellowship was also described as being potentially more inclusive than Wellcome Trust’s Sir Henry Wellcome scheme due to reduced travel requirements.
EPSRC and MRC fellowships appear to fill a similar role with different disciplinary remits.

**David Phillips fellows:**

Fellows compared the DPF with the Wellcome Trust Henry Dale scheme and other UKRI fellowships such as the MRC Career Development Award and schemes from NERC. They also mentioned the Royal Society University Research Fellowship but highlighted that this was significantly less generous in support provided.

Fellows were keen to highlight the additional features of the DPF scheme, such as closer interactions with Committee E and BBSRC staff, and more tailored support. Some had heard of the new FLF scheme but were not aware of the details and the level the scheme was targeted at. They were also sceptical that a large scheme with such a broad remit would be able to replicate the cohort nature of the DPF scheme.

Fellows were also keen to highlight the importance of the Discovery scheme in covering an essential gap in provision for ECRs but had differing opinions about whether the DF or DPF scheme should be the priority.

Fellows also noted that it could be quite difficult to complete an application due to lack of support as a postdoc, but that this had improved recently.

- **Research culture**

**David Phillips fellows:**

Fellows were generally less aware of Research Culture issues during their fellowship but felt that it had recently become a bigger focus. Many had attended research leadership training where research culture featured, also noting that many ROs were also providing additional research culture resources internally. Fellows were positive about BBSRC’s efforts to improve research culture and some felt that the early PI stage was the most important to target for interventions as this was when attitudes were formed.

- **Funding**

**Discovery Fellows:**

Fellows gave mixed responses. 12 out of 13 fellows felt that the funding provided was sufficient for them to meet their goals, with the proviso that this differs by discipline and is dependent on support from the host lab or RO. Two fellows suggested that the limited funding helped them to constrain their ambitions and focus on less risky, more deliverable projects; increasing their chances of successful outputs and further funding. This sentiment was supported by other fellows when it was explored during the interview. There were minor discipline dependent issues about how the money could be spent, namely that BBSRC should support computing equipment for bioinformatics projects where higher performance than standard equipment provided by ROs is necessary.

One fellow felt that the funding provided fell short of that necessary and recommended that the funding cap was increased by 10-20%, although it should be noted that this fellow had costed themselves at a lecturer equivalent salary.

At least two fellows stated that they would prefer more fellows with less funding than fewer fellows with more:

“Having a large number and a diverse range of individuals contributing to research is very positive”

“Happier to see more fellows with less money than fewer fellows with more”
• Networking

Discovery Fellows:

All fellows felt that the cohort effect established through fellows’ conferences and kick-off meetings was really valuable in helping them build networks of pastoral support and connections with other fellows. The success of building collaborations was highly dependent on available fields within BBSRCs remit and only some of the fellows asked were able to use this opportunity to develop collaborations.

Fellows described the cohort effect as helping them feel less alone and isolated, providing them with opportunities to see how ROs and the experience of other fellows differed, and plan for the barriers that other fellows encountered. This was highlighted as a positive and unique aspect of BBSRC’s fellowship schemes.

David Phillips Fellows:

David Phillips fellows were broadly happy with the networking opportunities, such as the fellows conference, and found the experience enjoyable. The majority felt that the BBSRC’s remit was too broad to derive much scientific benefit, valuing the networking, cohort and pastoral support provided by the networking events more. Fellows appreciated the opportunity to discuss non-scientific issues like work-life balance, lab management and dealing with their RO. They also appreciated interacting with BBSRC staff.

• Mentoring

Discovery Fellows:

11/13 fellows found their mentor very useful, mostly in providing an external perspective outside of the host lab, discipline and institutional politics. The aspects described as most useful was help in broader strategic aspects and help with navigating career transitions, where the lack of shared discipline was more help than hindrance. One fellow was supported by both their RO mentor and BBSRC mentor to break away from an overly controlling host PI.

2/13 fellows felt that their BBSRC mentor wasn’t very useful, but largely because they had access to enough mentorship already.

There was no consensus as to how the mentoring relationship could be improved as some fellows favoured mentoring relationships developing organically and informally, whereas others would prefer clearer expectations on the mentor from BBSRC. This may be resolved by assigning mentors according to fellow preference.

