

## BBSRC Training Awards Committee

### 2011 Doctoral Training Partnerships competition: Method of Working for Assessment of Proposals

#### INTRODUCTION

1. BBSRC launched its Doctoral Training Partnerships (DTP) scheme<sup>1</sup> in March 2011. The deadline for applications was 15 September 2011 and awards will be assessed by BBSRC's Training Awards Committee (TAC) on 1-2 December 2011. The DTP scheme will support a maximum of 15-20 awards, with a total commitment of around £66M. Around 220 studentships will be supported per year, covering student intakes in the years 2012/13, 2013/14 and 2014/15.
2. BBSRC's vision for the DTPs is for "Excellent postgraduate training supporting BBSRC's strategic mission for the biosciences, delivered through a balanced and manageable number of key training partnerships, and enhanced by engagement with BBSRC". There are five key drivers for the DTP scheme:
  - **Strategic Alignment:** Ensuring that BBSRC's strategic priorities are addressed alongside the flexibility to attract the best students into world-class bioscience to ensure the flow of high-calibre students within and beyond academia
  - **Excellence of Training:** Ensuring that students are provided with broad based scientific and professional development within excellent research environments
  - **Leverage:** Encouraging both leverage of funding (e.g. new investment in bioscience research & training) and institutional commitment to the highest standards of training
  - **Partnership:** Working with institutions to help them understand and meet BBSRC's expectations
  - **Concentration:** Focusing funding on a maximum of 15-20 Partnerships which are willing to work with us on meeting our strategic aims
3. This paper outlines information about the assessment process to be followed by TAC in determining studentship allocations (amount of the award) to successful partnerships.

#### BACKGROUND

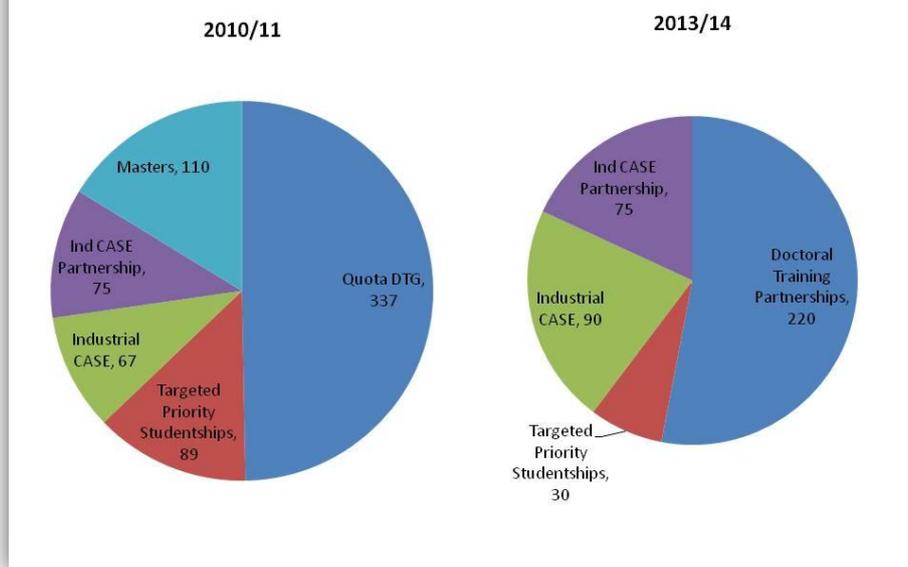
4. BBSRC supports a number of postgraduate training schemes as illustrated in the pie chart below. The DTPs will represent just over half of BBSRC's support for postgraduate training, with many of the remainder studentships being awarded through responsive and strategic CASE competitions.
5. An Evaluation of BBSRC's Quota Doctoral Training Grant (DTG) competition was carried out in 2010 and made a number of recommendations. Details of how BBSRC has responded to these recommendations in the development of the DTPs are shown at Annex 3 of the DTP call text. The full report<sup>2</sup> from the evaluation is available on the BBSRC website. In addition, BBSRC carried out a review of its Training Portfolio in 2010, where the Bioscience Skills and Careers strategy panel considered and made recommendations relating to the range of mechanisms by which BBSRC supports postgraduate and other training.

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<sup>1</sup> Full details can be found at [www.bbsrc.ac.uk/dtp](http://www.bbsrc.ac.uk/dtp)

<sup>2</sup> <http://www.bbsrc.ac.uk/researchevaluation/>

**The changing landscape of BBSRC studentships**  
**Current and anticipated number of awards in 2010/11 and 2013/14**



**Key features of DTPs**

6. The key features of the DTP awards are as follows:

Key features of BBSRC's Doctoral Training Partnerships scheme

- DTPs are the new academic block studentships scheme to replace Quota DTG
- DTPs have been shaped by the recent **Quota Evaluation** and advice from the Bioscience Skills and Careers Strategy Panel
- DTPs allow for better **strategic alignment** and coordination with BBSRC
- Students are placed in **world-class** research environments
- DTPs incorporate an integrated programme of Professional Internships for PhD Students (**PIPS**)
- Conversion of studentships to **CASE** is no longer mandatory, as these awards are now primarily supported through separate schemes
- BBSRC expects to fund a maximum of **15-20 DTPs** (most multi-institutional) for 3 yrs (2012-14)
- The total investment is around **£66M**, funding around **220** students p.a.; this includes an increased Research Training Support Grant of **£5K per student p.a.**

**Receipt of applications and number of studentships available**

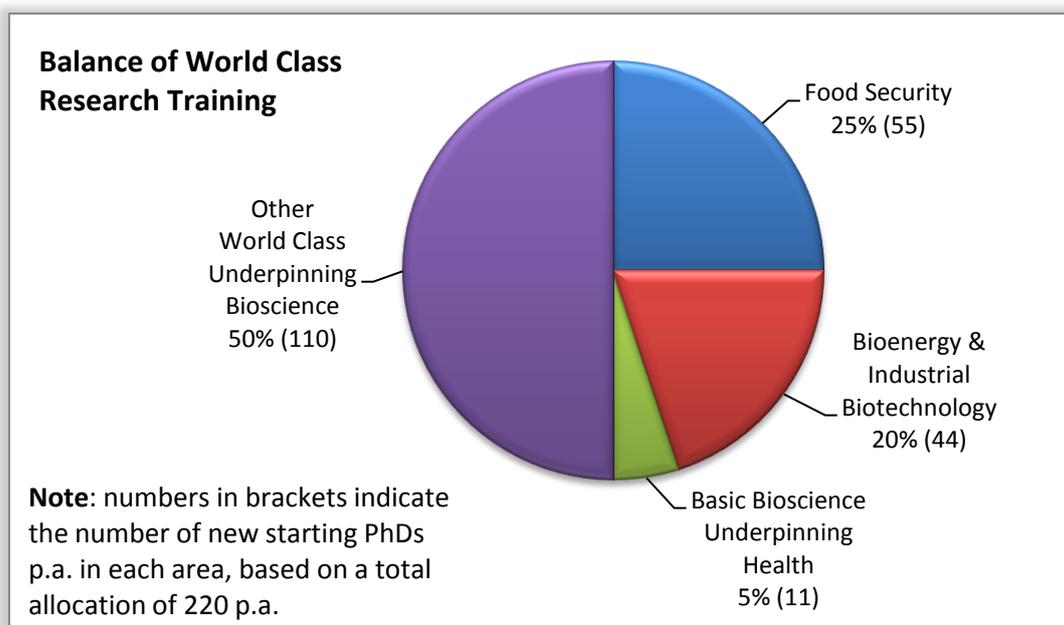
7. A total of 220 studentships are available per year for this competition. This represents a decrease compared to previous years for the following reasons:

