This report analyses the results of the 2008 Higher Education – Business and Community Interaction Survey for UK higher education institutions, referring to the academic year 2007-08.
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# Contents

Executive summary 3
Background 8
Next steps 11
Analysis 11
  Strategy 11
  Infrastructure 14
  Research based interactions and intellectual property 18
  Social, community and cultural activities 26
  Regeneration 26
  Education and continuing professional development 27

## Annexes

- **Annex A** Full data by region and nation
- **Annex B** Questionnaire Part A (strategic/infrastructure questions)
- **Annex C** Questionnaire Part B (numeric/financial questions)
- **Annex D** International comparisons, IP-related
- **Annex E** List of abbreviations
- **Annex F** HE-BCI Stakeholders
- **Annex G** List of respondents
- **Annex H** Full data by institution
Executive summary

Purpose

1. The Higher Education – Business and Community Interaction (HE-BCI) Survey is in its eighth year and is an essential source of information on knowledge exchange in the UK. The exchange of knowledge takes place between higher education institutions (HEIs) and the wider world of business and the community (although, of course, knowledge is also shared and transferred between academics and HEIs as part of normal academic work). Data reported here provide invaluable intelligence for knowledge exchange practitioners and policy-makers alike. The report also provides an in-depth commentary on the extent of and trends in knowledge exchange activity in the UK.

2. This report builds on previously published HE-BCI surveys, the most recent of which analysed 2006-07 data and was published in July 2008 (HEFCE 2008/22). In this latest survey, HEIs provided financial and output data for academic year 2007-08. The data reported under strategic/infrastructural questions are a snapshot of the position at 1 April 2009.

3. HE-BCI covers a range of activities, from the commercialisation of new knowledge, through the delivery of professional training, consultancy and services, to activities intended to have direct social benefits. Business in this context refers to private, public and third-sector partners of all sizes and sectors, with which HEIs interact in a broad range of ways. Community in this context is taken to mean society as a whole outside the HEI, including all social, community and cultural organisations and individuals.

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1 All HEFCE publications may be read on our web-site, www.hefce.ac.uk, under Publications.
2 The ‘third sector’ refers to charities and non-profit-making enterprises.
Key points

4. Total income to HEIs from knowledge exchange activities in the UK has risen from £2,641 million in 2006-07 to £2,812 million in 2007-08, an increase of 6.5 per cent in cash terms (see Figure 1). This income is made up from a variety of channels where knowledge is shared and exchanged between HEIs, private, public and third sectors through activities such as research, consultancy, training and the exploitation of intellectual property (IP).

5. The increases in income suggest the continuation of a trend where HEIs become increasingly engaged with external partners across public, private and third sectors. Data presented here cover academic year August 2007 to July 2008, where UK Gross Domestic Product (GDP) growth was flat for the last quarter. This change in economic conditions may explain the slowing of the rate of growth in HE-BCI indicators described in this survey.

6. Collaborative research income (defined as HEI plus public funder plus other external partner) has risen by 4.2 per cent since 2006-07 to over £697 million, with the largest increase seen in projects where the EU is the public funder (alongside Research Councils, Government departments and others; see Annex C for further detail). Contract research (considered to be more of a direct transaction than collaborative research) has risen by 6.6 per cent since the previous survey to £835 million; the most substantial factor here is income from large business (10.6 per cent), including a reasonable increase (4.7 per cent) from public and third-sector partners while income from small and medium-sized enterprises (SMEs) dropped slightly (a fall of 1.8 per cent).

7. Where existing knowledge is applied to new problems the income is returned predominantly as consultancy. This activity often provides swift access to the knowledge in HEIs and is especially popular with SMEs. Total income has increased from £287 million to £335 million (a 16.4 per cent rise) with a corresponding 11 per cent increase in the number of interactions, suggesting the average value of contracts has also increased. The largest proportion increase was income from SMEs at 25 per cent, although income from SMEs is still significantly less than that from other external partners (see Figure 2).

8. HEIs also have a wide range of equipment and facilities as part of their teaching and research activities, from particle accelerators to performance space. Use of such facilities is often the first step in building relationships with business and community partners. Overall income from facilities and equipment has risen by 11.6 per cent since 2007-08 to over £103 million, with broadly similar proportions coming from SMEs, large business and public and third-sector partners. The number of interactions, however, rose by 13.2 per cent, suggesting average values are falling – an opposite trend to consultancy.

9. Access to education remains the highest overall economic priority of UK HEIs but institutions increasingly support learning beyond completion of an undergraduate or postgraduate qualification. Continuing professional development (CPD) is increasingly relevant in most sectors of the economy. HEIs have reported an increase of nearly 11 per cent in 2007-08 with total income approaching £540 million.

10. Regeneration income usually comes from public sources but its funded activities are likely to be beneficial across much of the economy and society. Regeneration projects are often large in scope and scale and allocated across a number of years, but for HE-BCI purposes, HEIs return only the income attributable to the survey year. Total income has dropped by just over 10 per cent, but disaggregating this reveals that reductions were predominantly from European sources while the UK’s devolved administrations and the Regional Development Agencies actually increased funding for HEIs by nearly 18 per cent. The total value of regeneration activity for UK HEIs – a proxy for the knowledge they apply to these activities – is nearly £240 million.

11. Invention disclosures and patent applications decreased by 3.6 per cent and less than 1 per cent respectively in 2007-08. There was a reduction of nearly 10 per cent in patents granted but a
Figure 1 Total income by partner 2003-2008 (real terms)

Source: HE-BCI Part B Tables 1, 2, 3 and 4c

Note: ‘Other’ contains income from a variety of public and private sources where data are considered too complex to fully disaggregate within reasonable burden limits, such as 1a Collaborative Research3.

Figure 2 Income by activity and partner 2007-08

Source: HE-BCI Part B Tables 1b, 2 and 4c

3 The category titles used in the report refer to those used in the survey.
substantial increase in the cumulative portfolio of patents. It may be that moves towards ‘open innovation’ are also affecting these data, but further investigation is needed.