David Phillips Fellows:

Although most fellows felt that their mentors were helpful, they felt that the mentoring relationship had limited impact. Fellows felt that mentors were most useful in supporting more general conversations about navigating research careers rather than in providing scientific advice. Potential barriers to better mentoring relationships included the difference in seniority between DPFs and Committee E mentors, prescriptive and overly formal mentoring requirements, lack of support about how to make the most of a mentoring relationship.

• Any other comments

David Phillips fellows:

Some David Phillips fellows felt that at the time of application, the process was difficult to navigate and suggested that JeS could be made more accessible and a checklist developed with summary information of what was required. Fellows also felt that BBSRC staff could be more accessible and noted that when applying it wasn’t as clear that staff could be approached. BBSRC could also do more to clarify when it was the right time for people to apply to the scheme.
Fellows suggested that additional support could be available after completing their fellowship, either through additional training or in follow on funding opportunities, such as the Wellcome Trust 3 years enhancement for its Henry Dale Scheme, or a more senior fellowship scheme such as the MRC senior fellowship.

Overall, fellows felt that their experience was very positive, especially the high level of support provided by BBSRC and the flexibility of the scheme.

A.4.3 Limitations:

- Only fellows who had completed their fellowships were approached for interview to give an overall view of how the scheme helped their career. This may, particularly for the David Phillips scheme, provide information on older applications and support process which have since been modified.
- Because of the limited number of fellows to have completed the scheme, the number of interviews is relatively limited.
- Data may also be skewed by interviewer biases and the way in which the subjects were broached.
- The data gathered is non-quantitative and limited by the self-selection of fellows choosing to respond to the interview request. The data may therefore represent the experience of fellows who were happier and more willing to engage with the fellowship review team.
A.5 ResearchFish® data

The ResearchFish® data available for the fellowship schemes covers the submissions of 25 David Phillips fellows with start dates from 2013 to 2018, and 47 Discovery fellows, with start dates from 2015 to 2018, therefore covering fellows at various stages of progression through their award.

A.5.1 Aggregate ResearchFish® output summary:

<table>
<thead>
<tr>
<th>Output type</th>
<th>Discovery</th>
<th>David Phillips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications</td>
<td>206</td>
<td>177</td>
</tr>
<tr>
<td>Collaborations</td>
<td>98</td>
<td>79</td>
</tr>
<tr>
<td>Further funding</td>
<td>£9.4 Million</td>
<td>£30.6 Million</td>
</tr>
<tr>
<td>Engagements</td>
<td>202</td>
<td>133</td>
</tr>
<tr>
<td>Tools and Methods</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Databases and Models</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Patent applications</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Spinout companies</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Artistic Products</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Software</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Awards and Recognition</td>
<td>126</td>
<td>84</td>
</tr>
</tbody>
</table>

A.5.2 Limitations:

ResearchFish® data encompass a range of data including key findings, publications, staff destinations and outputs. The data include fellowships which have been completed alongside fellowships that are still in progress. There are relatively few fellowships that have been completed and it is therefore difficult to draw conclusions about the relative productivity of the fellows.

The amount of information provided also differs between fellows, as does the coding for different types of activities (such as whether invited talks are considered “Engagement” or “Awards and Recognition”). Consequently, ResearchFish® provides a useful source of qualitative data for case studies and narrative but is limited in the quantitative data it can provide.

This highlights a potential need for the provision of training for ResearchFish®.
A.6 Survey data

BBSRC runs a “starter” survey at the beginning of the fellowship award and a “finisher” survey upon completion.