- Studentships are now allocated on the assumption that they will take four years to complete; this includes a three month placement through the Professional Internship for PhD Students (PIPS) programme
- The overall studentships budget (along with other BBSRC budgets) has decreased compared to the previous CSR period

- The condition that up to 25% of studentships should be converted to CASE (as stipulated for Quota DTG awards) has now been removed, although conversion to CASE is still encouraged. CASE studentships are now predominantly supported by other mechanisms, however the overall balance of CASE : non-CASE remains the same
  - Studentships include an increased Research Training Support Grant of £5K per student per year (compared to £1K previously)
8. With only a relatively limited number of proposals being supported, the assessment process should balance the need to invest in excellent research training with the desire to achieve a better balance of training across BBSRC's remit and against BBSRC's strategic priorities. Therefore, the allocation of awards should be based first on the quality of the proposal, then on the size of the partnership, and then on the allocation across BBSRC's strategic priority areas. A *maximum* of 15 to 20 DTPs should be recommended for award.

### **BBSRC priorities and strategic alignment of DTP awards**

9. The assessment criteria for DTP applications are provided at **Annex 1**. Whilst the quality of proposals will remain the predominant factor in determining success and allocation of awards, BBSRC is seeking to **support studentships in line with the expected future skills needs of BBSRC's priority areas**.
10. The BBSRC Skills Statement (**Annex 2**) describes the broad, niche and generic professional skills that BBSRC wishes to see developed through DTPs. BBSRC Executive has considered the balance between BBSRC's research grants and training awards, noting in particular the balance of funding across BBSRC's strategic research priorities, as well as training for research relevant to the enabling theme of 'Exploiting New Ways of Working'. The pie chart below indicates the **anticipated spread of DTP studentships by BBSRC's strategic research areas**; guidance on the balance of the portfolio was also provided as part of the call documentation.
11. In addition, BBSRC expects **50% of all studentship projects** to involve significant levels of training relating to **Exploiting New Ways of Working**. This type of research / training aims to promote advancement in tools and technologies used in bioscience research, as well as computational, mathematical, systems and synthetic approaches. It is an *enabling theme* that relates to all areas of BBSRC's remit and is therefore categorised separately. For example, systems approaches may be used in research relating to food security, industrial biotechnology or bioscience underpinning health.
12. There is **no** expectation that any single DTP bid will reflect the balance shown, or even that each bid will try to provide research training in all of the areas. The proportions given relate to the whole portfolio of successful DTPs awarded.



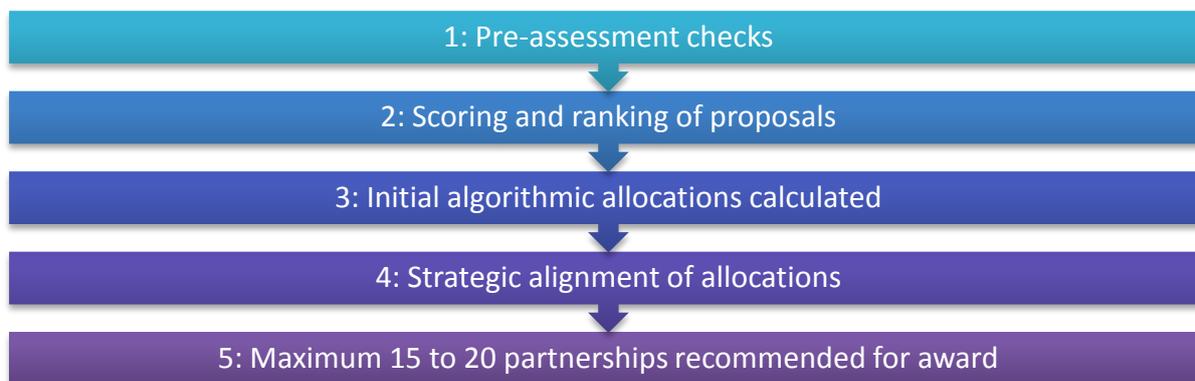
## METHOD OF WORKING

### Timetable for assessment

Task	Deadline
Closing date for receipt of applications	15 September 2011
Office pre-assessment checks	18 October 2011
TAC briefing meeting	6 October 2011
e-volume to be sent to TAC members	27 October 2011
Scores to be submitted	17 November 2011
TAC Assessment meeting	1-2 December 2011
BBSRC Executive Group meeting	7 December 2011
Notification of awards	By end January 2012
First intake of students	October 2012

### Overview of the assessment and allocation process

13. A summary of the process for the assessment of proposals and allocation of studentships is shown in the figure below, where some proposals may be excluded from assessment after stages 1 and 2:



### Step 1: Pre-assessment steps

14. The following checks were undertaken by the Office prior to assessment by TAC members:

(i) **Completeness and eligibility checks:**

- All proposals have been checked to confirm the eligibility of the Research Organisation(s) for this call.
- The Office has confirmed that the required documents have been provided by the Research Organisation(s).
- Proposals have not been checked for remit, as details of individual studentships are not provided with the application.
- Partnership funding details have been checked to ensure that all partnerships meet or exceed the required level of £5M BBSRC grant funding (spend figures as at financial year 2009/10, taken from BBSRC grant systems).

(ii) **Conflicts of Interest:**

- Members have been asked to provide BBSRC with updated information on any conflicts of interests they may have. At the meeting on 1/2 December 2011, TAC members will be required to leave the room for discussions on proposals relating to their own institution and where industrial collaborations exist with ROs. In addition, if there are any private, professional, or commercial conflicts of interests of which the Secretariat is unaware, members should declare them; it will then be at the Committee's discretion, with the final decision being made by the Office, as to whether those members may remain for the discussion. Decisions on conflicts of interests will be recorded

### Step 2: Scoring and ranking of proposals

15. Introducers have been provided with copies of all proposals (the e-volume) on an encrypted USB datastick. Members are encouraged to read *all* proposals and contribute to discussions (except where conflicted), but to focus on those which have been specifically assigned to each Introducer.
16. TAC Members should note that there are a number of new features included within the applications for DTPs. These include, for the first time:
- A Portfolio Agreement, which will form the basis of a 'contract' between successful DTPs and BBSRC / TAC

