

January 2004/07
Policy development
Report on survey

This report is for information

This report analyses the results of the 2003 higher education-business interaction survey for UK higher education institutions. It is the third annual survey of its kind. The 2003 survey shows continuing improvement in interactions between higher education and business by almost every indicator. This year some of the results are broken down by region as well as by nation.

Higher education- business interaction survey 2001-02

Department for Employment and Learning
Higher Education Funding Council for England
Higher Education Funding Council for Wales
Scottish Higher Education Funding Council
Office of Science and Technology

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Higher education-business interaction survey 2001-02

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Of interest to those responsible for	Links with business and the community, Research, Continuing vocational education, Funding, Planning
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Executive summary

Purpose

1. This report presents and analyses the results of the 2003 Higher education-business interaction (HE-BI) survey of all UK higher education institutions (HEIs).

Key points

2. The survey is based on information for the academic year 2001-02, and builds on previous surveys published as HEFCE 01/68 and 2003/11. The objectives of the survey were:
- to update the previous survey
 - to begin to identify trends
 - to develop the reliability of selected indicators of HEIs' third stream activity (that is, enhancing their contribution to the economy and society) which might be used annually to inform funding decisions
 - to develop low burden processes for collecting data.

The data collected by the survey and the process itself are useful as management information for HEIs' own use, permitting benchmarking within the overall HE sector and revealing needs for further development of data management systems.

3. The survey incorporates both numerical metrics – some of them financial – and objective qualitative indicators. Together, these cover aspects of policy, activities and outputs. Data are categorised in two main ways: by country and English region (collectively referred to as 'by area' throughout this publication), and by 'research profile' (or RP, described in the 2002 HE-BI survey as research intensity). Note that the term research profile in this context does not carry any implications about the type of research undertaken (and see Annex H paragraph 16). Individual HEIs are not named at any point; this anonymity will be reviewed for the 2004 survey.

4. The Government, HEFCE and the HE-BI Stakeholders group (see Annex F) are committed to the permanent third stream of funding for higher education (HE) and to developing a standard, low burden, annual process for indicating its effectiveness. The Lambert Review of Business-University Collaboration (see paragraph 17) also calls for an increased and further embedded third stream of funding for HE and for a related 'basket' of metrics.

5. The HE-BI survey covers the whole of the UK higher education sector; 100 per cent of institutions responded to it in 2003. Changes to the 2003 questionnaire were kept to a minimum to enable valid comparison of data between years. The emphasis has been on achieving robust data to permit confident deductions. To ensure the data were robust a range of checks was carried out: follow-up contact with HEIs was made in some cases; and some data were compared to those from other sources, such as from the Higher Education Statistics Agency (HESA). Overall, the completion rate was better than in the previous survey (although some institutions still found it difficult to provide full data, for example related to contracts with small and medium-size enterprises (SMEs) or spin-off companies that are legally distinct entities). The 2003 survey is therefore both more complete and more reliable than previous HE-BI surveys.

6. The 2003 survey shows continuing improvement in HE-business interactions by almost every indicator. This is the case even after taking into account the small increase in number of respondents and the increased completeness and accuracy of HEIs' data gathering. Comparisons have been made between years, regions and research profile only where data are judged to be robust.

7. It is possible that HEIs are becoming more selective in developing their third stream actions. They have been encouraged to do so through the HE Innovation Fund (HEIF) and elsewhere. The use of indicators and metrics, especially with their potential for use related to funding decisions, will inevitably influence HEI activity, but it would be impossible to quantify these effects.

8. Analysis of the survey data has shown the following key changes over the previous year:

- increased planning for business support provision
- working with public sector bodies has become a key priority
- increases in CASE studentships, Knowledge Transfer Partnerships (formerly Teaching Company Scheme) and the financial value of collaborative research partnerships with SMEs
- 61 per cent of HEIs have in-house licensing activity, and total intellectual property revenues have risen steeply
- development of consultancy activity, with an 18 per cent increase in income generated
- increased provision of courses for business and related involvement of employers
- greater deployment of regeneration funds (from UK rather than EU sources) overall, particularly for institutions with a higher research profile
- 19 per cent increase in HE staff dedicated to commercialisation and related activities, many supported through third stream (business and community) funding, including the Higher Education Reach-out to Business and the Community (HEROBC) Fund and HEIF.