A.6.1 Data summary

<table>
<thead>
<tr>
<th></th>
<th>Discovery</th>
<th>Time span</th>
<th>David Phillips</th>
<th>Time span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter survey</td>
<td>58</td>
<td>2015-2020</td>
<td>19</td>
<td>2017-2020</td>
</tr>
<tr>
<td>Finisher survey</td>
<td>20</td>
<td>2017-2019</td>
<td>6</td>
<td>2017-2019</td>
</tr>
</tbody>
</table>

A.6.2 Starter survey

*Presented as average of a 1-5 scale.*

<table>
<thead>
<tr>
<th></th>
<th>Discovery</th>
<th>David Phillips</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you rate your competence in:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>career management</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td>collaboration &amp; teamworking</td>
<td>4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>communication &amp; dissemination</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>grant writing</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>leadership &amp; management</td>
<td>3.1</td>
<td>3.4</td>
</tr>
<tr>
<td>public engagement</td>
<td>3.4</td>
<td>2.9</td>
</tr>
<tr>
<td>How would you rate your knowledge of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBSRC as an organisation</td>
<td>3.1</td>
<td>3.7</td>
</tr>
<tr>
<td>how to interact with the media</td>
<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td>how to influence strategy &amp; policy</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td>the peer review process</td>
<td>3.7</td>
<td>4.3</td>
</tr>
<tr>
<td>How useful do you expect the following to be:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>kick-off meeting</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>the mentoring programme</td>
<td>4.1</td>
<td>4.3</td>
</tr>
<tr>
<td>refereeing of future DF proposals &amp; associated Committee E feedback</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>BBSRC Committee meeting attendance</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>mock BBSRC Committee meeting participation</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>BBSRC Fellows Conference</td>
<td>3.9</td>
<td>4.0</td>
</tr>
<tr>
<td>BBSRC media training</td>
<td>3.8</td>
<td>3.9</td>
</tr>
<tr>
<td>How satisfied are you with your pre-fellowship work experience?</td>
<td>3.9</td>
<td>4.0</td>
</tr>
<tr>
<td>Taking all things together, how happy would you say you are?</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>How is your health in general?</td>
<td>4.3</td>
<td>4.0</td>
</tr>
</tbody>
</table>

A.6.3 Finisher survey

*Presented as either average of a 1-5 scale or number answering positively on a yes or no question.*

<table>
<thead>
<tr>
<th></th>
<th>Discovery</th>
<th>David Phillips</th>
</tr>
</thead>
<tbody>
<tr>
<td>How useful was the:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship kick-off meeting (1-5)</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Fellowship mentoring programme (1-5)</td>
<td>4.1</td>
<td>4.2</td>
</tr>
<tr>
<td>BBSRC Committee meeting attendance (1-5)</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Discovery proposal refereeing (1-5)</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>BBSRC Fellows’ Conference (1-5)</td>
<td>3.8</td>
<td>4.2</td>
</tr>
<tr>
<td>Mock BBSRC Committee meeting participation (1-5)</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>Training Opportunity</td>
<td>Rating 1</td>
<td>Rating 2</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>BBSRC media training (1-5)</td>
<td>3.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Royal Society Innovation and the Business of Science courses (1-5)</td>
<td>3.7</td>
<td>3.8</td>
</tr>
</tbody>
</table>

### Have the training opportunities:

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased your professional network?</td>
<td>19/20</td>
<td>5/6</td>
</tr>
<tr>
<td>Provided useful training?</td>
<td>20/20</td>
<td>5/6</td>
</tr>
<tr>
<td>Resulted in new collaborations?</td>
<td>14/20</td>
<td>2/6</td>
</tr>
</tbody>
</table>

### How useful were the:

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>relationships established via the BBSRC mentoring programme (1-5)</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>mentoring relationships established locally at your host institution (1-5)</td>
<td>4.0</td>
<td>3.8</td>
</tr>
</tbody>
</table>

### What is your level of knowledge of:

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBSRC as an organisation (1-5)</td>
<td>4.0</td>
<td>4.3</td>
</tr>
<tr>
<td>how to interact with the media (1-5)</td>
<td>2.9</td>
<td>3.5</td>
</tr>
<tr>
<td>how to influence strategy and policy (1-5)</td>
<td>2.5</td>
<td>3.3</td>
</tr>
<tr>
<td>the peer review process (1-5)</td>
<td>4.5</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Have the opportunities provided increased your knowledge of:

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBSRC as an organisation</td>
<td>20/20</td>
<td>6/6</td>
</tr>
<tr>
<td>how to interact with the media</td>
<td>11/20</td>
<td>5/6</td>
</tr>
<tr>
<td>how to influence strategy and policy</td>
<td>10/20</td>
<td>4/6</td>
</tr>
<tr>
<td>the peer review process</td>
<td>20/20</td>
<td>5/6</td>
</tr>
</tbody>
</table>