12. Licences to use IP from universities, including – but not limited to – patents, are divided into software and non-software categories. Software licences are usually of lower value and shorter lifespan than others. Income from SMEs fell across all forms of licence while that from larger business increased across the range; public and third-sector partners increased their spending only on non-software licences. Overall, income from licensing increased by 11.3 per cent to £45 million in 2007-08. Of this figure, around £5 million was generated from within the respective HEI’s home region/nation while just under £8 million was from outside the UK. There was a slight increase (1.9 per cent) in spending on IP protection by UK HEIs – reaching just over £21 million for this survey year.

13. Where the results of research produce products or services that have a high chance of creating wealth, HEIs may opt to ‘spin off’ the invention, by forming a new company. In such cases the HEI may maintain a stake in the company, depending on what is seen as being the best route for the company to succeed. A total of 219 such spin-off companies were formed in 2007-08, with the HEI maintaining a stake in the majority (167). The formation of such companies is usually a long time after the original research was conducted (15 or more years) and more time will pass before they become established. Hence HE-BCI collects data on the number of companies that have survived for three or more years. In 2007-08, 923 such companies were reported, compared with 844 in 2006-07 even though there were more new spin-offs that year (226). Performance data for spin-off companies is notoriously hard to capture because they are, by definition, externalised from the HEI.

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4 Open innovation – a model of firms using external and open ideas, as well as their own internal and confidential sources, to advance commercial applications and technologies

5 Not all data are available from 2000, many are only presented from 2003-04 onwards.
But data suggest that HEI spin-off companies employed nearly 14,000 people and had a combined turnover of over £1.1 billion which is a substantial increase from the previous year even with the caveat regarding data completeness.

14. Staff and students of HEIs also seem to be becoming more entrepreneurial by creating businesses. These companies are referred to as ‘start-ups’ because they are usually based on more traditional business models, rather than directly on IP as is the case with spin-off companies. These figures can also be hard for HEIs to capture accurately and there appear to have been considerable changes since 2006-07 with 41 companies started by staff and 1,977 by students respectively (2006-07 saw 62 companies formed by staff and 1,508 by students). However, the numbers of start-ups in existence for three or more years have risen in 2007-08 for both staff and students, to 155 and 1,322.

15. Although spin-off companies may be one of the most pronounced economic impacts of HEIs, every year millions of people benefit from social, community and cultural programmes offered by HEIs – often at little or no cost to the beneficiaries. Three-quarters of a million people attended free public lectures at UK HEIs in 2007-08, an increase of 15 per cent, with academic staff devoting over 16,000 working days to providing the events. There was a 22 per cent increase (to 1.7 million) in attendees at performance events (music, dance and so on) where admission was not free; this is substantially higher than attendance at free performance events (585,544).

16. Indicators for strategy and infrastructure developments also show continued growth with 93 per cent of HEIs providing an enquiry point for SMEs (a rise of 2 per cent) and bespoke courses away from their campus (a rise of 4 per cent).

Action required

17. This report is for information. No action is required.
**Background**

18. The aims of the annual Higher Education – Business and Community Interaction (HE-BCI) Survey are:

- to provide data on the continuing development of interaction between higher education institutions (HEIs) and business and the community
- to provide reliable and relevant information to support the continued public funding of this, the third stream\(^6\) of HEIs’ activity in the UK
- to give HEIs good benchmarking and management information
- to develop a source of indicators at the level of the individual HEI, some of which will be usable to inform funding bodies’ allocation of continued funding.

19. The survey was undertaken by HEFCE on behalf of a broad range of stakeholders including other UK higher education funding bodies, the Department for Business, Innovation and Skills (BIS), the Research Councils and other representative bodies such as Universities UK, GuildHE and the Confederation of British Industry. This is the eighth annual HE-BCI survey and, as such, is essential intelligence for all those interested in higher education (HE) and the knowledge economy and society. Data from HE-BCI are used to develop policy by a wide variety of bodies and to inform funding decisions for knowledge exchange and related activities in England, Wales and Northern Ireland. Data are also valuable as management information and support benchmarking for a range of organisations, notably HEIs and their funding partners.

20. Data collection, validation and presentation are resource-intensive processes for all involved. Knowledge exchange can still be considered relatively new in terms of defined policies and strategies, which means there is a great desire from many different parties for information upon which to base decisions. HE-BCI has evolved considerably from its initial format and the guidance and definitions were considerably updated in advance of the 2004-05 and 2005-06 data collection, though the questionnaire has been largely stable since 2003-04.

21. The time series for Part A was re-calculated in the previous report (HEFCE 2008/22) to improve the usefulness of these data. The data themselves have not been changed, simply the way in which the period they were collected is displayed. Part A time series is now collected and shown in academic years, as with data from Part B. Because Part A data are a current snapshot of an HEI’s strategic development, these data are one year ahead of those regarding historic activity and income from the full academic year (Part B). For further details please refer to the technical note following the Part A data in Annex A.

22. The survey was originally designed as a single questionnaire. But for reasons of ease and efficiency, the data from 2002-03 onwards were collected through complementary processes: Part A for strategic and infrastructural data and Part B for financial, numeric (time-bound) data. Data from Part A are a snapshot taken off the live database, which is a better way of presenting this type of data as it is more recent (for example, financial data can not be collected until after they have been formally signed off by the chief accounting officer, meaning that such data are only available in retrospect, whereas data on capacity and infrastructure may be collected without such delay).

23. For the future, in line with the original aims of HE-BCI, data collection is being embedded in core HEI data processes managed by the Higher Education Statistics Agency (HESA). Following consultation with the HE sector and key stakeholders, HESA has elected to maintain the survey in a similar, two-part form, appended to the main Finance Statistics Return, rather than immediately integrate the two data sets. Data will therefore benefit from the increased robustness associated with dedicated data processes, while still allowing the stakeholders to focus on a consistent range of indicators for reports and to continue to publish analysis and policy discussion.

