



Evaluation of BBSRC Modular Training for Industry Programme

November 2006

This document represents the conclusions of a BBSRC Evaluation into the Modular Training for Industry Programme.

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EXECUTIVE SUMMARY AND KEY CONCLUSIONS

This document sets out the views of a BBSRC Evaluation convened to provide an impartial review of the BBSRC Modular Training for Industry (MTI) Programme since 2003. The MTI Programme aims to support up to date, industrially-relevant technical training at Masters level for graduates working in UK industry.

The objectives of the evaluation were to:

- investigate the extent to which the programme is achieving its aim
- document the impact of the support provided, both in terms of the modules developed, and any wider benefits
- identify highlights and major achievements, to feed into (amongst others) the evidence base, advertising, and best practice information for recipients
- identify ways to build on successes, and ways in which the programme could be improved.

The analysis was based on the results of questionnaire surveys of a sample of past and present award holders. The evaluation covers four major areas:

- outputs and achievements
- success stories
- administration issues
- MTI Assessment Panel comments

Key Conclusions

Outputs and Achievements

1. The MTI programme is successfully supporting industrially-relevant modules at Masters Level. The programme is one of very few which provide funding for industrially relevant modules, and without the programme the majority of modules would not have been developed or would have been delayed.
2. Most modules attract relatively large numbers of delegates (average number of delegates attending each module is 23) with 64% of delegates attending the modules originating from industry. A third of modules secured additional support (financial or in-kind) from alternative sources.
3. A large proportion (79%) of modules are reviewed and updated regularly ensuring the content and delivery remains appropriate.
4. The benefits from the MTI programme extend further than the successful development and implementation of the modules themselves. The programme can initiate, strengthen, and broaden collaborations with industry, such as exchange of research-related ideas and entry points for students.
5. A significant number (33%) of module organisers had difficulties securing industrial partners, including SMEs. If BBSRC were to extend the MTI programme it would be beneficial to identify the particular needs of industry, such as accreditation, and the possible academic solutions to these needs. In addition, the programme may benefit from generic advertising by BBSRC, and developing collaborations with other Research Councils in order to widen the scope of the MTI programme.
6. Best Practice meetings are very useful for communication between module organisers, particularly for exchange of experiences and ideas. As a result BBSRC may find it useful to open these meetings to potential and previously unsuccessful applicants.

Success Stories

7. The MTI programme has many success stories (Appendix 1) including:
 - the development of the Waitrose Centre for Agriculture and the Environment
 - an industry-led training programme bringing together two universities and a consortium of 6 companies
 - raising the profile of trainers in the PET community.These success stories should be used to inform present and future award holders when designing, implementing, and evaluating new modules.

Administration Issues

8. The administration of the MTI programme is generally done well and paperwork is succinct and user friendly. The Business Plan and the Proposal Form could request more detailed information from the applicants to assist module planning. To this end modification of these forms would be beneficial, particularly the inclusion of formal Full Economic Costing. The programme would also gain from using a standard format for final reporting to allow meaningful evaluation of the modules and feedback of best practise.
9. The MTI website can provide useful information but navigational difficulties limit the accessibility of this information. In addition, a virtual forum for exchange of ideas and best practice would be beneficial.
10. Invited resubmission, with additional guidance from the MTI Assessment Panel and BBSRC executives, is beneficial to the applicants.