- Reference to the BBSRC Skills Statement, which outlines the research-specific, core bioscience and generic professional skills that BBSRC is looking to support through its postgraduate Training Grants
  - A programme of Professional Internships for PhD Students (PIPS), where all partnerships are required to describe how they would manage a programme to enable all BBSRC funded students to carry out a three-month internship in a professional environment (not related to their PhD project) during their PhD
17. Information about previous applications for BBSRC Training Grants is not provided and partnerships have not been given the opportunity to stipulate the number of studentships requested.
  18. Each proposal has been assigned to three Introducers. The DTP assessment criteria have been published as part of the DTP call text. A table outlining the assessment criteria, how these map onto the information provided in the proposals, and scoring descriptors, is provided at [Annex 1](#). Introducers should use this to give each proposal a set of 'quality scores', where each criterion should be given a score of between **0.0 and 6.9**. In the case of Strategic Alignment, a separate score should be provided for each of the areas in which the Partnership is proposing to train students. If a proposal is not relevant to a particular area, this score should be left blank (i.e. do *not* include a score of zero). This will aid later discussions about the overall balance of the portfolio. A **scoring template** has been provided with the e-volume, for completion by Introducers.
  19. In assessing and scoring proposals, Members should consider both the information provided by applicants as part of their DTP proposals and information provided by BBSRC; the latter includes the following:
    - (i) **Information on BBSRC studentships** at the institution(s) involved, predominantly using data taken from the JeS studentships data portal on 16 September 2011, through which details of all BBSRC studentships are reported within a month of the student starting.
    - (ii) **Information on BBSRC funded research** at the institution(s) involved, to assist TAC in understanding whether a DTP has sufficient research strength in the priority areas proposed.
  20. Using the above information, TAC members should score each proposal and email their completed scoring template to SSC at [GrantsBBSRC@ssc.rcuk.ac.uk](mailto:GrantsBBSRC@ssc.rcuk.ac.uk) by **Thursday 17 November 2011 at the latest**.
  21. Members have received **Feedback Forms** for the applications to which they have been assigned as Introducers. In addition to returning scores, Introducers should ensure that these forms are used to note clear reasons for the scores. It is important that the Office is able to provide feedback to applicants, and the notes will also be helpful in the case of score discrepancies between Introducers. The information on the Feedback Forms may be provided directly to the applicants and comments should be written with disclosure in mind. In addition, it is important to record points made in discussion during the meeting, as a basis for the Committee's reasons for its rating; these comments may also be fed back to the applicants. If a member's point of view is changed significantly, they may need to adapt their entire feedback to reflect this. All members should ensure that they return their Feedback Forms, any notes, and the USB datasticks to the Secretariat at the end of the meeting.
  22. At the TAC meeting in December 2011, the scores will be considered by the panel and agreed scores will be weighted, as described in the assessment criteria table, to create a single overall agreed score and an initial ranked list of potential partnerships. In deciding the overall agreed score, the Committee will consider the importance of all factors in relation to the proposal. At this stage it is possible that some prospective

partnerships will be judged by TAC not to meet its training quality expectations and be deemed 'not fundable'. These proposals will not be included in further discussions. For those proposals considered to be 'fundable', BBSRC grant funding levels will be matched against the overall score and this will be used to create an initial algorithmic allocation of studentships per partnership.

### Step 3: Initial algorithmic allocations calculated

23. The quality scores provided by TAC and the level of BBSRC competitive research grant funding will be used as the basis for calculating an initial algorithmic allocation of awards, where large partnerships (with high levels of BBSRC grant funding) with a high score would be allocated more studentships than a smaller partnership with a lower score. An example illustrating how this algorithm works is provided at **Annex 3**. Algorithmic allocations will serve as a **starting point** for considering the appropriate level of award, according to both the quality of the application and the volume of high-quality research being undertaken by a Partnership.
24. A key aim of the DTP scheme is to promote studentship cohorts. Therefore, TAC may wish to adjust allocations to ensure that the successful partnerships receive an appropriate number of studentships based on their size. TAC should bear in mind that large cohorts will be more difficult to achieve if a larger number of partnerships are awarded.

### Step 4: Strategic alignment of allocations

25. As explained above, BBSRC is seeking to increase studentship support in line with the expected future skills needs of BBSRC's priority areas. In considering its recommendations, TAC should consider how the portfolio of partnerships might deliver both excellence of training and strategic fit with BBSRC's remit and priority areas.
26. A new feature of the DTP scheme is the inclusion of the Portfolio Agreement. In applying for a DTP, applicants are asked to indicate the *relative* numbers (proportions) of studentships that they intend to create in each strategic research area, plus the proportion relevant to the enabling theme of Exploiting New Ways of Working. Liaison with DTPs across the lifetime of the awards will help BBSRC and TAC to understand how such training is being managed.
27. In relation to the consideration of research-specific, core and professional skills, TAC should note that BBSRC is seeking to *significantly increase* the proportion of studentships relevant to Exploiting New Ways of Working. The overall target figure of 50% is irrespective of the research area on which the PhD project is focussed and assumes that most or all students will carry out some level of training in mathematical and systems approaches, as supported by the SysMIC programme<sup>3</sup> of e-learning for systems approaches to bioscience research, led by University College London.
28. In considering the allocation of awards to partnerships, TAC may wish to consider the following:
  - To what extent does the portfolio of partnerships reflect BBSRC's anticipated spread of studentships by broad research area?

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<sup>3</sup> The Systems Training in Maths, Informatics and Computational Biology (SysMIC) programme was awarded through BBSRC's e-Learning for Systems Approaches (eLSA) initiative, to support a consortium comprising of UCL, Birckbeck, the OU and the University of Edinburgh over a period of 5 years. Details are available on the BBSRC website at: [www.bbsrc.ac.uk/funding/opportunities/2010/elsa](http://www.bbsrc.ac.uk/funding/opportunities/2010/elsa).

- To what extent do partnerships seek to support the research-specific, core and generic professional skills described in the BBSRC Skills Statement?
- What does the additional information provided by BBSRC about current research grant and studentship portfolios indicate about a partnership's strategy for the allocation of studentships by broad research area?
- Should the balance within or between any partnerships be adjusted in order to address any imbalances across the portfolio? Are there any cases where a lower ranking of a partnership is off-set by the strategic importance of the research training being offered?