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\(^6\) The other two streams are teaching and research.
This survey was established in 2000 and has operated to date in a period of sustained economic growth in the UK. However, there has recently been an unprecedented global economic slowdown. The period of this survey covered the early phase of the slowdown, with GDP growth being zero by the end of the 2007-08 academic year. It is expected that general economic conditions will have an impact on HE’s interactions with business and the community, and we will need to keep this under review in future surveys to identify and highlight potential effects. Changes in economic conditions may explain slowing of rate of growth in HE-BCI indicators described in this survey.

**England**

25. The Higher Education Innovation Fund (HEIF)\(^7\) is the main vehicle for funding knowledge exchange and enterprise capacity in HEFCE-funded HEIs and is designed to support and develop a broad range of activities that result in economic and social benefit to the UK. Round four of HEIF runs from August 2008 to July 2011. By the final year HEIF will invest £150 million per annum.

26. Support for a third stream of activity was initiated in England in 1999, when HEFCE introduced the HE Reach Out to Business and the Community fund to enhance the contribution that HEIs make to the economy and society. From 2001 this was succeeded by HEIF, supported by HEFCE in partnership with the then Office of Science and Innovation (OSI) (now part of BIS). From 2003 HEIF incorporated activities formerly supported under the OSI Science Enterprise Challenge and University Challenge programmes (for student enterprise and invention seed-funding respectively). HEIF began as support for projects that could demonstrate innovation and good practice in knowledge exchange, but with greater experience in the HE sector the fund has moved towards a formula-based system. Under the third round of HEIF, funds were provided through the combination of competitive projects (where 11 large-scale collaborative awards were made) and a formula allocation based, in part, on HE-BCI data. HEIF 4 is a 100 per cent formula allocation, based on data drawn from HE-BCI and HESA.

27. In April this year, HEFCE published ‘Evaluation of the effectiveness and role of HECFE/DIUS third stream funding’ (HEFCE 2009/15)\(^8\) in which Public and Corporate Economic Consultants and the Centre for Business Research, Cambridge examine English third-stream funding and activities to date. The study, conducted during 2007-08, draws conclusions on what has been achieved by third-stream funding in terms of its original aims: to achieve culture change and embed capacity toward optimising the direct and indirect economic impact of HE.

28. The evaluation calculates for the first time the value for money achieved by long-term public investment in HEIs working with the economy and society. The evaluation states that nearly £600 million has been put into HE, primarily through HEIF, and estimates that this has generated a minimum of between £2.9 billion and £4.2 billion in value. The evaluation also concludes that significant progress has been made in culture change in HE to embrace third-stream working, though there is still further to go, particularly in terms of academic engagement.

**Wales**

29. Within Wales, institutions’ business and community interactions are supported via the Higher Education Funding Council for Wales’ (HEFCW’s) Third Mission Fund, which is now in a second three-year cycle (2007-10). The bulk of monies are allocated on a formula basis and 2005-06 HE-BCI data feature extensively in the formula funding methodology\(^9\). HE-BCI data used in the calculation of Third Mission Fund allocations are also included in HEFCW’s annual audit of funding data and formal guidance has been issued to HEIs’ internal and external auditors.

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\(^7\) Further information is available at www.hefce.ac.uk/reachout/heif

\(^8\) All HECFE publications may be downloaded from www.hefce.ac.uk under Publications.

\(^9\) Details are available in Circular W0718HE which can be read at www.hefcw.ac.uk under Publications/Circulars.
30. HEIs in Wales receive further support for their third-stream activities via the Welsh Assembly Government, which has been successful in attracting around £50 million from the European Regional Development Fund for two knowledge exploitation and exchange programmes known together as Academia for Business.

31. Following a review of its committee structure, HEFCW recently established a Research, Innovation and Engagement Committee to advise the Council on policy and strategy development in this area. One of the first tasks of this new Committee will be to offer advice on the funding methodology\(^9\) to be employed in the Council’s next three-year Third Mission Fund cycle, which will run from 2010-11 to 2012-13. The outcomes of an independent evaluation of the impacts of HEFCW’s Third Mission Fund, which is currently drawing to a close, will also inform this process.

**Scotland**

32. The Scottish Funding Council (SFC) supports higher education institutions’ knowledge exchange activities through two main grant streams, the Knowledge Transfer Grant (KTG) and Strategic Priority Investments in Research and Innovation Translation (SPIRIT), a strategic stream to support specific projects.

33. The KTG provides for a minimum £70,000 per annum for each institution, (allocated through SFC's General Fund, described in Circular SFC/2009/14a\(^{10}\)) and a share of a total of £21 million per annum through the Council's Horizon Fund (described in circular SFC/2009/14b) based on reported knowledge exchange related income.

34. SPIRIT stands at £3.8 million for 2009-10 and the Council will publish a call for demand-driven proposals totalling around £2 million per annum focused on the key industry sectors identified in the Scottish Government’s economic strategy. Remaining funds support projects commenced in 2008-09 such as a voucher scheme for assisting collaboration between HEIs and SMEs.

**Northern Ireland**

35. In Northern Ireland (NI), third mission or knowledge exchange activities are primarily promoted via NI HEIF, an adaptation of HEIF which is a joint initiative of the Department for Employment and Learning Northern Ireland (DELNI) and the Department of Enterprise, Trade and Investment (through the agency Invest NI). Although the programme is very much set in the broad context of UK innovation policy, eligible activities must take account of NI departmental strategic priorities and also reflect the NI Regional Innovation Strategy.

36. Funding of around £9 million was approved under NI HEIF round 1 to cover academic years 2004-05 to 2006-07. This was delivered via competitive projects from the two Northern Irish HEIs.

37. Evaluation of NI HEIF 1 recommended that round 2 should continue at the current funding level, but with significant modifications to reflect the approach in the rest of the UK for a more predictable funding stream to allow the retention of highly skilled staff and greater continuity.

38. NI HEIF 2 (covering academic years 2007-08 to 2009-10) is therefore 80 per cent formula driven, with the remaining 20 per cent for competitive projects. The programme remains a single, joint DELNI/Invest NI initiative with the formula-driven element administered by DELNI and the competitive element by Invest NI. NI HEIF 2 is due to be evaluated during 2009 with a view to informing the implementation of NI HEIF 3 for three years commencing in academic year 2010-11.