9. HEFCE and the HE-BI Stakeholders group will review the HE-BI content and process in preparation for the 2004 survey (which will be based on 2002-03 data). The aims of the review are to adapt the survey to developments in policy, funding and practice over the last three years, while further minimising burden on HEIs. Specific areas being considered are reduction of ambiguity, complementarity with related surveys and studies, and relevance to HEIs' own management and monitoring processes.

10. To ensure coverage of the full range of third stream partnership types and deliverable benefits to the economy and society, and to move further towards indicators of impact, requires continuing development work beyond the 2004 survey. Further input to this process from business and community partners will be welcome in informing the development of funding policy.

Action required

11. This report is for information.

Background and purpose

12. Universities and higher education colleges in the more developed economies of the world have been encouraged in the last 10 or more years to enrich their contributions to society and the economy. This is typically in recognition of the public funding which supports their infrastructure and capabilities. This trend has stimulated a search for indicators or metrics of performance in a third stream of HE activity alongside learning and teaching, and research.

13. The third stream of funding was created specifically to address this issue. It encourages development of effective means of knowledge transfer – or more accurately, exchange – between higher education institutions and business and the community. Business in this context means private companies of all sizes and sectors, and public bodies (for example, both public and private bodies have 'business' needs such as IT systems and human resources consultancy). Community is taken to mean society as a whole, including all social, civic and cultural components. The initiation of the HEROBC Fund in England and Northern Ireland, and the HEIF, University Challenge and Science Enterprise Challenge, have paved the way for a permanent third stream of funding for HE in the UK.

14. The UK higher education sector is diverse – including small institutions, often with a specialist focus, and large multi-discipline institutions that may have, among other capabilities, a strong transferable knowledge base. The HE-BI survey is designed to recognise this diversity. The 2003 survey was carried out by HEFCE on behalf of the HE funding bodies for England, Scotland, Wales and Northern Ireland; the Department of Trade and Industry; and the Office of Science and Technology (OST). For more discussion of the history of HE-BI surveys see 'Higher education-business interaction survey 2000-01' (HEFCE 2003/11).

15. The objectives of the 2003 survey were:

- to update the 2002 HE-BI survey
- to begin to identify trends in HE-business interaction
- to develop the relevance and reliability of potential performance indicators
- to refine the overall process, format and content of questions for gathering such data, in order to move towards a standard annual process with the minimum possible administrative burden on all parties.

16. The 2003 questionnaire is based on that used in 2002, with changes to questions for which data collection is particularly difficult and to eliminate ambiguity in interpretation. Changes have been kept to a minimum, to enable year on year comparison. The questionnaire will be reviewed in advance of the 2004 survey to take account of developments in third stream policy. When the first (2001) HE-BI survey was launched, it stated that a medium to long term aspiration is to have a set of indicators that could, if so decided, inform allocation of the third stream of funding. Because of the importance of assessing the activities of the whole HE sector, and the diversity mentioned in paragraph 14, indicators relevant for one HEI may not be the same as for another. Hence, the review of the questionnaire will consider the range of business and community activities across the sector and aim to address them more strategically.

17. In December 2003 Richard Lambert presented his report on business-university collaboration to the Government (available from www.hm-treasury.gov.uk). The report drew substantially on data collected under the HE-BI surveys. The report celebrates achievements made by the HE sector in business and community activity, and echoes calls for an increased and further embedded third stream of funding. During 2003 Nottingham University Business School (NUBS) carried out the second annual

commercialisation survey on behalf of the Universities Companies Association (UNICO) and the Association for University Research & Industry Links (AURIL), which is available from www.auril.org.uk. The key initiators of these and other recent studies, together with other key stakeholders, have begun an exchange of aims and methodology, to contribute to developing objective ways of measuring the impact of higher education in this field.

18. Stakeholders of the HE-BI process include government departments, HE representative bodies, the Confederation of British Industry (CBI) and HESA (see Annex F). HEFCE's Analytical Services Group has also been engaged in the design, validation and analysis procedures of the 2003 process. The stakeholders will have access to the full data set produced by the survey. However, public reporting of 2001-02 data will not identify individual HEIs, in recognition that the robustness of some data is still developing.

19. For a fuller discussion of the genesis and context of the HE-business interaction surveys, see HEFCE 01/68 and 2003/11.