#### Step 5: Maximum 15 to 20 partnerships recommended for award

29. After considering the quality and strategic alignment of proposals, TAC should make a final check that the spread of awards reached through their deliberations represents an appropriate spread of investment to recommend to BBSRC. Any modifications to the spread of awards must be made by taking into account the assessment criteria and the additional information provided by the Office. It is important that the Committee provides clear reasons for its decisions on each proposal.
30. It is anticipated that a **maximum** of 15 to 20 partnerships are awarded in total. However, TAC may consider that a smaller number of partnerships will effectively achieve the appropriate spread of excellent training across the breadth of BBSRC's remit. TAC should consider that with 220 studentships available per year, a larger number of partnerships being awarded will result in each partnership receiving a smaller allocation.
31. In finalising its recommendations, TAC should re-consider the key features of the DTP scheme:

#### Key features of BBSRC's Doctoral Training Partnerships scheme

- DTPs are the new academic block studentships scheme to replace Quota DTG
- DTPs have been shaped by the recent **Quota Evaluation** and BSC Strategy Panel advice
- DTPs allow for better **strategic alignment** and coordination
- Students are placed in **world-class** research environments
- DTPs incorporate an integrated Professional Internships for PhD Students (**PIPS**) programme
- Conversion of studentships to **CASE** is no longer mandatory, as these awards are now supported through separate schemes
- BBSRC expects to fund a maximum of **15-20 DTPs** (most multi-institutional) for 3 yrs (2012-14)
- The total investment is around **£66M**, funding around **220** students p.a.; this includes an increased Research Training Support Grant of **£5K per student p.a.**

32. The outputs from the TAC meeting on 1/2 December 2011 should be in the form of recommendations to BBSRC, specifying:
  - which proposals merit a DTP allocation;
  - the level of the DTP allocation to each proposal within an overall package of funding representing 220 studentships p.a.;
  - any conditions to the recommended level of award for each proposal;

- clear documented reasons for decisions on each proposal, using feedback forms provided.

## **NEXT STEPS**

33. Shortly after the meeting on 1/2 December 2011, TAC's recommendations will be taken to BBSRC Executive for consideration.
34. It is anticipated that announcements of awards will be made as soon as possible after the December TAC meeting, and by the end of January 2012 at the latest. This is to allow successful institutions as long as possible to recruit and plan for the first intake of students in October 2012.
35. **TAC Members should note that all scores, discussions and outcomes from the December meeting should be kept in strict confidence.** Members should refer any third party, who approaches them for information about Committee business, to the BBSRC Office. Any enquiries from applicants must be directed to the Secretariat. BBSRC will notify TAC members when partnerships have been informed of their success or failure.

# ANNEX 1

## DTP assessment criteria, weighting, evidence and scoring descriptions

			Scoring Descriptors		
Criterion (% weighting)	Evidence	Good Score in the range 5.0 to 6.9	Satisfactory Score in the range 3.0 to 4.9	Poor Score in the range 0.0 to 2.9	
1  <b>Strategic fit of the research training proposed to BBSRC's remit and Strategic Plan</b>  <b>(25%)</b>	<p>JeS Form: Research strategy (+ Annex to Covering Letter)</p> <p>Je-S form: Supervisor staff</p> <p>Portfolio Agreement – Box 2: Alignment of PhD Training with BBSRC Strategy</p> <p>Attachment: Departmental Publications</p> <p>Studentships Data – taken by BBSRC from Je-S Studentship Data Portal (SDP)</p> <p>Spread of BBSRC funding between priority areas – taken from BBSRC grant systems.</p>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- a clear fit between the partnership's strategy for research and training and BBSRC's strategic priorities, with strong evidence of the use of previous BBSRC funding to support this alignment.</li> <li>- an excellent understanding of the skills requirements described in the BBSRC Skills Statement and a clearly defined method for addressing these bioscience research skills needs; niche research skills areas identified and supported.</li> <li>- evidence of a well aligned partnership, with a clear rationale and strategy for the size and breadth of the institutions involved, and evidence that the breadth of BBSRC / other funding reflects the partnership's strategy for training. Considerable evidence of existing collaborative working practices.</li> </ul>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- a broad fit between the partnership's strategy for research and training and BBSRC's strategic priorities, with some evidence of previous BBSRC funding supporting this alignment.</li> <li>- some awareness of the skills requirements described in the BBSRC Skills Statement and some consideration for addressing these bioscience research skills needs; a limited provision and support for niche research skills.</li> <li>- some evidence of a well considered partnership, with a less clear or flawed rationale and strategy for the size and breadth of the institutions involved, and some evidence that the breadth of BBSRC / other funding reflects the partnership's strategy for training. Limited evidence of existing collaborative working practices.</li> </ul>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- a poor fit between the partnership's strategy for research and training and BBSRC's strategic priorities, with limited evidence of previous BBSRC funding supporting this alignment.</li> <li>- a lack of awareness or understanding of the skills requirements described in the BBSRC Skills Statement and a limited attempt to address the bioscience research skills needs; no consideration of supporting niche research skills.</li> <li>- little or no evidence of a well considered partnership, with a considerably flawed or lacking rationale and strategy for the size and breadth of the institutions involved, and little evidence that recent funding reflects the partnership's strategy for training. No evidence of existing collaborative working practices.</li> </ul>	
2	<b>Excellence of</b>	Je-S form: Research funding	Partnerships will demonstrate:	Partnerships will demonstrate:	Partnerships will demonstrate:

	<p><b>research relevant to BBSRC's remit and Strategic Plan</b></p> <p><b>(25%)</b></p>	<p>from outside sources</p> <p>JeS Form: Research strategy (+ Annex to Covering Letter)</p> <p>Je-S form: Supervisor staff</p> <p>Je-S form: Staff numbers</p> <p>Je-S form: Current studentships</p> <p>Attachment: Departmental Publications</p> <p>RAE profiles (taken from RAE2008)</p>	<p>- a large critical mass of active bioscience researchers who will interact with research students.</p> <p>- an extensive, competitively won research grant portfolio and income, with excellent alignment to BBSRC's remit and Strategic Plan.</p> <p>- international quality research, including an outstanding publications record and, where relevant, high quality RAE profiles.</p>	<p>- a reasonable number of active bioscience researchers who will interact with research students.</p> <p>- a reasonable portfolio of competitively won research grants and income, that has some alignment to BBSRC's remit and strategic plan.</p> <p>- some international quality research, including a sound publication record and, where relevant, reasonable quality RAE profiles.</p>	<p>- a limited number of active bioscience researchers, with low levels of interaction with research students.</p> <p>- a poor portfolio of competitively won research grants and income, with little or no alignment to BBSRC's remit and strategic plan.</p> <p>- a limited or minimal amount of research of international quality, with a poor publication record and, where relevant, poor RAE profiles.</p>
3	<p><b>Excellence of the PhD training programme established across the institutions involved</b></p> <p><b>(20%)</b></p>	<p>Je-S form: Research Environment</p> <p>Je-S form: Proposed Training and Support</p> <p>Je-S form: Current studentships</p> <p>Je-S form: Monitoring Arrangements (ie student supervision and progress monitoring)</p> <p>Portfolio Agreement – Box 6: Introduction of the PIPS scheme</p>	<p>Partnerships scored in this range will demonstrate:</p> <p>- a clear commitment to providing a training environment of outstanding quality, with students accessing state-of-the-art facilities, balancing a research specialism with broader all-round development in current research techniques.</p> <p>- a well developed policy for training in the core bioscience skills areas listed in the BBSRC Skills Statement.</p> <p>- a breadth of support for generic and professional skills development, with many areas of best practice in its approach to the development of these</p>	<p>Partnerships scored in this range will demonstrate:</p> <p>- a reasonable commitment to providing a good quality training environment, with students having some access to state-of-the-art facilities, while showing some consideration to balancing a research specialism with broader all-round development in current research techniques.</p> <p>- an awareness of the core bioscience skills areas listed in the BBSRC Skills Statement and a limited policy for addressing these needs.</p>	<p>Partnerships scored in this range will demonstrate:</p> <p>- a lack of commitment to providing a good quality training environment, with students having limited or no access to state-of-the-art facilities, and with little or no consideration to balancing a research specialism with broader all-round development in current research techniques.</p> <p>- little or no awareness of the core bioscience skills areas listed in the BBSRC Skills Statement and no demonstrated policy for addressing these needs.</p>