39. Following extensive consultations with key stakeholders, DELNI also developed a HE and Further Education (FE) Collaboration Fund (branded as ‘Connected’) to enable the two education sectors to identify and meet, in a co-ordinated and holistic fashion, the knowledge exchange needs of businesses in particular, but also the wider community.

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\(^{10}\) SFC Circulars can be read at www.sfc.ac.uk under News, Events & Circulars.
40. Third-stream collaboration between FE and HE, in particular, is firmly grounded in the recommendations of the Regional Innovation Strategy in which the creation of ‘ever stronger links [...] between higher and further education and the business sector’ is a key commitment. It is also in keeping with the Skills Strategy for Northern Ireland, ‘Success through Skills’.

41. The programme, which commenced in April 2007 with a budget of £3 million over three years, will be delivered by the two NI HEIs (Queen’s University Belfast and the University of Ulster) in partnership with the Association of Northern Ireland Colleges. DELNI believes this funding initiative to be the first of its kind in the UK. The programme will be reviewed in 2009 with a view to making it a permanent stream from 2010-11. Further information is available at www.connected.ni.org.

Next steps

42. This is the final HE-BCI data set to be collected by HEFCE on behalf of the UK stakeholders; 2008-09 data and beyond will be collected by HESA. The institutional and broad trend data will in future be published by HESA rather than appearing in the annex and web-site connected to this report. The stakeholders will continue to meet and will produce an annual report of the results to contribute to the ongoing development of policy and understanding of third-stream activities. The current economic downturn is likely to continue to present challenges and opportunities to this activity, but it is clear that much value is placed on what has already been achieved and this value must be further developed if the UK is to maintain its position among the most vibrant knowledge economies and societies.

43. A notable development for the survey will be disaggregation of collaborative research by partner. This disaggregation was considered useful at the inception of the survey but at that time it was considered premature to introduce; given the years of investment in systems and increased professionalisation in the HE sector, it is now considered timely to include this refinement to the survey.

44. While there is a sense of achievement in the HE-BCI survey being incorporated into the main annual data returns made by UK HEIs, there is still much to learn about how to measure the contribution made by HEIs to the economy and society. The stakeholders will continue to work with HEIs, policy makers and other organisations, regionally, nationally and internationally, to develop better measures for economic and social impact and useful indicators for performance.

45. The stakeholders continue to develop the use of international benchmarking data. This includes work with the European Commission and a project led by the Universities Companies Association to consider comparisons of commercialisation activity with Association of University Technology Managers data from the United States. Such projects enable the stakeholders to deliver greater value from collected data, by enabling international comparisons and benchmarking at national and institutional levels, with a view to policy development and insights toward improved performance.

Analysis

Strategy

46. There are few substantial changes since the last report in the strategic and infrastructural indicators collected under HE-BCI. HEIs continue to see access to education as the highest overall economic priority (see Table 1) although this has fallen by 3 per cent from the previous year; developing local partnerships has risen by a similar proportions although many such partnerships will doubtless involve accessing education, in the form of CPD, for example.
Table 1 Economic development priorities

<table>
<thead>
<tr>
<th>Areas of activity</th>
<th>Percentage of HEIs</th>
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<tbody>
<tr>
<td></td>
<td>England</td>
</tr>
<tr>
<td>Access to education</td>
<td>53</td>
</tr>
<tr>
<td>Research collaboration with industry</td>
<td>40</td>
</tr>
<tr>
<td>Meeting regional skills needs</td>
<td>35</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>33</td>
</tr>
<tr>
<td>Supporting SMEs</td>
<td>36</td>
</tr>
<tr>
<td>Meeting national skills need</td>
<td>26</td>
</tr>
<tr>
<td>Developing local partnerships</td>
<td>21</td>
</tr>
<tr>
<td>Attracting non-local students to the region</td>
<td>16</td>
</tr>
<tr>
<td>Graduate retention in local region</td>
<td>16</td>
</tr>
<tr>
<td>Support for community development</td>
<td>13</td>
</tr>
<tr>
<td>Attracting inward investment to region</td>
<td>4</td>
</tr>
<tr>
<td>Management development</td>
<td>5</td>
</tr>
<tr>
<td>Spin-off activity</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: HE-BCI Part A Question 1

47. A complete map of engagement between academic disciplines and economic sectors would be a very interesting input to this debate, but the resources required to generate such data would be disproportionate. Looking at which Sector Skills Councils (SSCs) (Figure 5) and Standard Industrial Classification (SIC) sectors (Figure 7) HEIs engage with can provide a useful proxy. The Creative and cultural industries SSC continues to be the most cited of the skills councils for UK HEIs, with education and health making up the remainder of the top three. Education ‘health and social work’ and ‘other community, social and personal service activities’ are the top three cited SIC sectors under HE-BCI. But, for both these examples, it should be remembered that HEIs are only selecting those with which they engage. There are a number of (small) specialist HEIs in the creative and cultural area and most multidisciplinary HEIs would include both creative and cultural and science, technology and other disciplines. Hence the major part of the HE sector would have links with the creative area, whereas science and technology links are large in scale but more concentrated in a smaller number of HEIs.

48. When HEIs are asked to rank the importance of external partners, the picture is one of commercial business being of primary importance to the greatest number of HEIs. When first and second priorities are summed, the public sector is the most popular, as shown in Figure 6.

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11 Respondents are asked to select the top three priorities.
Figure 5  Engagement with Sector Skills Councils

Source: HE-BCI Part A Question 5

Figure 6  Most important beneficiaries of third-stream priorities/aims

Source: HE-BCI Part A Question 4
The resources and organisational structures of an HEI are the infrastructure from which it is able to interact with and respond to the needs of the economy and society. Increasingly this infrastructure is a two-way bridge allowing for the exchange of knowledge and understanding, rather than a more simple linear transfer.