Deductions and outcomes

20. The 2003 survey shows continuing increases in almost every indicator of HE-business interactions. There is further scope for refinement of the survey questions and for more complete data capture within HEIs, particularly where data have not previously been collected for institutions' internal use. The analysis by research profile (defined as research intensity in the previous survey, see Annex H paragraph 16), where judged to be valid, is beginning to indicate differences between HEIs of priority or emphasis. Comparisons are made only where it has been judged that the data are robust. Some questions, for example regarding business collaborative research and undergraduate placements in business, are potentially important but require HEIs to establish more reliable processes for collecting the information.

21. These improvements are to some extent due to a small increase in response rate from HEIs (which can be quantified easily) and the improvement in both completeness of data gathering by HEIs and their commitment to providing accurate returns (less easy to quantify). Reinforcement of the HEIF definition of business (which is: companies of all sizes and sectors and a range of bodies within the wider community) may also have encouraged HEIs to be more comprehensive in their returns.

22. For some survey questions the figures have dropped compared with the previous year. For example, although more patents were filed fewer patents were reported to have been granted, and the overall number of licences has fallen. (This may reflect macro-economic factors as well as more businesslike relationships between HEIs and their partners.) There is growing acceptance within the sector and encouragement by funding bodies for HEIs to play to their strengths and be more discriminating in developing their third stream strategies.

23. It is becoming more widely recognised that, while income to HEIs may be an indicator of value delivered, maximising income from third stream actions should not dominate the contribution of HE to the economy and society. HEIs' third stream priorities will be influenced by financial and other indicators. This underlines the importance of concentrating on indicators which correlate closely to the strategic aims of third stream funding and on public emphasis of the most relevant of these.

24. In the area of HEI strategy and economic development, there are increases in commitment to planning strategically for business support, in pro-active engagement with regional skills strategies and regional partnerships (up from 11 per cent to 18 per cent), and in provision of incentives for HEI staff to engage with industry and commerce. The most important area overall for HEIs' contribution to economic development was reported to be providing access to education. Local partnerships, meeting regional skills needs and research partnerships were next, depending on the institution's research profile. HEIs identified working more closely with the public sector as a key priority (in the 2002 survey, information and communication technologies scored highest). Priority sectors were chosen by institutions mainly on the basis of fit with the institution's expertise; response to demand was second most important. For all three levels of research profile, the geographical areas of highest priority were equally the region (defined as government administrative region throughout) and the area defined by HEIs as their practical operating area.

25. Collecting data on conducting research with business remains a complex and difficult exercise, especially regarding split by size of business and business contribution to public-funded research grants. HEIs had not been required to extract this information prior to the first HE-BI survey. As a percentage of their total research, HEIs with a lower research profile generated more than twice as much income from collaborating with business as higher research profile HEIs, with the UK average being 19 per cent of total research income. As a percentage of institutions' total income, contract research was three times as significant for higher research profile HEIs as for others, but with a much lower percentage of income from SMEs. CASE studentships and Knowledge Transfer Partnerships had increased in number by 14 per cent and 11 per cent respectively from 2000-01 to 2001-02. Provision of equipment-related services appears to have risen steeply, but some of this is believed to result from more complete reporting.

26. Intellectual property (IP) management and activity continues to develop. Disclosures of inventions are monitored by 70 per cent of HEIs. There is a 15 per cent increase in numbers of disclosures, entirely stemming from the higher research profile institutions. On average, 60 per cent of HEIs require IP inventions to be reported. Sixty-one per cent of HEIs have an in-house licensing activity. Patent filings increased by almost 30 per cent, but numbers of both patents granted and licences (except for UK-based non-software licences) fell significantly. Total IP-based revenues have increased substantially from 2000-01 with reported IP protection costs amounting to over a third of reported income. Out of 164 institutions, 113 reward staff for the IP they generate using policies and mechanisms that range from flat rate to sliding scale calculations.

27. Consultancy continues to develop in management, in terms of both volume – mainly within the HEIs' own regions – and income generation (up by 18 per cent to £745,000 average income per HEI). More than four-fifths of HEIs (87 per cent) have a commercialisation company or department which manages consulting links; 85 per cent of institutions now have an enquiry point for SMEs, and nearly 80 per cent provide assistance to SMEs in specifying their needs – which aids the development of intelligent demand.