			<p>skills.</p> <ul style="list-style-type: none"> <li>- a well considered plan for a programme of Professional Internships for PhD Students (PIPS), including experience of supporting students in similar placements, well established links with potential host organisations, and/or plans to out-source the management of the programme as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>- some provision of training for generic and professional skills, including some areas of best practice in its approach to the development of these skills.</li> <li>- some consideration towards the development and management of a PIPS programme including, for example, examples of some links with potential host organisations.</li> </ul>	<ul style="list-style-type: none"> <li>- little or no provision for generic and professional skills, with no examples of best practice in its approach to the development of these skills.</li> <li>- little or no consideration towards the development and management of a PIPS programme.</li> </ul>
4	<p><b>Quality of management of the training programme (15%)</b></p>	<p>Portfolio Agreement – Box 1: Governance Arrangements</p> <p>Portfolio Agreement – Box 3: Selection of supervisors, PhD projects and students</p> <p>Je-S form: Supervisor Training and Selection (selection process for project and student)</p> <p>Je-S form: Proposed Training and Support (Training needs assessment, and Student selection, recruitment and induction)</p> <p>Postgraduate Performance Indicators attachment (submission rates)</p> <p>Portfolio Agreement Box 8: Information and Reporting Requirements</p>	<p>Partnerships that score within this range will have:</p> <ul style="list-style-type: none"> <li>- a robust mechanism in place for planning, managing and monitoring the proposed PhD training across all the partners, incorporating exemplary and innovative practices.</li> <li>- a robust policy for the strategic targeting of DTP funding, including systems and processes for assessing the suitability of supervisors and projects.</li> <li>- a well defined process for student recruitment, induction, progress monitoring and submission, including arrangements for returning accurate and timely data to BBSRC on studentships.</li> <li>- submission rates that are typically at or above 80% for all partners in all years.</li> </ul>	<p>Partnerships that score within this range will have:</p> <ul style="list-style-type: none"> <li>- a satisfactory mechanism in place for planning, managing and monitoring the proposed PhD training across all the partners, although it may not be clearly defined or have identifiable weakness in comparison with sector-wide best practice.</li> <li>- a limited or flawed policy for the strategic targeting of DTP funding, including systems and processes for assessing the suitability of supervisors and projects.</li> <li>- satisfactory processes for student recruitment, induction, progress monitoring and submission, with flawed or poorly defined arrangements for returning accurate and timely data to BBSRC on studentships.</li> </ul>	<p>Partnerships that score within this range will have:</p> <ul style="list-style-type: none"> <li>- little or no described mechanism in place for planning, managing and monitoring the proposed PhD training across all the partners, or the internal arrangements are insubstantial or lacking in robustness.</li> <li>- no demonstrated policy for the strategic targeting of DTP funding, with a lack of systems and processes for assessing the suitability of supervisors and projects.</li> <li>- little or no defined process for student recruitment, induction, process monitoring and submission, with evidence of poorly defined arrangements for returning accurate and timely data to BBSRC on studentships.</li> </ul>

		Studentships Data – taken by BBSRC from Je-S Studentship Data Portal (SDP)		- submission rates that are typically between 70-80% for all partners in all years.	- submission rates that regularly fall below 70% for most or all partners.
5	<p><b>Partnership governance arrangements to maximise the impact of BBSRC's investment across the Partnership</b></p> <p><b>(15%)</b></p>	<p>Portfolio Agreement – Box 1: Governance Arrangements</p> <p>Je-S form: DTG Flexibility</p> <p>Portfolio Agreement – Box 4: Institutional Commitments</p> <p>Portfolio Agreement – Box 5: Use of Higher RTSG</p> <p>Portfolio Agreement – Box 7: Supervisor training and support</p> <p>Je-S form: Supervisor Training and Selection (supervisor training)</p> <p>Studentships Data – taken by BBSRC from Je-S Studentship Data Portal (SDP)</p>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- a high quality governance structure for the management of the partnership, with a clear and well defined policy on appropriate engagement with all collaborating partners.</li> <li>- a strong commitment to research training in the partnership, including significant underwriting of studentships due to begin in October 2012.</li> <li>- a clear commitment to maximising the impact of BBSRC studentship funding through use of the increased RTSG, flexibility of award and leverage of funding from other sources.</li> <li>- strong evidence of links with organisations outside the academic partnership including, where appropriate, a significant proportion (usually &gt;25%) of previously awarded Quota DTG studentships being converted to CASE.</li> <li>- a clear policy for the strategic allocation of studentships across the partnership.</li> </ul>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- a sound governance structure for the management of the partnership, with some consideration given to a policy for appropriate engagement with all collaborating partners.</li> <li>- some evidence of a commitment to research training in the partnership, with a limited commitment to underwriting studentships due to begin in October 2012.</li> <li>- some evidence of making use of the increased RTSG, flexibility of award and leverage of funding to maximise the impact of BBSRC studentship funding.</li> <li>- some evidence of links with organisations outside the academic partnership including, where appropriate, a reasonable proportion (around 15-25%) of previously awarded Quota DTG studentships being converted to CASE.</li> <li>- a limited or somewhat flawed</li> </ul>	<p>Partnerships will demonstrate:</p> <ul style="list-style-type: none"> <li>- little evidence of a well managed governance structure for the management of the partnership, with little or no consideration given to a policy for appropriate engagement with the collaborating partners.</li> <li>- a poor commitment to research training in the partnership, with no consideration to underwriting studentships due to begin in October 2012.</li> <li>- limited or no evidence of making use of the increased RTSG, flexibility of award and leverage of funding to maximise the impact of BBSRC studentship funding.</li> <li>- little evidence of links with organisations outside the academic partnership including, where appropriate, only a small proportion (&lt;15%) of previously awarded Quota DTG studentships being converted to CASE.</li> <li>- no evidence of a policy for the strategic allocation of studentships</li> </ul>

			<p>- robust arrangements for supervisor training, including postdoctoral staff involved in supporting students, where continuing professional development is likely to be compulsory.</p>	<p>policy for the strategic allocation of studentships across the partnership.</p> <p>- reasonable arrangements for supervisor training, including postdoctoral staff involved in supporting students.</p>	<p>across the partnership.</p> <p>- no evidence of appropriate supervisor training arrangements, with little or no acknowledgement of the role of postdoctoral researchers in supporting students.</p>
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## ANNEX 2

### BBSRC Skills Statement: Scientific and Core Skills for UK Bioscience

The BBSRC Skills Statement brings together in one place the research-specific expertise and cross-cutting skills that BBSRC is seeking to support through its Training Grants. This statement is intended to help institutions in planning how to address BBSRC's strategic priorities for research training.