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1. BACKGROUND

1.1 Introduction

1. The Biotechnology and Biological Sciences Research Council (BBSRC) is one of eight Research Councils sponsored through the UK government Office of Science and Innovation (OSI), part of the Department of Trade and Industry (DTI). Its principle aim is to foster a world-class biological science community in the UK. The BBSRC mission is to fund internationally competitive research, to provide training in the biosciences, to encourage opportunities for knowledge transfer and innovation, and to engage the public and other stakeholders in dialogue on issues of scientific interest.
2. BBSRC Modular Training for Industry (MTI) programme aims to provide up to date, industrially-relevant technical training for graduates working in industry. Support is provided for the development of individual training modules. It is a requirement of the scheme that the training is developed in close collaboration with industry. The scheme was launched in 1998, and is regularly assessed by the BBSRC Bioscience for Industry Strategy Panel (see www.bbsrc.ac.uk/business/cpd/modular.html for further information on the scheme).
3. The MTI programme was reviewed in May 2003, after five years in existence, as part of an evaluation of BBSRC activities to support knowledge transfer. An element of the review was to gauge whether previously-supported programmes continued to meet their objectives, for instance in terms of delegate members and industry interactions. In addition, an attempt was made to assess the wider benefits of participation in MTI. The outcome of the review was positive and concluded that:
 - modules supported to date had provided useful output with the majority attracting the planned number of delegates.
 - the programme had enabled a timely response in areas where training is required by industry, which could not be achieved without pump-priming support from BBSRC.
4. The MTI programme has to date funded over 100 modules with BBSRC providing in excess of £1M of funding over 11 rounds. Some of the original modules, funded in 1998, still attract large numbers of delegates.
5. In response to the DTI Innovation Review (2003), the Research Councils agreed plans and goals with OSI to increase knowledge transfer and interaction with business. For BBSRC this included plans to increase support through MTI from £200k per annum in 2004/5 to £280k per annum by 2007/08, based on knowledge of the impact of this programme from previous reviews. The table below contains summary data on MTI funding over the past five years.

Financial Year	2001/2	2002/3	2003/4	2004/5	2005/6
MTI Budget (£k)	200	200	200	200	215
Actual Spend (£k)	192	181	128	110	297
Number of MTI Modules Supported	9	13	4	19	11

Table 1: MTI Funding of Modules 2001-2006. Note that two calls for applications were made in 2001/2 and 2005/6.

1.2 Evaluation context

6. Evaluation is of growing importance to BBSRC and, with its emphasis on evidence-based decision making, to the UK government. Evaluation plays a central role in:
 - justifying BBSRC funding allocation and contributing to the Evidence Base that all Councils are required to submit to OSI for Spending Review negotiations

- informing internal funding decisions, providing evidence of progress and achievement, and facilitating the development of a strategic overview for future funding decisions
 - enabling BBSRC to account to government, the general public, the scientific community and other stakeholders for the funds it allocates
 - helping BBSRC to improve its policy and practice, through informing policy decisions and the design of new schemes, programmes and processes; and through identifying good practice, lessons learned, and ways to improve processes
7. BBSRC recently published its Evaluation Strategy, outlining the approach of the Council to evaluation and methodology used. In accordance with this strategy the current evaluation follows on from the Review completed in 2003 and incorporates all data since 1998. The objectives of the evaluation were to:
- investigate the extent to which the programme is achieving its aim of supporting up-to-date industrially-relevant training at Masters level for graduates working in UK industry
 - document the impact of the support provided, both in terms of the modules developed, and any wider benefits
 - identify highlights and major achievements, to feed into (amongst others) the evidence base, advertising, and best practice information for recipients
 - identify ways to build on successes, and ways in which the programme could be improved
8. The evaluation logic chart devised for the MTI evaluation (Appendix 2) depicts on one page the links between the MTI Programme and BBSRC high-level objectives, the main activities involved in the MTI Programme, and the expected outputs and outcomes.
9. BBSRC evaluations are evidence-based, and this evaluation has been conducted by the Evaluation and Policy Unit at BBSRC. The evidence gathered for this evaluation is comprised:
- **survey of award holders since first review:** A questionnaire survey (Appendix 3) of the holders of grants awarded between 2002 and June 2005 (**41** modules, **16** award holders), including the questions asked in the first review, and additional topics identified using the results of the first review
 - **update survey of award holders in first review:** A questionnaire survey of the award holders surveyed in first review (**33** modules, **16** award holders - 1998 to 2001). The same questionnaire was used, but award holders were asked only to provide updated information on the modules run since 2002
 - **survey of new award holders:** A questionnaire survey of holders of grants awarded since June 2005 (**15** modules, **7** award holders). These modules have not yet commenced, so award holders were given a similar questionnaire to all other award holders, with the exception of question 8 which refers to the past success of the module
 - **survey of MTI Assessment Panel Members:** The four of the five Assessment Panel Members were also given a questionnaire (Appendix 4), covering topics such as benefits of the programme, strengths and weaknesses, and ideas for improvement

Encouragingly, of 33 award holders¹, 26 returned questionnaires, representing a healthy 78% response rate. A list of the modules run by respondents is shown at Appendix 5.

1.3 Constraints

10. It must be borne in mind that questionnaires were only issued to successful applicants and thus this evaluation did not include opinions from those who have applied for funding but had applications rejected.