### Rate your level of competence in:

<table>
<thead>
<tr>
<th>Competence Area</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>career management (1-5)</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>collaboration and teamworking (1-5)</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>communication and dissemination (1-5)</td>
<td>4.1</td>
<td>4.3</td>
</tr>
<tr>
<td>grant writing (1-5)</td>
<td>3.9</td>
<td>4.5</td>
</tr>
<tr>
<td>leadership and management (1-5)</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>personal effectiveness (1-5)</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>public engagement (1-5)</td>
<td>3.2</td>
<td>3.7</td>
</tr>
</tbody>
</table>

### Have BBSRC opportunities increased your competence in:

<table>
<thead>
<tr>
<th>Competence Area</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>career management</td>
<td>17/20</td>
<td>6/6</td>
</tr>
<tr>
<td>collaboration and teamworking</td>
<td>14/20</td>
<td>3/6</td>
</tr>
<tr>
<td>communication and dissemination</td>
<td>13/20</td>
<td>4/6</td>
</tr>
<tr>
<td>grant writing</td>
<td>19/20</td>
<td>1/6</td>
</tr>
<tr>
<td>leadership and management</td>
<td>15/20</td>
<td>5/6</td>
</tr>
<tr>
<td>personal effectiveness</td>
<td>12/20</td>
<td>3/6</td>
</tr>
<tr>
<td>public engagement</td>
<td>11/20</td>
<td>4/6</td>
</tr>
</tbody>
</table>

### Did you gain experience of managing:

<table>
<thead>
<tr>
<th>Experience</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>an undergraduate student</td>
<td>18/20</td>
<td>6/6</td>
</tr>
<tr>
<td>a Masters student</td>
<td>13/20</td>
<td>5/6</td>
</tr>
<tr>
<td>a PhD student</td>
<td>16/20</td>
<td>5/6</td>
</tr>
<tr>
<td>a Postdoctoral research assistant</td>
<td>4/20</td>
<td>6/6</td>
</tr>
<tr>
<td>a Technician</td>
<td>8/20</td>
<td>2/6</td>
</tr>
</tbody>
</table>

### Did you feel sufficiently supported in this management by your Principal Investigator (if applicable) or Research Organisation?

<table>
<thead>
<tr>
<th>Support</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13/20</td>
<td>5/6</td>
</tr>
</tbody>
</table>

### Do you think holding the fellowship has enabled you to successfully establish a research group?

<table>
<thead>
<tr>
<th>Establishment</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Group</td>
<td>6/6</td>
<td></td>
</tr>
</tbody>
</table>

### Do you think holding the fellowship increased your opportunity to supervise other researchers?

<table>
<thead>
<tr>
<th>Supervision</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers</td>
<td>15/20</td>
<td></td>
</tr>
</tbody>
</table>

### Scientific outputs vs expectations (1-5)

<table>
<thead>
<tr>
<th>Expectations</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Outputs</td>
<td>2.8</td>
<td>3.7</td>
</tr>
</tbody>
</table>

### Did you acquire a new employment position within the duration of your fellowship?

<table>
<thead>
<tr>
<th>Position</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Position</td>
<td>14/20</td>
<td>5/6</td>
</tr>
</tbody>
</table>

### Did you move research organisation as part of this new employment position?

<table>
<thead>
<tr>
<th>Movement</th>
<th>Rating 1</th>
<th>Rating 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Organisation</td>
<td>7/20</td>
<td>3/6</td>
</tr>
<tr>
<td>Question</td>
<td>Rating 1</td>
<td>Rating 5</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>How useful was the fellowship in helping you to secure your subsequent employment position? (1-5)</td>
<td>4.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Do you think holding the BBSRC fellowship allowed you to boost your career progression?</td>
<td>19/20</td>
<td>6/6</td>
</tr>
<tr>
<td>How satisfied are you with your BBSRC fellowship experience? (1-5)</td>
<td>4.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Taking all things together, how happy would you say you are? (1-5)</td>
<td>4.1</td>
<td>4.5</td>
</tr>
<tr>
<td>How is your health in general? (1-5)</td>
<td>4.2</td>
<td>4.5</td>
</tr>
</tbody>
</table>
A.7 BBSRC Application data

Application data is collected from candidates at application and provides a comprehensive overview of the applications to our fellowship schemes. This overcomes the usual barrier with scheme data as it provides information on a larger pool of candidates.