BBSRC supports studentships in research areas across its remit. The areas described here cover:

- BBSRC's broad strategic research priorities and enabling technologies to exploit new ways of working (**section A**).
- Specific strategically important and vulnerable niche skills (**section B**), which have been identified as areas where increased student capacity is required in order to maintain or develop an adequate supply of skilled researchers within the UK.
- Cross-cutting core bioscience and generic professional skills (**section C**), which are the skills that are increasingly expected of today's bioscience researchers and are expected to be included as part of all BBSRC funded studentship programmes.

This document draws on BBSRC's Strategic Plan 2010-2015 (and the consultation which informed it) and associated Delivery Plan, BBSRC's Niche Skills and other reviews, as well as views gathered from BBSRC committees, panels and groups on which BBSRC is represented.

Further information can be found in the references listed throughout the document or you can email queries to [postgrad.studentships@bbsrc.ac.uk](mailto:postgrad.studentships@bbsrc.ac.uk).

## A. Strategically important research areas

BBSRC's Strategic Plan 2010-2015 "The Age of Bioscience"<sup>4</sup> outlines its current strategic priorities for research. Studentships addressing the areas described in this section should develop the skills needed to support research in the subject in question. BBSRC does *not* expect all its studentships to be relevant to its strategic priority areas, or expect a single institution to offer studentships across the whole BBSRC remit. However, across the complete portfolio of studentships funded through the Doctoral Training Partnerships, BBSRC intends to ensure that there is an appropriate balance of studentships providing sufficient training within the research community to maintain an adequate supply of high quality researchers for all the areas given below.

BBSRC's strategic research priorities are:

1. Food Security
2. Bioenergy and Industrial Biotechnology
3. Basic Bioscience Underpinning Health

Together with the following research enabling theme:

4. Exploiting New Ways of Working – including the need for researchers to develop and use new bioanalytical, bioinformatic and biological technologies, and to recognise the importance of taking a systems approach to biological problems

- 1. FOOD SECURITY:** Bioscience for a sustainable supply of sufficient, affordable, nutritious and safe food, adapting to a rapidly changing world

A review of high level skills needs for food security<sup>5</sup> identified that there may be a shortage in the supply of highly skilled people in a number of niche research areas (see also section B). As part of other activities in this area, and as a contributing member of the Global Food Security programme<sup>6</sup>, BBSRC wishes to support the development of skills and expertise relating to the following research areas:

- **Animal health and welfare:**
  - Endemic and exotic diseases of animals (including aquaculture and fisheries), including food-borne zoonoses, welfare-related disease and non-transmissible diseases
  - Farm animal welfare: improving the conditions and management of farmed animals to minimise pain, suffering, distress or lasting harm
  - Genetics and genomics for improved animal breeding
- **Crop science:**
  - Increasing the efficiency and sustainability of crop production and reducing waste in the food chain
  - Minimising negative environmental impacts and preserving biodiversity and other ecosystem services
  - Pre-competitive research that can be translated into practice, such as plant breeding

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<sup>4</sup> <http://www.bbsrc.ac.uk/publications/planning/strategy/strategic-plan-index.aspx>

<sup>5</sup> <http://www.bbsrc.ac.uk/web/FILES/Reviews/1001-high-level-skills-for-food.pdf>

<sup>6</sup> <http://www.foodsecurity.ac.uk/assets/pdfs/gfs-strategic-plan.pdf>

- Crop protection: enhancing yield and quality of crops through prevention and combating of pests, diseases and weeds; generating crops adapted to future environments
- **Diet and health:** Enhancing food quality for improved nutrition
- **Microbial food safety:** Animal and plant diseases and their causative organisms that have impacts on human health
- **Agricultural systems and environment:**
  - Agricultural landscapes and systems
  - Soil science
  - Interactions of crop farming practices with the environment
  - Impacts of climatic and other environmental factors on agricultural systems

## 2. **BIOENERGY AND INDUSTRIAL BIOTECHNOLOGY:** Production and processing of energy and industrial materials from biological sources

Bioenergy and Industrial Biotechnology (IB)<sup>7</sup> is a broad research area, incorporating cross-disciplinary underpinning technologies that make use of biological resources to process and produce chemicals, materials and energy. These resources include plants, algae, marine life, fungi and other micro-organisms.

BBSRC wishes to build capacity in all areas of IB but in particular is looking to support training that addresses the following skills and research expertise:

- **Biocatalysis and other biological processes:** the production of industrial chemicals from living organisms, including through **synthetic and systems approaches**. This is an area where **cross-disciplinary research** involving biologists, chemists and engineers, as well as integration with the chemicals industry, is of particular importance. So too will be a focus on skills for **bioprocessing** and for the discovery of **novel bioactives** from first principles.
- **Bioenergy:** fundamental research on future bioenergy production, particularly liquid biofuels using **synthetic and systems approaches**
- **Biologics:** including underpinning bioscience and technology development to improve **bioprocessing**, particularly where there are clear links with industry
- **Non-food crops:** developing processes to increase the production of high value **chemicals from plants**

## 3. **BASIC BIOSCIENCE UNDERPINNING HEALTH:** Driving advances in fundamental bioscience for better health and improved quality of life across the life course

BBSRC wishes to support the development of skills and expertise relating to the following research area:

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<sup>7</sup> <http://www.bbsrc.ac.uk/organisation/policies/reviews/scientific-areas/1102-industrial-biotechnology-bioenergy-report.aspx>

- **Lifelong Health and Wellbeing:** the basic molecular, cellular, tissue and systems mechanisms responsible for longevity or premature ageing and how these are modulated by diet, exercise and developmental factors

**4. EXPLOITING NEW WAYS OF WORKING:** Enabling innovative working practices in an era of rapid technological advancement, the next generation internet, and quantitative and computational approaches to bioscience.

This enabling theme is cross-cutting and drives bioscience research in all areas – the need for researchers to develop and use new bioanalytical, bioinformatic and biological technologies to accelerate discovery and preserve UK world class status. This includes an emphasis on the development and use of systems and modelling approaches to the study and solution of biological problems. The Exploiting New Ways of Working priority embraces multidisciplinary and quantitative approaches and covers the development of research expertise and skills as follows:

- Research expertise in and for the development of the next generation of bioanalytical and biological technologies, in areas including (but not exclusively) bioimaging, 'omics technologies and biomolecular characterisation
- Research expertise in the development of the next generation of computational and bioinformatic tools, and resources to drive data intensive bioscience and tackle the bioscience data deluge
- Research expertise in synthetic biology, an emerging area at the interface of biology, engineering, chemistry and IT that focuses on the design and construction of new biological parts, devices, and systems, and the re-design of existing, natural biological systems for useful purposes
- Boosting skills, across the biosciences, to ensure that all researchers are effective in exploiting new tools and methodologies relevant to their research as they become available

Two recent BBSRC Strategic Reviews have identified additional skills gaps in Exploiting New Ways of Working. These are the Review of Next Generation Sequencing<sup>8</sup> and the Review of the Computational Requirements of the Biosciences<sup>9</sup>.