28. Spin-off company formation slowed between 2000-01 and 2001-02, although the three-year survival rate has remained stable; the exception was an increase in the number of new graduate start-ups. Total turnover and staffing of all active companies both continue to rise, suggesting that company growth is being achieved. These changes may reflect a development of focus from increasing the number of new companies formed to enhancing their viability. Small reported changes in data relating to spin-offs may not indicate an actual change, and should be considered in the light of the difficulties HEIs experience in providing accurate data about what are legally independent entities. The most common

type of support by HEIs for spin-off activity is for business advice, and the least common is direct provision of venture capital. Generally the strength of support rises with research profile of institution.

29. The report on the 2002 survey (HEFCE 2003/11) compared spin-off company formation and licensing activity between the UK and the US. Further comparison confirms that the UK HE sector has more company spin-offs and generates less licence income per £ or \$ of research expenditure, than US universities. In the 2003 survey the position of the two territories has converged somewhat.

30. HEIs report continued increases in their use of labour market intelligence, monitoring of skills needs, and taking skills needs into account in planning training provision and actively involving employers in development of course content. Overall provision of and income from courses for business have increased; income has risen by 12.5 per cent, to over 1 per cent of all institutions' income.

31. The overall level of regeneration funding received by HEIs has increased, the European Social Fund being the largest provider. Generally, lower research profile institutions are more successful at obtaining these funds, and there are major differences between regions in the scale and mix of sources of regeneration funds. The three top uses for these funds are: building strategic links with local industry, facilitating partnerships, and new services to (regional) industry.

32. There has been a 7 per cent increase (to 69 per cent) in HEIs that place themselves in the highest two benchmark categories for partnerships with local and regional bodies. Comparison between regions is of doubtful value unless the economic contexts are taken into account.

33. HEIs reported employing 1,836 full-time equivalent (FTE) commercialisation staff, an increase of 19 per cent from the previous year. The total cost incurred by the whole UK higher education sector in completing the survey was approximately £160,000. In view of the more complete returns for the current survey, this could indicate a further improvement in HEIs' efficiency in data gathering.

Next steps

34. From February 2004, HEFCE and the HE-BI Stakeholders group will review the HE-BI process and focus on preparation for a 2004 survey, which will collect data for the academic year 2002-03. The purpose of the review is for the HE-BI Stakeholders group and others to consider potential changes to process, format of content, and scope of the survey. This will take account of desirable changes, some of which were discussed in the 2002 survey report (HEFCE 2003/11) but which were not applied to the 2003 survey in the interests of continuity and year on year comparison. The aims of the review are:

- to minimise the burden on HEIs
- to optimise the robustness and information value of the data
- to recognise some of the policy and practice changes in HE's third stream role which have developed in the last three years.

35. Areas which are being examined include:

- omission of questions that have proven to be unreliable and of limited information value
- refinement of retained questions, to further reduce ambiguity and to increase confidence and usefulness
- identification of some questions, perhaps relating to institutional policy, where monitoring less often than annually may be appropriate
- anonymity of HEIs

- recognition of the Research Councils' and public sector establishments' interest
- grouping questions differently, to make responding more systematic
- taking account of the current understanding of knowledge transfer to, and exchange with, the private, public and other sectors
- complementarity of the survey with other surveys and studies, including the UNICO/AURIL survey of commercialisation referred to in paragraph 17
- enhancing the usefulness of the survey to HEIs for their own planning and management

36. Some of the above areas may need more than the limited review which is possible in preparation for the 2004 survey, in order to ensure that indicators of third stream activity are available, credible and suited for their potential use to inform funding decisions after the second round of HEIF. Further development must ensure coverage of the full range of both third stream (business and community) partnerships and actions/deliverables, and should provide definition and acceptance of a core set of indicators to cover the full range of institutions.

37. Despite the increasing robustness of results of the HE-BI survey, there are significant reservations about using the indicators it currently generates in the distribution of HE funding. Most of the metrics and objective qualitative indicators used in the survey are based either on activity or on well defined outputs – both of which are often poor proxies for intended outcome. It will therefore be desirable to focus increasingly on developing indicators which are closer to showing the impacts that third stream funding is designed to produce. Input from the demand side (business and community partners) will be essential to this development.