A.7.1 Note on applicant data:

For some categories, the number of applicants is small and therefore this information is not shown to protect anonymity.

A.7.2 Applications by scheme, by year

The number of applications for the Discovery scheme are quite variable by year, lowering the success rate of the scheme for years with a high number of applications. The David Phillips scheme has a lower variance in both success rates and application numbers.

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Total Applications</th>
<th>Fellowships awarded</th>
<th>Overall success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Fellowship</td>
<td>563</td>
<td>66</td>
<td>11.7%</td>
</tr>
<tr>
<td>David Phillips Fellowship (2011-2019)</td>
<td>506</td>
<td>37</td>
<td>7.3%</td>
</tr>
</tbody>
</table>
A.7.3 Success rate by gender

As discussed at Conclusion 3, the David Phillips scheme has a pertinent issue with attracting female applicants. Taking this into consideration, the elevated success rate shown for females in the DPF scheme compared to their male counterparts should be interpreted with caution due to there being nearly 50% the number of total applications from females. Overall however, the success rate shows reduced disparity in the total fellow population.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total applications</td>
<td>Fellowships awarded</td>
<td>Success rate</td>
<td>Total applications</td>
</tr>
<tr>
<td>Discovery Fellowship</td>
<td>271</td>
<td>35</td>
<td>12.9%</td>
<td>289</td>
</tr>
<tr>
<td>David Phillips (2011-2019)</td>
<td>333</td>
<td>22</td>
<td>6.6%</td>
<td>171</td>
</tr>
</tbody>
</table>

A.7.4 Success rate by age group

Success rates by age group

Neither scheme has ever funded a candidate with a disclosed age of over 40. The David Phillips scheme has had 35 male and 33 female applicants over 40. Given the overall lower number of female applicants in the previous figure, this over-representation raises an important intersectionality question.
A.7.5 Success rate by declared Disability status

A small number of applicants to either scheme disclosed a disability, however the success rates of those with a declared disability present no particular cause for concern.
A.7.6 Success rate by length of research career

The David Phillips scheme only collected data on number of postdoctoral positions applicants had held from 2014 onwards, and data on years post PhD from 2015 onwards. The cap on number of years of postdoctoral experience post PhD for the David Phillips scheme was removed in 2014.

It is unclear how applicants interpreted “number of postdocs” held and whether this referred to several discrete postdoctoral positions or contract extensions to postdoctoral positions in the same research group. It is likely that both interpretations are present in the applicant pool.

Neither scheme has funded an applicant with experience of more than 4 postdoctoral positions. Until the 2020 call, the Discovery scheme also had a cap of 5 years of experience post PhD.
A.7.7 Success rate by International status

International candidates are most successful during the application process for both schemes. EU candidates were the least successful in applying to the Discovery scheme but have similar success rates to British candidates when applying to the David Phillips scheme. These data only consider the immigration status of applicants and not their academic “upbringing”, therefore it is difficult to say whether this difference arises from different academic systems and training experiences.

For both schemes, it is clear that international candidates are more likely to be invited to interview than British or EU applicants but are similarly viewed at the interview stage. Conversely EU candidates appear to be the most likely to be rejected at the interview stage in the application process for the Discovery scheme.
A.7.8 Ethnicity

The ethnicity data available for this review before 2016 is limited to three ethnic background categories: White; Non-white or Mixed; and Not-disclosed or Unknown. From 2016, ethnicity data is available in a wider range of categories; however, due to the small numbers reporting in each category, these have been combined into the broader classifications used pre-2016 and presented in the following graphs to allow for consistency and the use of a larger pool of applicant data.

Given the small number of fellowships funded from 2016 onwards, especially in the DPF scheme, the effect of ethnicity on success rates was not analysed.

It is not appropriate to provide the counts of individuals aligning to each ethnicity category due to the small number. However, the below graphs demonstrate the percentages of the applicants, funded and non-funded, based on the ethnicity that they specified.