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<sup>8</sup> <http://www.bbsrc.ac.uk/organisation/policies/reviews/scientific-areas/1102-next-generation-sequencing-review.aspx>

<sup>9</sup> <http://www.bbsrc.ac.uk/news/research-technologies/2011/110120-n-computational-requirements-review.aspx>

## **B. Other strategically important and vulnerable ‘niche’ research skills**

In October 2009, BBSRC published a report on “Strategically important and vulnerable capabilities in UK bioscience”<sup>10</sup>. This review of ‘niche’ research skills in the UK identified a number of areas where BBSRC wishes to ensure an adequate supply of skilled people; many of these are relevant to the broad research areas described in section A. Typically niche skill areas do not require large numbers of expert scientists, and the low number needed can itself create difficulties for recruiting people into an area.

Niche skills that BBSRC is particularly keen to support include the following:

### **Relating to Food Security:**

- Plant physiology
- Plant breeding
- Plant pathology, especially entomology and mycology
- Soil science
- Horticulture
- Agroecology

### **Relating to Exploiting New Ways of Working:**

- Data visualisation
- Next Generation Sequencing

### **Other areas:**

- **Systematics and Taxonomy**

This area covers systematics and taxonomy for all groups, but particularly microbes (including fungi), algae and plants. This includes research at all levels, from genetic and molecular studies to morphological approaches.

The development of skills in systematics and taxonomic approaches are important in the following scientific areas:

- identifying emerging threats from climate change, disease and invasive species
- underpinning agricultural development and food security through the identification and development of drought or pest resistant races from combining trait, genetic and distribution data
- ensuring that the UK retains a pool of trained professionals able to provide taxonomic identifications
- interpreting the outputs from various ‘omic’ based approaches
- searching for bioactive compounds of commercial potential therapeutic importance

- ***In vivo* skills**

This area covers whole animal physiology and integrative mammalian biology, including the development of skills for the handling of both laboratory and large animals, particularly where these skills are developed through collaboration with industry. Skills needs in this area are still considered to be vulnerable by the industry and are described in more detail in the ABPI review<sup>11</sup>.

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<sup>10</sup> <http://www.bbsrc.ac.uk/organisation/policies/reviews/consultations/0905-bioscience-research-skills.aspx>

<sup>11</sup> <http://www.abpi.org.uk/Details.asp?ProductID=338>

## C. Core Bioscience and Generic Professional Skills

In order to address the complexities and challenges facing modern biologists, BBSRC has identified areas of 'core bioscience skills' which all future bioscientists need to develop. These core bioscience skills build on the broader generic and professional skills that BBSRC, along with the other Research Councils, regard as vital for all PhD students to develop.

This section represents the skills areas which are increasingly being seen as core for the next generation of bioscientists. BBSRC does not wish to be overly prescriptive on the depth that any one student should attain in these skills. However, institutions holding BBSRC Training Grants should have mechanisms in place to provide access to such training, assess individual training needs in these areas and monitor skills development. Institutions may not wish to provide all the training themselves, but rather seek to draw on external training opportunities – for example, the *Biotechnology YES* competition<sup>12</sup> for the development of entrepreneurial awareness, or *Researchers in Residence*<sup>13</sup> for outreach opportunities.

### Core Bioscience Skills

The two groups of core skills for bioscientists are:

#### 1. Mathematics and data analysis

The use of mathematics and data analysis to manage and interpret biological data through:

- Mathematical and data handling skills
- Statistics and experimental design

#### 2. Multidisciplinary approaches to understanding biological systems

Understanding the value of collaborative and coordinated interdisciplinary approaches to biological research; for example:

- Multidisciplinary approaches to understand biological systems<sup>14</sup>, including an understanding of how modelling can inform subsequent rounds of experiments
- Veterinary and medical research collaboration to identify common approaches to tackling problems relating to animal diseases
- Biological and chemistry / engineering approaches to industrial biotechnology
- Biological and computational approaches to managing and analysing large datasets in the biosciences

### Generic Professional Skills

As part of RCUK, BBSRC funds the Vitae programme<sup>15</sup> to help research organisations provide generic and professional development for PhD students and postdoctoral researchers.

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<sup>12</sup> <http://www.biotechnologyyes.co.uk/>

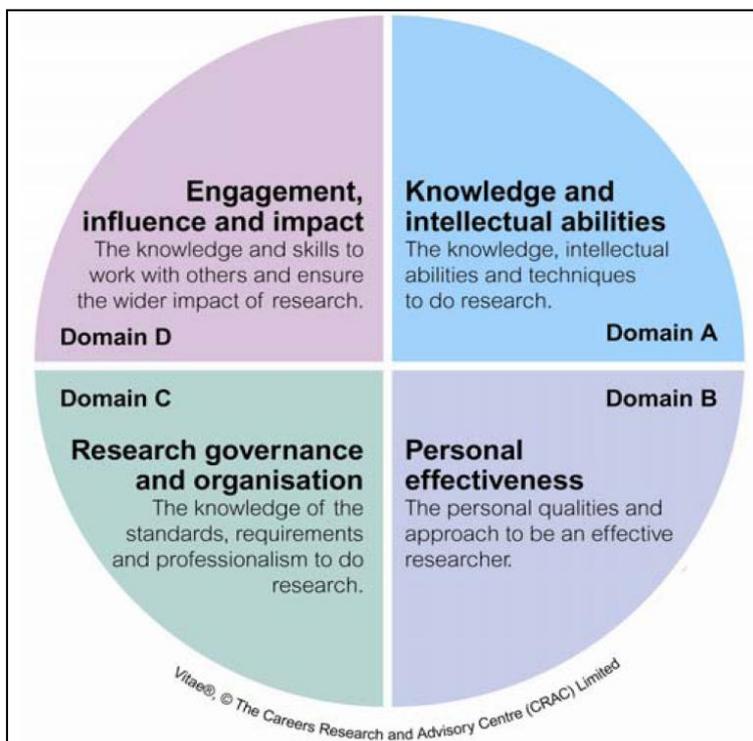
<sup>13</sup> <http://www.researchersinresidence.ac.uk/rir/>

<sup>14</sup> See further information on systems approaches to biological research at:

<http://www.bbsrc.ac.uk/science/systems-approach.aspx>

<sup>15</sup> <http://www.vitae.ac.uk/>

BBSRC also supports the development by Vitae of the 'Researcher Development Statement'<sup>16</sup>, which outlines the areas of professional development that research organisations should be addressing in their training programmes. The Researcher Development Statement replaces the Research Councils' Joint Skills Statement, and covers the domains shown.