Many encouraging signs can be detected in terms of how HEIs approach the world outside their academic community. One of these is the provision of incentives for academic staff to engage with business and community partners, whereas a decade ago academic progression was based almost solely on teaching and research profile even if time was allowed for more direct external engagement. Figure 8 shows the progress of the HE sector in implementing such incentives with 16 per cent now rating themselves at the highest self-assessed benchmark, an increase of 2 per cent from the previous survey.

Current data show that UK HEIs employ nearly 8,000 dedicated staff to act in knowledge exchange liaison and similar roles (see Figure 9). This is a direct response to the prevailing perception in the past – particularly among small business – that HEIs were large, unwieldy organisations in which it was difficult to find the right person to engage.

In fact 93 per cent of UK HEIs currently provide an enquiry point for SMEs, up by 2 per cent from the last survey. However the proportion of HEIs who require consultancy to be delivered through central mechanisms remains at 75 per cent; such a requirement is not designed to create barriers between individual academics and external partners but to reduce the administrative burden (for the academic) and provide assurance for all parties (such as the provision of indemnity insurance).

Much more difficult to estimate, although arguably more useful, is the proportion of academic staff engaged in interacting with the economy and society (Figure 9). HE-BCI attempts to uncover whether increased activity levels are simply the result of a proportion of academics, who are already keen to work with external partners, doing more, or if the activity is truly becoming embedded alongside teaching and research. Indeed, other evidence sources, such as a recent evaluation commissioned by HEFCE for England13, suggest

Figure 7 HEIs working with Standard Industrial Classification sectors

Source: HE-BGI Part A Question 2

13 'Evaluation of the effectiveness and role of HEFCE/OSI third stream funding’ (HEFCE 2009/15) is available from www.hefce.ac.uk under Publications.
Some incentives in place, but with some barriers remaining…

Between 1 and 2

Strong positive signals given to all staff to engage…

Between 3 and 5

Some incentives in place, but with some barriers remaining…

Between 1 and 2

Barriers outweigh any incentives offered…

Source: HE-BCI Part A Question 8¹² (data for 2002-03 and 2003-04 are assumed – see paragraph 21)

Figure 8    **Staff incentives to engage with business and the community 2000-2009**

![Staff incentives chart]

Source: HE-BCI Part A Question 8¹² (data for 2002-03 and 2003-04 are assumed – see paragraph 21)

Figure 9    **Number of staff employed in a dedicated third-stream function (full-time equivalent)**

![Staff employment chart]

Source: HE-BCI Part A Question 9

¹² Full description text for these benchmarks is available in Annex B.
that there are higher levels of academic engagement present in HE than described in the HE-BCI survey, particularly taking in softer modes of interaction such as networks and conferences. We do not burden HEIs by collecting information on all modes, but softer modes may be very valuable, particularly for initiating engagements.

54. HEIs also appear to have clear involvement of external perspectives at their top level of governance (Table 2). In most areas, around one-third of HEI governors (similar in role to the board of directors at a private limited company) have a commercial background; a similar proportion bring knowledge and experience from the public sector while around one-tenth are drawn from social, community and cultural backgrounds. Of course, these figures provide a rather crude analysis because many such individuals will bring experience from more than one of these categories, as well as potentially having direct experience of working inside HE. Still, the picture is one of most HEIs being led by broadly based governing bodies, despite some common misperceptions to the contrary.

55. Figure 11 shows the development of selected infrastructure elements for supporting third-stream activity. The positive trend from 2000-01 is clear and encouraging, disproving any notion that academics are not interested in economic and social problems. On the contrary, academics are keen to see their work having a real external impact although it is reasonable that the majority of this impact continues to be through the creation of knowledge and the education of individuals.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total number of members on governing body</th>
<th>Commercial business</th>
<th>Public sector organisations</th>
<th>Social, community and cultural groups</th>
<th>Other</th>
</tr>
</thead>
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<tr>
<td>North East</td>
<td>33</td>
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Source: HE-BCI Part A Question 14
Figure 10 **Academic staff directly involved in engaging with business and community**

Source: HE-BCI Part A Question 15

Figure 11 **HEIs with selected strategy and infrastructures 2000-2009**

Source: HE-BCI Part A Question 11 (data for 2002-03 and 2003-04 are assumed – see paragraph 21)
56. When looking at the way in which HEIs seek opportunities to license their knowledge and inventions alongside the methods used to manage consultancy, a similar trend is apparent (Figure 12). It is clear that those not taking action are in a decreasing minority. However, the data also suggest an increasing role for intermediary organisations (Figure 13). The context in which HEIs interact with the modern world is extraordinarily complex and it may be some time before clear good practice emerges. It is not therefore possible to suggest a single best method for managing such links, but data presented in annual HE-BCI surveys show that HEIs are managing these links more actively and the income (as a proxy for social and economic impact) is increasing.

**Research-based interactions and intellectual property**

57. HEIs in the UK produce research that is among the very best in the world and these skills are increasingly producing economic benefit and improved quality of life. Contract research income has risen by nearly 4 per cent since 2006-07 to £835 million (Figure 14), although this actually represents a substantial increase in spending on HEI research by large business, and a reduction in such spending by SMEs and public and third-sector partners (real-terms drops of 3.3 per cent and 3.2 per cent respectively). It is likely that initial signs of national economic contraction played a part in this because SMEs are likely to be most sensitive in terms of the availability of funds for long-term investments such as research.