**Discovery Fellowship funded and non-funded applicants by broad ethnic group**

**David Phillips funded and non-funded applicants by broad ethnic group**
The ethnic diversity of David Phillips fellowship applicants is similar for those who were funded versus non-funded. For those applicants that were funded, 83% identify as ‘White’, 17% as ‘Non-white or Mixed’ and 0% ‘Non-disclosed’. For Discovery Fellowships, there is a slight difference in the proportion of applicants identifying as ‘Non-white or Mixed’ in funded and non-funded groups, with 14.7% of non-funded applicants identifying in this group compared to 7.7% of funded fellows.

These data can be compared with the UKRI Diversity data published in June 2020\(^\text{20}\), which demonstrates that 85% of research staff (employed in HEIs and categorised under bioscience-related cost centres during 2017/18) identify as ‘White’, 9% identify as an ‘Ethnic minority’ and the remaining 6% are ‘Not disclosed/not known’. This implies that BBSRC is attracting a relatively good ethnic mix of applicants to its fellowship schemes.

**A.7.9 Limitations:**

- A major reason being candidates withdrawing is being awarded a competing fellowship from another funder (for example Wellcome Trust). Withdrawn applicants therefore often indicate applicants with an above average likelihood of being awarded a BBSRC fellowship.
- Candidates rejected as ineligible or out of remit artificially lowers the success rate.
- Data on international status, nationality, ethnicity and disability are inconsistently collected over the lifetime of the scheme and make comparisons difficult.

**A.8 Comparison of David Phillips applications with the Future Leaders Fellowship Scheme**

Direct comparison of application text from the DPF and UKRI FLF was carried out using two methodologies to assess the similarities between the two schemes.

**A.8.1 Lingo4G analysis**

Application text from FLF rounds 1-3 within remit was input into the Lingo4G package alongside the application text from all DPF applications for natural language processing and comparison. The word clouds (see following pages) demonstrate that DPF applications are linguistically similar to the FLF fellowships where BBSRC was the primary or secondary council responsible for reviewing the application.

---

All applications

Awarded only
UKRI FLFs (BBSRC primary council)

All applications

Awarded only
UKRI FLFs (BBSRC Primary or Additional Council)

All applications

Awarded only
A.8.2 Manually coded data

Further analysis was carried out manually to compare UKRI FLF and DPF applications. Abstracts were coded to examine:

- remit in further detail and any cross-over with other council remits,
- translatability of the research.

Legends of the following graphs are self-explanatory.

**Translatability**

For direct comparison, only successful proposals submitted in 2018 and 2019 were assessed.

Although a higher proportion of UKRI FLFs directly involve businesses in their proposals, there are nevertheless many successful applications that are primarily basic biological research. The number of successful basic biology FLF proposals is significantly higher than the number awarded through the DPF in the same time period.

**TRANSLATION**

<table>
<thead>
<tr>
<th></th>
<th>DFP</th>
<th>FLF - BBSRC PRIMARY</th>
<th>FLF - BBSRC ADDITIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct...</td>
<td>6</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>...</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Remit**

Data from DPFs awarded between 2012-2019 and FLFs awarded in 2018 & 2019 were examined.

Data shows that a large proportion of UKRI FLF proposals assigned to BBSRC are carrying out research solely within BBSRC remit. 23 proposals solely in BBSRC space have been awarded over a 7-year period by the DPF scheme. The same number have been awarded in just 2-years through the UKRI FLF scheme.
A.8.3 Limitations:

- Lingo4G analysis:
  - The data is analysed using a machine learning approach which relies on word frequency. However, this doesn’t consider the context and meaning of words within each application. For example, “signal” may have a different meaning in BBSRC vs. EPSRC remit proposals.
  - The DPF scheme is a much older and smaller scheme than the FLF. To enable similar numbers of applications to be assessed, older applications were included and may skew the data away from newer approaches in biosciences.

- Manual Coding data:
  - Only text taken from scientific abstracts of proposals was used to assess the remit and translatability of each application. Further details in the rest of the application text may have altered the classification of individual proposals, particularly when it comes to translation.
  - Data was coded by a single individual and therefore may be biased by their interpretation.