These skills include those that encourage students to understand the impact of their research. BBSRC defines impact as the demonstrable contribution that excellent research makes to society

and the economy. Impact embraces all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations by:

- fostering global economic performance, and specifically the economic competitiveness of the United Kingdom
- increasing the effectiveness of public services and policy
- enhancing quality of life, health and creative output

BBSRC recognises that the impact of excellent research is extremely broad, and is found in areas as diverse as industry, schools, local and national government, news and media, and international relations. Further information on BBSRC policy and guidance on impact of bioscience research can be found on the BBSRC website<sup>17</sup>.

In particular, BBSRC would wish to see the development of skills in the following two areas:

### 1. Social impact of research

- Public engagement and outreach opportunities<sup>18</sup>
- Ethical awareness training, including animal welfare and the replacement, refinement and reduction of animals in research<sup>19</sup>
- Awareness of the legal and societal context of biological research
- Understanding how research can be used to develop evidence-based policy

### 2. Commercial impact of research

- Commercial awareness
- Business and management skills
- Entrepreneurial awareness

<sup>16</sup> <http://www.vitae.ac.uk/rds>

<sup>17</sup> <http://www.bbsrc.ac.uk/organisation/policies/position/policy/impact-policy.aspx>

<sup>18</sup> See the Concordat for Engaging the Public with Research at: <http://www.publicengagement.ac.uk/why-does-it-matter/concordat>

<sup>19</sup> See NC3Rs: <http://www.nc3rs.org.uk/>

## Model used for algorithmic allocation of studentships

*The allocation of DTP studentships will be calculated using an algorithm as described in steps A to E below.*

Step A: Introducer scores agreed and an average calculated

- Significant score discrepancies will be highlighted for discussion (as shown in yellow below)
- Average score calculated based on the three individual scores and used in allocation algorithm described below

Grant reference	Lead institution	Introducer	Assessment Criteria / weighting				
			1: Strategic fit	2: Excellence of research	3: Excellence of training programme	4: Quality of management	5: Partnership governance arrangements
BB/Jxxx1/1	Institution X	1	1.1	2.3	3.0	4.0	5.2
		2	1.3	2.4	3.0	4.1	5.5
		3	5.0	1.9	4.1	3.5	3.0
		<b>AVERAGE</b>	<b>2.5*</b>	<b>2.2</b>	<b>3.4</b>	<b>3.9</b>	<b>4.6</b>

\*  $(1.1 + 1.3 + 5.0) / 3 = 2.5$

- Scores for strategic fit also provided to indicate partnership strengths / weaknesses – *only* in areas relevant to the proposal
- Significant score discrepancies will be highlighted for discussion
- Strategic fit scores are provided to aid discussions and will not be used in allocation algorithm

Grant reference	Lead institution	Introducer	Strategic fit by research area (where relevant)				
			Food Security	Bioenergy & industrial Biotechnology	Basic Bioscience Underpinning Health	Other World Class Bioscience	Exploiting New Ways of Working
BB/Jxxx1/1	Institution X	1	5.0	N/A	3.0	2.0	1.0
		2	5.0	N/A	3.0	2.0	1.0
		3	4.0	N/A	5.0	1.5	3.5
		<b>AVERAGE</b>	<b>4.7</b>	<b>N/A</b>	<b>3.7</b>	<b>1.8</b>	<b>1.8</b>

Step B: Average scores weighted according to proportions indicated in published Assessment Criteria document, and overall score agreed

- Average scores for each assessment criterion scaled according to weighting of assessment criterion
- Weighted scores summed to produce final total score out of a maximum of 6.9
- Committee agree a final 'Overall agreed score'

Grant reference	Lead institution	Average Assessment Criteria / weighted scores										TOTAL SCORE (out of 6.9)	OVERALL AGREED SCORE
		1: Strategic fit	25%	2: Excellence of research	25%	3: Excellence of training programme	20%	4: Quality of management	15%	5: Partnership governance arrangements	15%		
BB/Jxxx1/1	Institution X	2.5	0.6*	2.2	0.6	3.4	0.7	3.9	0.6	4.6	0.7	3.1**	3.1

\*  $(25 / 100) \times 2.5 = 0.6$

\*\*  $0.6 + 0.6 + 0.7 + 0.6 + 0.7 = 3.1$

Step C: Total score and BBSRC grant funding figures combined to create 'Quality weighting'

- Quality weighting depends on total BBSRC grant funding for partnerships being included in the calculation (in this example, there are three partnerships)

Grant reference	Lead institution	OVERALL AGREED SCORE (out of 6.9)	BBSRC grant funding (£M)	Quality weighting calculation	Quality weighting
BB/Jxxx1/1	Institution X	3.1	10.0	$= (10.0 / 30) \times 3.1$	1.03
BB/Jxxx2/1	Institution Y	5.5	5.0	$= (5.0 / 30) \times 5.5$	0.92
BB/Jxxx3/1	Institution Z	4.0	15.0	$= (15.0 / 30) \times 4.0$	2.0
<b>TOTALS</b>			<b>30</b>		<b>3.95</b>

Step D: Quality weighting used to distribute available studentships across the partnerships

- The more partnerships that are considered, the more the available studentships will be spread out across them, depending on the size of the quality weighting score

Grant reference	Lead institution	OVERALL AGREED SCORE (out of 6.9)	BBSRC grant funding (£M)	Quality weighting	Algorithmic allocation calculation	Algorithmic Allocation
BB/Jxxx1/1	Institution X	3.1	10.0	1.03	= (1.03 / 3.95) x 220	57
BB/Jxxx2/1	Institution Y	5.5	5.0	0.92	= (0.92 / 3.95) x 220	51
BB/Jxxx3/1	Institution Z	4.0	15.0	2.0	= (2.0 / 3.95) x 220	112
<b>TOTALS</b>			<b>30</b>	<b>3.95</b>		
<b>Total number of available studentships</b>						<b>220</b>

Step E: Allocation split by strategic area for each partnership, to understand implications across the portfolio of successful DTPs

- Split is based on the proportion of studentships that will be allocated to each area, as provided by the partnership in their Portfolio Agreement

Grant reference	Lead institution	Algorithmic Allocation	Proportion and number by strategic area									
			FS		B&IB		BBUH		WCUB		ENWW	
BB/Jxxx1/1	Institution X	57	25%	14*	20%	11	5%	3	50%	29	50%	29
BB/Jxxx2/1	Institution Y	51	35%	18	0%	0	10%	5	55%	28	30%	15
BB/Jxxx3/1	Institution Z	112	5%	6	15%	17	0%	0	80%	89	75%	84
<b>TOTALS</b>		<b>220</b>		<b>38</b>		<b>28</b>		<b>8</b>		<b>146</b>		<b>128</b>

\* (25 / 100) x 57 = 14