58. Collaborative research is defined as including an HEI, a public funder and an external (commercial or otherwise) partner. Most research carried out where there is no public funder is collected under contract research although it is likely that this is not the complete picture. However, HE-BCI was designed to complement existing sources of intelligence in terms of research, and any formal collaborative research without a public funder involved is assessed through the Research Assessment Exercise (and, in the future, through its replacement, the Research Excellence Framework) and counted in financial terms under the HESA finance record.
Figure 13  **HEIs’ methods of managing their consultancy work 2000-2009**

![Bar chart showing the methods of managing consultancy work for HEIs from 2000-2009.](chart13.png)

Academic year

Source: HE-BCI Part A Question 12 (data for 2002-03 and 2003-04 are assumed – see paragraph 21)

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Figure 14  **HEIs’ contract research income (real terms)**

![Bar chart showing HEIs’ contract research income from 2003-04 to 2007-08.](chart14.png)

Academic year

Source: HE-BCI Part B Table 1b
59. HE-BCI, in contrast to other similar data sources, requests HEIs to include a financial estimate of any (contractually explicit) in-kind services to provide a more complete proxy for the value of the activity than income alone. This makes the process more complex for HEIs but goes further to acknowledge the value of these relationships. This question is being updated for 2008-09 to provide disaggregated figures for the public funder, external and in-kind income for HEI; at present, only the gross figure is collected. The overall increase in collaborative research income for UK HEIs was around 1.5 per cent (Figure 15) although this masks large proportion changes in Wales and Northern Ireland in particular.

60. While there are clear economic and social advantages for external partners in using research conducted by UK HEIs, there is often a corresponding requirement of time and resource from them. Many businesses and organisations can benefit directly from the innovative application of existing knowledge – defined as consultancy. This may be a relative technical interaction, such as technology being applied between disciplines or may be more embodied in the know-how of the academic staff. Therefore what consultancy lacks in terms of specific knowledge creation, it may make up for in efficiency.

61. Consultancy activity increased by all measures (income and number of interactions, with all partners) compared to 2006-07: by over 16 per cent, to nearly £335 million, in relation to income, and by 11 per cent in terms of number of contracts, nearly 65,000 interactions. The largest proportion change was spending by SMEs which increased by nearly 25 per cent to over £58 million, although the total volume is still considerably lower than by large business (£95 million) and public and third-sector partners (£181 million).

62. In terms of impact on the economy, access to HEIs’ facilities and equipment can be useful for organisations from business and the community, as seen in Figure 17. Such facilities range from particle accelerators to performance space (although simple trading activity such as commercial conference facilities are not included).

**Figure 15**  
Income from collaborative research (real terms)

![Figure 15](image-url)
**Figure 16** Income from consultancy (real terms)

Source: HE-BCI Part B Table 2a

**Figure 17** Income from facilities and equipment (real terms)

Source: HE-BCI Part B Table 2b
Here, more than for consultancy and research services, geographical proximity is a factor with around half of the income returned originating from the HEI’s home region or nation (compared with less than one-third for consultancy and contract research). This is also the only main indicator where SMEs spend more than large business, evidence of the benefits derived from facilities available in HEIs for this type of partner.

63. Where inventions arise from the HEI’s own research portfolio, it is usually the disclosure of the invention that is seen as the first step toward protecting the IP, in advance of licensing or the company formation route. The disclosure is the formal moment where the inventor reveals the idea to (usually) an IP specialist member of staff, who is bound not to disclose the idea any further to maintain primacy in terms of any following patent application (copyrights exist without active protection but similar disclosure routes exist for design and trademarks).

64. The number of disclosures has fallen slightly since 2006-07, as shown in Table 3, but the overall trend of recent years is very positive. Patent applications and new patents granted also fell for the period while there was an increase in the total number of active patents. It is likely that these data are affected by the increasing role of specialist IP intermediary bodies who take on some of the risk and expense of protecting IP in return for a share of the income. More analysis is required to relate these figures to the full national picture but the relationships between HEIs and such bodies are – quite reasonably – confidential for the most part, making it difficult to compare.
65. Once IP is protected, HEIs may issue (sell) licences for others to use that knowledge. HE-BCI divides licences between software and non-software as in Figure 19 (often these groups are virtually analogous to copyright and patents because the software code is not usually an invention). Software licences tend to have shorter life spans than others (for example, if a new product is to be manufactured) and tend to be of lower financial value. Patents, however, are likely to reflect a much longer period of work in terms of research: it is not uncommon for 15 to 25 years to elapse between the original research being undertaken and a product finding a market, longer still for health and defence related inventions.

66. In 2007-08 there was a slight fall in the number of non-software licences granted (from 2,312 in the previous year to 2,153), with an increase in software licences (from 974 to 1,040). Fewer SMEs were issued licences of both types while there appears to be no clear trend for other partners.
67. Overall income from licensing all forms of IP (Figure 20) rose from £40 million to £45 million from 2006-07 to the present survey year (a 13 per cent increase). However, as mentioned in paragraph 56, the increasing role of IP intermediaries – coupled with much IP coming under collaborative and contract research agreements – means it is very difficult to produce complete, robust figures at a national level. No such record exists even in the USA, where most figures reflect the activity only of the commercialisation unit of the HEI, rather than the total institutional ‘footprint’ that HE-BCI seeks to describe.

68. In 2007-08 there was a slight decrease in the number of spin-off companies formed in which HEIs maintained (some) ownership, from 172 in the previous year to 167, and also in those companies where the HEI maintained no stake, from 54 to 52\(^{14}\). This is shown in Figure 21. However, in both of these cases, the number of companies that had survived three or more years increased from 2006-07 levels. Turnover and staffing for these companies also increased over the period while there was a substantial increase in the amount of equity invested in HEI owned spin-offs from around £600 million to over £696 million. This may be partially an effect of improved reporting or the increasing role of IP intermediary companies. The income from the sale of HEIs’ stakes in such companies increased by 15 per cent to over £66 million; it is understood that revenue such as this is usually the result of many years of effort since the original research, and performance should therefore be viewed over a long time series as individual HEIs will often have very substantial changes from year to year.

69. There have been substantial increases in the number of graduate start-up firms created in 2007-08 (from 1,508 to 1,977) and the number that have existed for three or more years (from 1,038 to 1,322). These companies appear – on average – to be smaller than HEI spin-offs although it is understood that these data are difficult to compile and submit in a complete form.

70. Where academic staff have started businesses not based on the HEI’s IP, there were 41 companies formed in 2007-08 as opposed to 62 for the previous year; again, though, the number that have been trading for three or more years has increased, from 112 to 155.