38. On the HEI side, accuracy of data and the ease of its provision will increasingly be enhanced as institutions further embed their own monitoring systems, from which the annual provision of HE-BI data will become more straightforward.

Data analysis

39. Analysis of the whole survey question by question, is included in this section. Graphs and tables have been included for some questions, others may refer the reader to the full data tables (Annexes A and B).

Section A: Institutional strategy and economic development

40. Questions in this section refer to institutions' own policies, priorities and, to a degree, intentions regarding working with business and in other partnerships, including within a regional context. Data reported are therefore subjective and in some instances qualitative. However they indicate the perception among HEIs – both those which are mature in third stream activity and those which are not – of the match between their missions, their capability, and the expectations of funding bodies and business partners.

A1 In what areas do you see the HEI as a whole making the greatest contribution to economic development?

41. Institutions were asked to pick three areas where they contribute most to economic development. Figure A1i shows that access to education remains the highest priority. Developing local partnerships and meeting regional skills needs are next in importance for lower research profile HEIs. Technology transfer and research collaboration have a substantial bias towards higher research profile HEIs. Table A1ii shows the same data by percentage of HEIs.

Figure A1i

Instances of contribution to economic development, by research profile

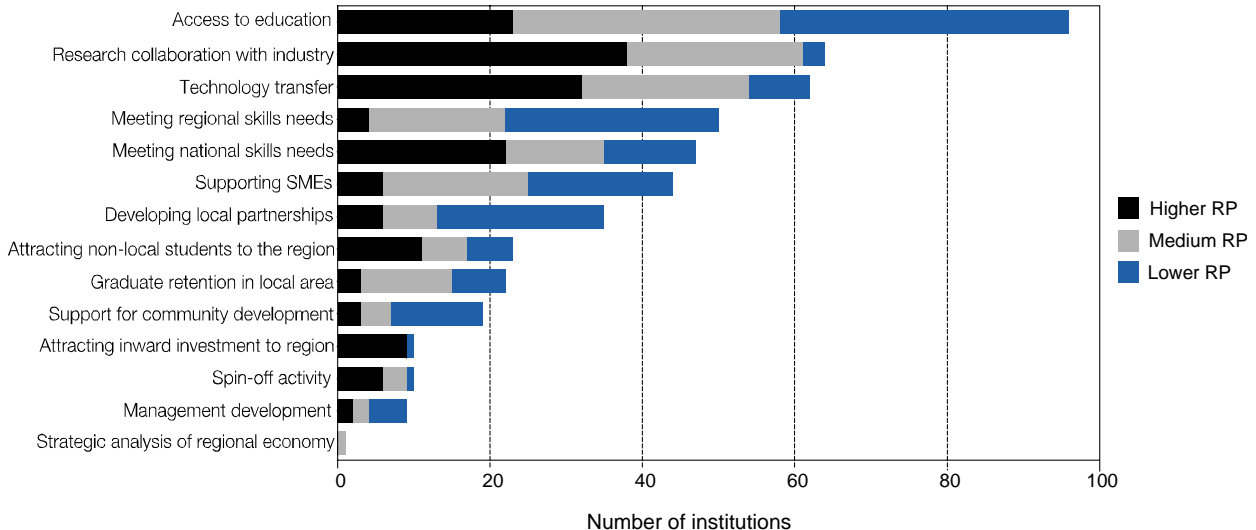


Table A1ii

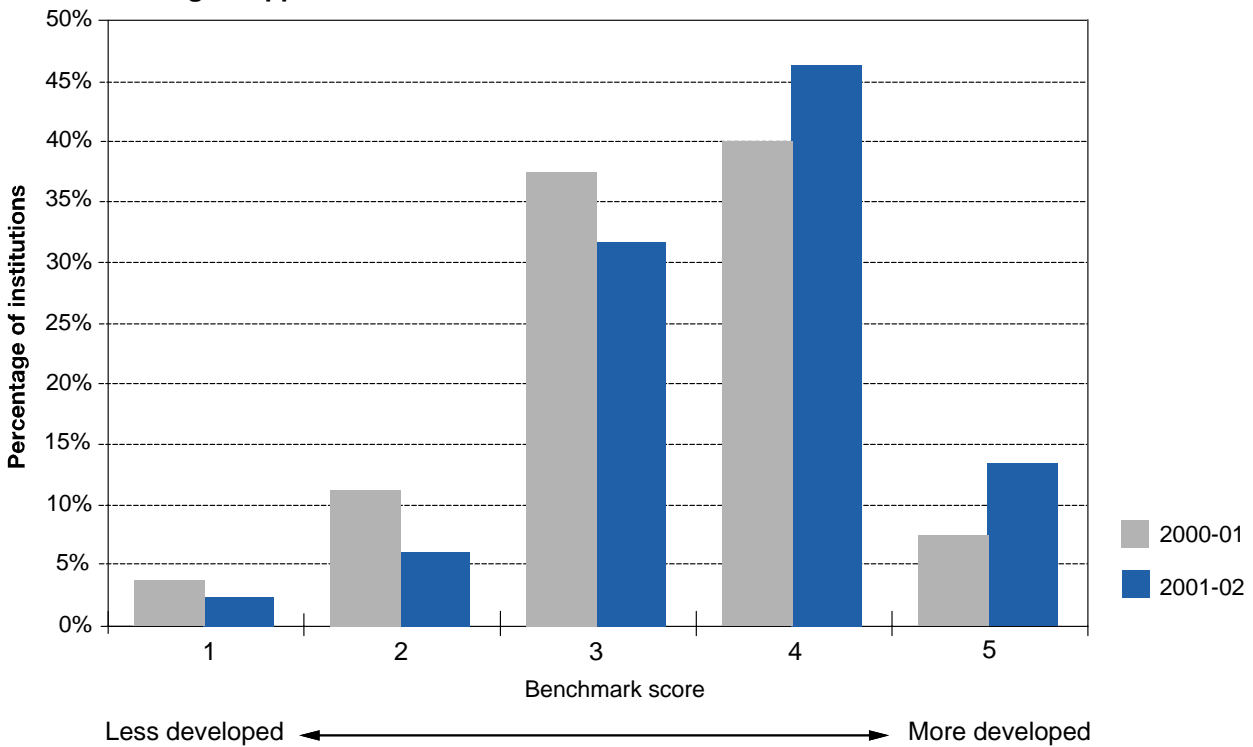
Proportion of contribution to economic development, by research profile