¹ Note that some award holders received grants in two or more recording periods.

11. A high proportion of award holders (78%) returned questionnaires however, not all respondents completed all questions. In addition, a restricted number of case studies (6) were available for scrutiny and thus data analysed are a sample.
12. Respondents were given options to tick boxes in most questions and then add comments if they wished. In some instances respondents were encouraged to tick all applicable boxes and therefore could give more than one answer. The response rates for individual questions were generally high. One question (8) was opened ended and the response was considerably lower. This is taken into account and stated in text where appropriate.
13. The 2006 evaluation has intentionally focussed on the MTI programme *per se* and as a result has largely highlighted benefits for academic partners. Whilst some indirect benefits to industrialists have also been identified, it is important also to recognise how the training received has proved to be of real direct value to industry: clearly, the fact that industry is so well represented on modules is an extremely positive output. Beyond that a means to demonstrate the real economic impact of MTI, in increasing competitiveness of companies for instance, would be desirable. Perhaps this information could be elicited by asking award holders to supply relevant industry validation, in the form of quotes, statistics, etc., in their final reports.

2. OUTPUTS AND ACHIEVEMENTS

14. Overall, the evaluation confirmed that the MTI programme was indeed meeting its aims of pump-priming industrially-relevant, sustainable modules that attract significant numbers of delegates. In addition, the survey indicated that participation in MTI can help establish or strengthen collaborations/contacts with industry, encourages the development of other continuing professional development (CPD) or technology transfer activities within the department, and positively influences the reputations of the department as a leader in the field.
15. The range of successful applicants and institutions is relatively broad and reflects the priority of knowledge transfer to certain institutions, and/or the success of previous MTI programme/s. The number of applications, and the success rates of those applications, has varied over the past five years (Table 2).

Year	Number of Applications	Success Rate (%)
2000	18	44
2001	15	73
2002	13	100
2003	6	66
2004	24	83
2005	16	69

Table 2: The total number of applications to the MTI programme over the past 5 years and the corresponding success rates. Note: a small proportion of applications in later years represent resubmissions of applications that have previously failed; there were two calls for applications in 2001 and 2005.

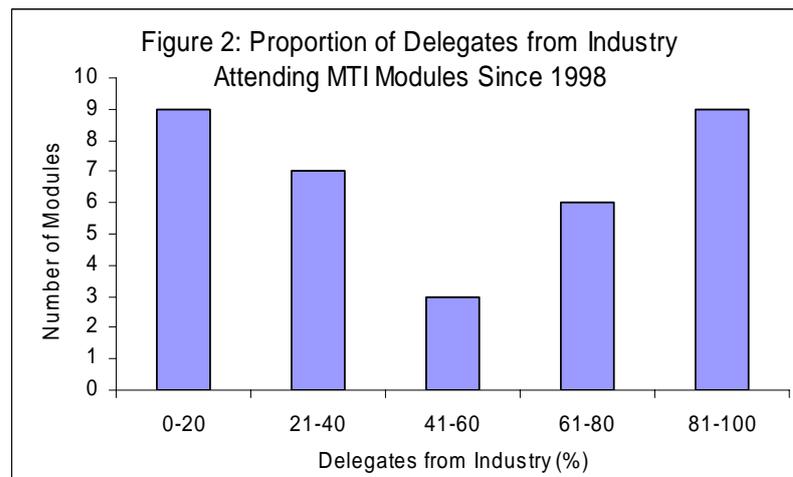
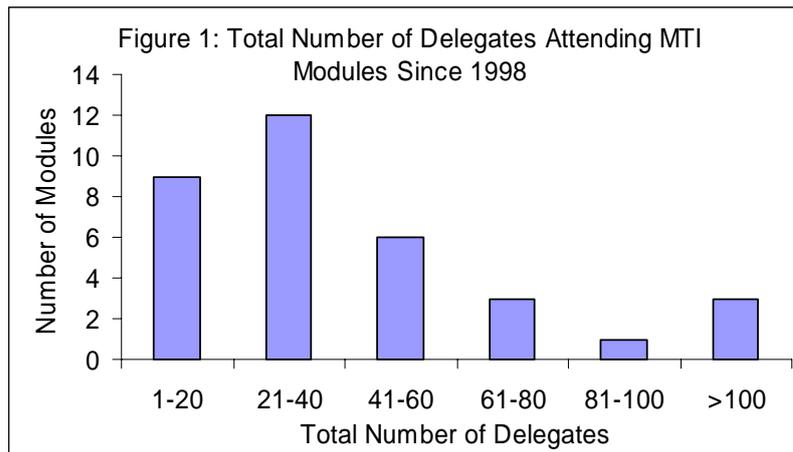
16. Many respondents said BBSRC should continue to support the programme (73%) and have encouraged others to apply (69%). Without the MTI programme, in the majority of cases, modules would not have been developed (60%) or would have been delayed (27%).