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\(^{14}\) Note: these two figures are usually summed to form the overall number of HEI spin-offs.
Figure 21  Spin-off company formation (with and without HEI ownership) 2003-2008

Source: HE-BCI Part B Table 4d

Figure 22  Academic time spent on social, community and cultural events

Source: HE-BCI Part B Table 5
Social, community and cultural activities

71. There is nothing new about HEIs providing public lectures and performances. However, HE-BCI attempts to capture some of the value of these activities by collecting estimates of the number of attendees and academic time involved. Although some events do involve a fee of some kind, this is often notional to cover such things as booking or refreshments. The impact for the UK is the chance for the public to hear and question some of the most distinguished scholars in the world, or to see performances from students who have been educated at the finest conservatoires and academies.

72. Literally millions of people benefit from these activities each year, which is a measure of quality in and of itself. Academics committed over 90,000 days to these events in 2007-08 (see Figure 22). Even assuming a very basic consultancy rate of £500 per day this would equate to around £45 million of value given by HEIs to society every year.

73. In terms of providing detail on their strategic planning for public and community engagement, for the first time in this survey HEIs are asked to assess themselves against a five-point scale (Annex A gives further detail). Over half the sector (57 per cent) rated themselves in the top two categories for public and community engagement, although of course good practice suggests that data should be treated with caution during the first collection cycle.

Regeneration

74. Inclusion of regeneration and economic development activity is one of the areas where HE-BCI provides more information than more traditional technology transfer surveys. Although such activities are broad in scope and nature, the message is one of HEIs being actively involved with their communities – often at much more of a local level than other types of knowledge exchange activities. Regeneration programmes range from the provision of consultancy and training at publicly subsidised rates for critical or vulnerable businesses (such as SMEs), through to advice to national governments on urban renewal schemes. This is a good example of a knowledge exchange area where social science is of vital importance, for example, social science advice given to correct problems caused by hasty planning of mass housing in previous decades.

Figure 23 Most important role of regeneration funding for HEIs

Source: HE-BCI Part A Question 27
Overall, regeneration income for all UK nations has fallen by just over 10 per cent although this masks a substantial increase in spending by devolved administrations and English Regional Development Agencies (up 18 per cent to over £85 million). Regeneration funding programmes are often of large scale and duration so trends need to be viewed over a reasonable time period.

**Education and continuing professional development**

CPD is defined in HE-BCI as ‘a range of short and long training programmes for learners already in work who are undertaking the course for purposes of professional development/upskilling/workforce development’. These courses can be delivered in a variety of modes (such as face-to-face, distance learning or online) and may be accredited to count towards a formal HE qualification, although this is not required. In some sectors of the economy, CPD is traditionally paid for by employers; this is often the case in the traditional professions (law, medicine, accountancy and so on). Other sectors, such as design, may expect the individual to ensure their own skills are current. HE-BCI has been developed to capture a broad range of these interactions.

CPD and Continuing Education (CE) income has risen by over 10 per cent to nearly £540 million since 2006-07 although this masks slight decreases in spending by commercial business (falls of 2.2 per cent and 0.9 per cent for SMEs and large business respectively). Public and third-sector organisations spent £225 million to increase the skills of their staff, many of them in education and health sectors (note, though, that this does not include entry qualifications for teachers and nurses, for example). However, it is understood that many small and sole traders may attend various CPD and CE courses without it being explicit that they are using the opportunity to directly benefit their business.

Therefore, where figures are collected for the spending of individuals (where there has been an increase of over 14 per cent to £153 million in 2007-08), it is impossible to disaggregate these figures without a disproportionate administrative burden. There has been a significant drop in the number of CPD/CE learner days (although much of this is due to one institution having made errors in previous years when estimating this indicator).
Figure 24  **Income from regeneration and economic development programmes**

Source: HE-BCI Part B Table 3

Figure 25  **Income from regeneration programmes (real terms)**

Source: HE-BCI Part B Table 3
Figure 26  Income from CPD and CE, by partner type

Source: HE-BCI Part B Table 2c
Annex A
Full data by region and nation

Annex B
Questionnaire part A
(strategic/qualitative questions)

Annex C
Questionnaire part B
(numeric/financial questions)

These annexes may be downloaded from the HEFCE web-site under Publications with this report.
Annex D

International comparisons, IP-related

1. As in previous years we have compared the HE-BCI survey data with the Association of University Technology Managers (AUTM) Licensing Survey. For 2007-08 individualised data has been available for US universities and we have aggregated this data in our comparisons.

2. Comparing raw data may not be useful in itself because this does not consider the different numbers and sizes of institutions in each country; any useful benchmark must take these factors into account. For this reason some form of normalisation is needed to allow for valid comparison. As in previous HE-BCI surveys we have used research expenditure as the most appropriate proxy for unit resource, as this information is available for both UK and US institutions. Benchmarking is also difficult because definitions used may vary between the two surveys.

Notes to Table A

3. The total number of UK HEI spin-off companies in Table A is derived from the HE-BCI survey, including both those with some HEI ownership and those companies that use HE IP as a basis for their operation.

4. UK research expenditure is derived from the HESA Finance Statistics Return (FSR) 2007-08, Table 6 Expenditure by Activity: Total research grants and contracts. This comprises aggregate research funding from the UK Research Councils; UK charitable income; UK central Government; local, health and hospital authorities; UK industry; commerce; public corporations; EU sources, and other overseas income. Institutions are free to use their total block grant funds from funding councils for either teaching or research as they feel appropriate. Since full expenditure details of the block grant are not collected it is assumed, in this calculation, that all of the research block grant funds are spent on research, and therefore research income from the funding councils has been used as a proxy for expenditure HESA FSR 2007-08, Table 5b Funding Council Grants a Grants for HE provision ii Recurrent (Research).

5. The US figures are from the AUTM survey. The number of start-up companies formed is divided by the total research expenditure. The start-up companies defined in this survey are those dependent on institutions’ technology for initiation, and so are equivalent to those spin-off companies recorded in the UK’s HE-BCI surveys. Research expenditure is taken over the 2007 US fiscal year benchmark for these institutions.