Areas of activity		Research profile of HEI			UK total
		Higher	Medium	Lower	
Access to education	2001-02	42%	64%	70%	59%
	2000-01	38%	57%	70%	55%
Graduate retention in local region	2001-02	5%	22%	13%	13%
	2000-01	8%	21%	22%	17%
Technology transfer	2001-02	58%	40%	15%	38%
	2000-01	57%	40%	15%	37%
Spin-off activity	2001-02	11%	5%	2%	6%
	2000-01	13%	9%	2%	8%
Supporting small and medium size enterprises	2001-02	11%	35%	35%	27%
	2000-01	8%	28%	33%	23%
Attracting inward investment to region	2001-02	16%	0%	2%	6%
	2000-01	17%	0%	0%	6%
Research collaboration with industry	2001-02	69%	42%	6%	39%
	2000-01	70%	40%	7%	39%
Strategic analysis of regional economy	2001-02	0%	2%	0%	1%
	2000-01	2%	0%	0%	1%
Attracting non-local students to the region	2001-02	20%	11%	11%	14%
	2000-01	23%	9%	11%	14%
Support for community development	2001-02	5%	7%	22%	12%
	2000-01	4%	8%	19%	10%
Developing local partnerships	2001-02	11%	13%	41%	21%
	2000-01	11%	23%	37%	24%
Management development	2001-02	4%	4%	9%	5%
	2000-01	2%	8%	11%	7%
Meeting regional skills needs	2001-02	7%	33%	52%	30%
	2000-01	9%	32%	46%	29%
Meeting national skills needs	2001-02	40%	24%	22%	29%
	2000-01	40%	25%	22%	29%

A2 Does the HEI have a strategic plan for business support?

42. The need for HEIs to develop plans for their third stream activities over the past few years has encouraged a higher degree of strategic planning. The upward trend has continued for 2001-02. The proportion of HEIs now rating themselves at 4 or 5 has risen from 48 per cent to 60 per cent. The number of HEIs in the 5 (highest) category, rating themselves as having a strategic plan developed as a result of an inclusive process across the whole HEI, has almost doubled to over 13 per cent compared with the previous year. See Annex I for the benchmarking questions written out in full.