“The funding was invaluable as there are so few sources available for this activity. The scheme offers an excellent way of translating progress into mainstream practice in industry...”

“The University has no real funds for flying kites like this...”

Key Conclusion 1: The MTI programme is successfully supporting industrially-relevant modules at Masters Level. The programme is one of very few which provide funding for industrially relevant modules and without the programme most modules would not have been development or would have been delayed.

17. A number of modules have been very successful in attracting relatively large numbers of delegates (Figure 1). The average number of delegates attending each module is 23 with 64% of those delegates coming from industrial partners (Figure 2). One particular strength of the MTI programme is its flexibility to cater for modules that expect to attract as few as 10 delegates and up to as many as 500 in the first year. It is important to note that the question used to provide the data for the conclusions in this paragraph was answered by 56% of respondents.

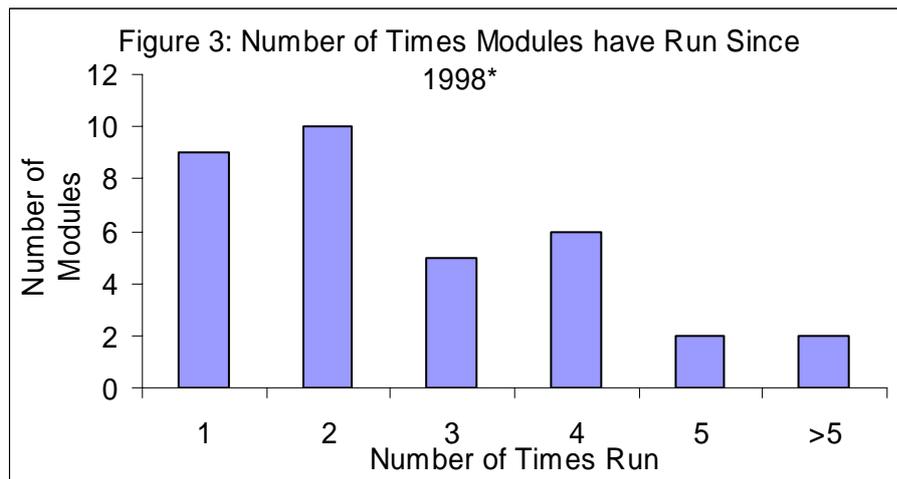


18. 32% of modules received additional support either financially or in-kind. Financial support ranged from £5,000 to £26,000 and was provided by Universities (13 modules supported), industrial partners (5 modules supported), the Scottish Higher Education Funding Council (3 modules supported), or the Genesis Faraday Partnership (1 module funded).

Key Conclusion 2: Most modules attract relatively large numbers of delegates (average number of delegates attending each module is 23) with 64% of delegates attending the modules originating from industry. A third of modules secured additional support (financial or in-kind) from alternative sources.

19. The nature of the current final reporting procedure does not allow for assessment of modules in terms of the number of companies sending delegates to successive modules. This information would be useful to judge success. One award holder provided information to show that a number of European companies had sent delegates to attend two different modules. A number of award holders provided participant feedback data, and although on the whole participant comments were favourable, participants did not answer uniform questions and hence it is difficult to reach a firm conclusion.

20. It should be noted that it is not possible to accurately assess the numbers that attended every module as the question on course information was not completed by all respondents. From the information that was provided, however, it is encouraging that the vast majority of modules have run at least twice and one course has run 10 times. Most modules (92% of those who answered the question) were run once or less a year, with three modules running more than once a year. 79% of modules are regularly updated, evolving with time, to keep content current.



* Note: modules run only once or twice are usually those that have been recently funded.

Key Conclusion 3: A large proportion (79%) of modules are reviewed and updated regularly ensuring the content and delivery remains appropriate.