The exchange rate used is annual average spot exchange rate for 2007 from the Bank of England of $2.0022 to £1.

Table A  Commercialisation activity in the UK and US, 2007-08

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<td>Number of institutions</td>
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<td>Total research expenditure (£ million)</td>
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<td>IP income including sales of shares in spin-offs (£ million)</td>
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<td>IP income as percentage of total research expenditure</td>
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<td>Spin-off companies formed</td>
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<td>Research expenditure per spin-off (£ million)</td>
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Annex E

List of abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>AUTM</td>
<td>Association of University Technology Managers</td>
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<tr>
<td>CE</td>
<td>Continuing education</td>
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<td>CPD</td>
<td>Continuing professional development</td>
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<td>DELNI</td>
<td>Department for Education and Learning (Northern Ireland)</td>
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<td>BIS</td>
<td>Department for Business, Innovation and Skills</td>
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<td>EU</td>
<td>European Union</td>
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<td>Northern Ireland Higher Education Innovation Fund</td>
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<td>Office of Science and Innovation</td>
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<td>Scottish Funding Council</td>
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<td>SIC</td>
<td>Standard Industrial Classification</td>
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<td>SPIRIT</td>
<td>Strategic Priority Investments in Research and Innovation Translation</td>
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<td>Sector Skills Council</td>
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Annex F

HE-BCI Stakeholders

Alice Frost (Chair)  Higher Education Funding Council for England (Chair)
Catherine Benfield  Higher Education Statistics Agency
David Cairncross  Confederation of British Industry
Teresa Cooper  Higher Education Funding Council for Wales
Neil Henderson  Scottish Government
Alice Hynes  Guild HE
Nia Jones  Welsh Assembly
David Lott  Scottish Funding Council
Ashley Malster  Department for Business Innovation and Skills
Boyd McDowell  Department for Employment and Learning
Gillian Rendle  Research Council UK
Vivienne Stern  Universities UK

Officers
Adrian Day  Senior Higher Education Policy Advisor, HEFCE
John Halsall  Analyst, HEFCE
Annex G
List of respondents

**North East**
University of Durham
University of Newcastle upon Tyne
University of Northumbria at Newcastle
University of Sunderland
University of Teesside

**North West**
University of Bolton
University of Central Lancashire
University of Chester
University of Cumbria
Edge Hill University
Lancaster University
University of Liverpool
Liverpool Hope University
Liverpool John Moores University
Liverpool Institute for Performing Arts
University of Manchester
Manchester Metropolitan University
Royal Northern College of Music
University of Salford

**Yorkshire and the Humber**
University of Bradford
University of Huddersfield
University of Leeds
Leeds Metropolitan University
Leeds College of Music
Leeds Trinity & All Saints
University of Sheffield
Sheffield Hallam University
University of York
York St John University

**East Midlands**
Bishop Grosseteste University College, Lincoln
De Montfort University
University of Derby
University of Leicester
University of Lincoln
Loughborough University
University of Northampton
University of Nottingham
Nottingham Trent University

**West Midlands**
Aston University
University of Birmingham
Birmingham City University
University College Birmingham
Coventry University
Harper Adams University College
Keele University
Newman University College
Staffordshire University
University of Warwick
University of Wolverhampton
University of Worcester

**East of England**
Anglia Ruskin University
University of Bedfordshire
University of Cambridge
Cranfield University
University of East Anglia
University of Essex
University of Hertfordshire
Norwich University College of the Arts
Writtle College
London
Birkbeck College
Brunel University
Institute of Cancer Research
Central School of Speech and Drama
City University, London
Courtauld Institute of Art
Conservatoire for Dance and Drama
University of East London
Institute of Education
Goldsmiths College, University of London
University of Greenwich
Guildhall School of Music & Drama
Heythrop College
Imperial College London
King’s College London
Kingston University
University of the Arts London
University of London
London Business School
London School of Economics and Political Science
London School of Hygiene & Tropical Medicine
London Metropolitan University
London South Bank University
Middlesex University
School of Oriental and African Studies
School of Pharmacy
Queen Mary, University of London
Ravensbourne College of Design and Communication
Roehampton University
Rose Bruford College
Royal Academy of Music
Royal College of Art
Royal College of Music
Royal Veterinary College
St George’s Hospital Medical School
St Mary’s University College
Thames Valley University
Trinity Laban Conservatoire of Music and Dance
University College London
University of Westminster

South East
University of Brighton
Buckinghamshire New University
Canterbury Christ Church University
University of Chichester
University for the Creative Arts
University of Kent
Open University
University of Oxford
Oxford Brookes University
University of Portsmouth
University of Reading
Royal Holloway, University of London
University of Southampton
Southampton Solent University
University of Surrey
University of Sussex
University of Winchester

South West
University of Bath
Bath Spa University
The Arts University College at Bournemouth
Bournemouth University
University of Bristol
University of Exeter
University College Falmouth
University of Gloucestershire
University of Plymouth
University College Plymouth St Mark & St John
Royal Agricultural College
University of the West of England, Bristol

**Northern Ireland**
Queen’s University Belfast
University of Ulster

**Scotland**
University of Aberdeen
University of Abertay Dundee
University of Dundee
University of Edinburgh
Edinburgh College of Art
University of Glasgow
Glasgow Caledonian University
Glasgow School of Art
Heriot-Watt University
Napier University
Queen Margaret University Edinburgh
Robert Gordon University
Royal Scottish Academy of Music and Drama
University of St Andrews
University of Stirling
University of Strathclyde
UHI Millennium Institute
University of the West of Scotland

**Wales**
Aberystwyth University
Bangor University
Cardiff University
University of Wales Institute, Cardiff
University of Glamorgan
Glyndwr University
University of Wales, Lampeter
University of Wales, Newport
Swansea University
Swansea Metropolitan University
Trinity University College
Annex H

Full data by institution

This annex may be downloaded as an Excel file from the HEFCE web-site, www.hefce.ac.uk, under Publications alongside this report.