21. All award holders are required to complete a business plan as part of the application process. 54% of award holders stated that the business plan was useful or very useful. A third of modules run were altered from the original business plan with unpredicted delegate numbers being the main reason for such alterations (Table 3). However, 54% of award holders felt that the MTI programme enabled them to tailor the module to the needs of industry and thus ensure good delegate numbers

Reason	Number of Modules	Proportion (%)
Change in Market Focus	3	14
Low number of Delegates	7	33
University Circumstances	2	10
High Number of Delegates	7	33
Lack of Industrial Support	2	10

Table 3: Reasons for deviating from original business plan.

22. The MTI programme has benefits beyond supporting development of specific modules. Award holders stated that 36 modules had established or strengthened contacts and collaborations with industry. As a result, 23% of award holders reported new funding/in-kind support from industry and 58% have witnessed an increase in fruitful exchange of ideas relating to research. 8% of these collaborations have resulted in joint papers or intellectual property, and 38% have provided entry points for students.

Key Conclusion 4: The benefits from the MTI programme extend further than the successful development and implementation of the modules themselves. The programme can initiate, strengthen, and broaden collaborations with industry, such as exchange of research-related ideas, entry points for students and joint papers or intellectual property.

23. Most MTI modules develop as a result of existing collaborations or contacts, with 84% of award holders identifying industrial partners through this means. That said about a third of respondents stated that they had experienced difficulties in securing industrial partners, a third found it easy, and a third were non committal. It may therefore be possible to expand the programme if ways to identify industry needs and possible academic solutions could be better determined so that new academic-industry partnerships can develop.

“The weak area at present is access to SME and start-up companies. They are hard to identify and then to contact.”

24. Some organisers complained of difficulties with marketing modules and thought that the BBSRC, through advertising on its website for example, could better promote MTI programmes. In addition, there was felt to be scope to market the MTI programme to new groups, such as CPD centres or SMEs.
25. The challenge of gaining accreditation for industrially-focused modules was raised. However, the fact that 44% of supported modules have become part of a full Masters course is very encouraging considering that this was never a condition of funding. As professional body accreditation is often important to industry it may be an area that needs further attention in the future.

“Challenges experienced with getting accreditation internally for an industrially-focussed mechanism. Lack of clarity concerning accreditation.”

26. Whilst most award holders did not feel restricted by the MTI eligibility criteria, a number suggested that there could be benefit in widening the remit to those supported by other Research Councils, notably the MRC and NERC². It was also noted that MTI offers a seemingly unique programme, although EPSRC Collaborative Training Accounts potentially offer an alternative means of funding⁴.

“I wanted to go further to build links to medical informatics to create a joined up programme of biomedical informatics but because this is outside the BBSRC remit this was not possible.”

Key Conclusion 5: A significant number (33%) of module organisers had difficulties securing industrial partners, including SMEs. If BBSRC were to extend the MTI programme it would be beneficial to identify the particular needs of industry, such as accreditation, and the possible academic solutions to these needs. In addition, the programme may benefit from generic advertising by BBSRC, and developing collaborations with other Research Councils in order to widen the scope of the MTI programme.

27. There was overwhelming support for BBSRC best practice meetings where delegates draw upon the experience of others who have developed MTI programmes previously. Assessment Panel involvement in previous meetings of this kind was warmly welcomed and it was suggested that meetings should be open to prospective and unsuccessful applicants.

“...it is always very encouraging to meet the members of the Panel that assess the applications and have verbal feedback.”

“More input from training contacts from industry would be helpful”

“Altogether a worthwhile experience, meeting others who had faced the same or similar problems and learning how they could be overcome. However, some of the formal presentations were rather unhelpful and off target. But as usual it was the informal side which had the greatest benefit but this would not have occurred without the formal framework of the meeting.”

Key Conclusion 6: Best Practice meetings are very useful for communication between module organisers, particularly for exchange of experiences and ideas. As a result BBSRC may find it useful to open these meetings to potential, and previously unsuccessful applicants.

² BBSRC has initiated discussions with EPSRC and NERC on the possibility of expanding the remits covered by the MTI programme.

3. SUCCESS STORIES

28. One of the major aims of this evaluation was to “identify highlights and major achievements, to feed into (amongst others) the evidence base, advertising, and best practice information for recipients”. Many examples of success stories can be found at Appendix 1, two of the most striking are shown below. BBSRC hopes to use these as additional case studies to feed into a marketing tool in the form of a web based document. In summary, it is evident that there are many additional, often non-obvious, benefits to participation in the MTI programme, particularly in establishing fruitful collaborations with industry, for example:

- development of the Waitrose Centre for Agriculture and the Environment
- combination of five sensory science modules into the first Sensory Science Postgraduate Certificate in Europe
- securing major funding from Nestle and Masterfoods
- invitations to visit two pharmaceutical companies to develop collaborative research and potential Ph.D. funding.

“The combination of the five Sensory Science modules (in the form of a postgraduate certificate) has allowed [the] University the opportunity to produce the first academic sensory science qualification in the UK. In addition, these modules have been successful as stand alone training for SMEs who want to improve the understanding of sensory science as applied to product development, quality control and consumer ... Due to the delivery method (4 day intensive modules) many major companies have included the Sensory Science modules as part of their training programme for new recruits.”

“Contacts with industry were established and strengthened and these led to others in the teaching team developing relationships with their industry contacts. I don’t think many of these would have come about without the MTI project.”

Key Conclusion 7: The MTI programme should use success stories to inform present and future award holders when designing, implementing, and evaluating new modules.

4. ADMINISTRATION ISSUES

29. Whilst it was noted that MTI was well administered, a number of admin-related issues were nonetheless raised which should be addressed. These included:

- improvement to the MTI website
- further development of the business plan to include Full Economic Costing (FEC)
- modification of the proposal form to include plans for “assessment” and “marketing”

It was felt that two calls per annum was sufficient.

“There are a lot of ‘hidden’ expenses in the organisation and successful delivery of a certificate such as this and the business plan has helped to identify those items.”

“It [the business plan] moved us into “best practice” with course development and organisation, and also provided the start of a working relationship with our university contracts and business development unit. I also know from this unit that our business plan was used as a model elsewhere in the university for short course development.”

30. Currently a final report is submitted at the end of the first year and, following a basic check by the MTI Assessment Panel, the remaining 10% of the total funds are released to the award holder. There is potentially room for improvement in the way that BBSRC collects, assesses and feeds back findings on MTI final reports. It is clear that BBSRC and the MTI Assessment Panel need to agree a way to better structure and utilise final reports.

“I submitted two reports but received no response”.

Key Conclusion 8: The administration of the MTI programme is generally done well and paperwork is succinct and user friendly. The Business Plan and the Proposal Form could request more detailed information from the applicants to assist module planning. To this end modification of these forms would be beneficial, particularly the inclusion of formal Full Economic Costing. The programme would also gain from using a standard format for final reporting to allow meaningful evaluation of the modules and feedback of best practise.

31. There was desire for an online forum/virtual network to be developed to enable MTI award holders to communicate more easily.

“A web based environment for easy comment and exchange where sample materials could be made available – even as simple as timetable setups.”

“Some kind of online forum may also be useful, if well set up and well used.”

Key Conclusion 9: The MTI website can provide useful information but navigational difficulties limit the accessibility of this information. In addition, a virtual forum for exchange of ideas and best practice would be beneficial.

32. Invited resubmission of applications is a positive process as guidance is provided by the MTI Assessment Panel and BBSRC executives.

Key Conclusion 10: Invited resubmission, with additional guidance from the Assessment Panel and BBSRC, is beneficial to the applicants.

5. MTI ASSESSMENT PANEL COMMENTS

33. Four of the five current members of the MTI Assessment Panel (Prof Peter Schroeder, Prof Richard Balment, Prof Colin Dennis, Dr Malcolm Skingle, and Prof. Mary Ritter) were invited to comment on the MTI programme in the context of this evaluation. In general the Panel endorsed the findings of this evaluation and in particular felt that the programme is definitely meeting its aim. The Panel were not surprised with the breath and range of institutions participating in the programme and felt that institutions with multiple awards had realised the obvious benefits.
34. The Panel felt that although an online forum would be useful, it is important to continue with the face to face best practice meetings. They wished to congratulate BBSRC executives on promotion of the Programme to the academic community, and feel it would be beneficial to extend the programme across other Research Councils.

6. ACKNOWLEDGEMENTS

35. The BBSRC would like to thank all of the respondents who gave their time to respond to this evaluation.