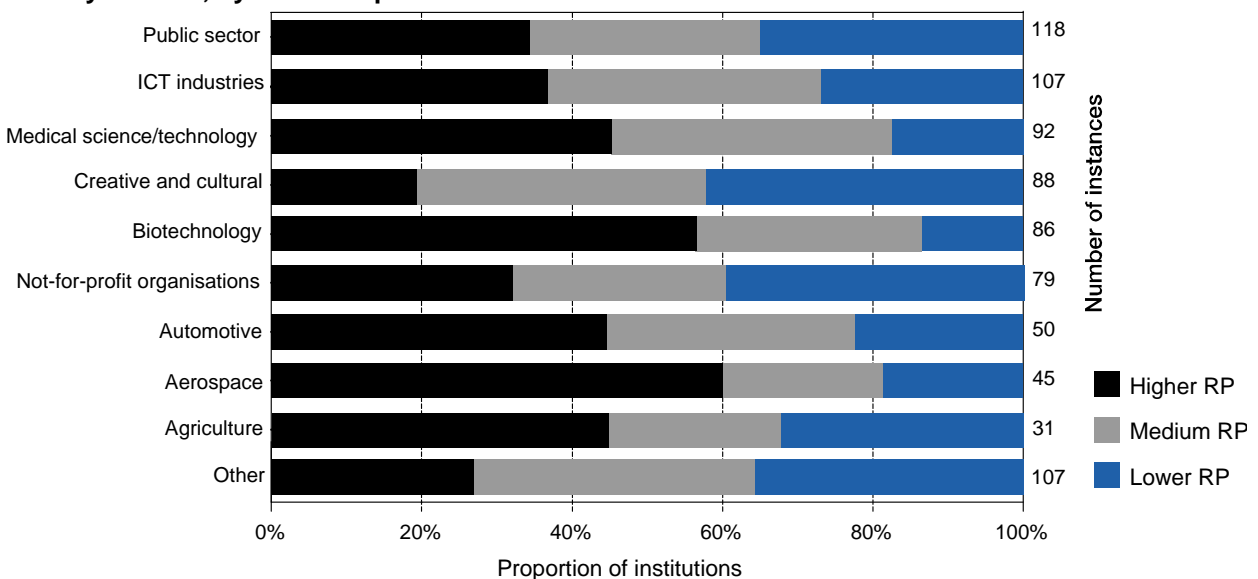
Figure A2
Level of strategic support for business



A3 Does the HEI set out to work more closely with particular business sectors or clusters?

43. HEIs were asked to mention all relevant sectors. For 2001-02, public sector has overtaken information and communication technologies (ICT) as the highest in aggregate (118 and 107 instances respectively). Creative and cultural industries were a common response under 'Other' for 2000-01 so were offered as a sector in this year's questionnaire. Notable sectors from analysis of Other responses include: health/healthcare, environment, electronics and a handful of responses for sport and media. HEIs of a higher research profile cite aerospace, biotechnology and medical science/technology more often; distribution of responses citing public sector and ICT is more equal across all types of research profile.

Figure A3
Priority sectors, by research profile



A4 How priority sectors were determined

44. There has been a rise in references to Regional Development Agency (RDA) priorities this year. As was the case last year the 'best fit with institution's expertise' was the first priority for all levels of research profile. Response to demand was a strong second, which indicates the importance HEIs place on developing intelligent business demand, for example in knowledge exchange activities.

Table A4i

How priority sectors are determined, by research profile

		Research profile of HEI			UK total
		Higher	Medium	Lower	
The HEI is a specialist institution focused on sector-specific areas	2001-02	36%	44%	44%	41%
	2000-01	32%	42%	46%	40%
The HEI took its cue from priorities in RDA regional strategies	2001-02	49%	56%	59%	55%
	2000-01	49%	49%	43%	47%
Response to demand from companies in these sectors	2001-02	71%	69%	63%	68%
	2000-01	64%	62%	59%	62%
The HEI identified important business clusters in its region	2001-02	51%	62%	59%	57%
	2000-01	49%	58%	44%	51%
These sectors had best fit with the institution's expertise	2001-02	100%	84%	87%	90%
	2000-01	92%	81%	78%	84%
The HEI focused on a 'gap in the market' left by other HEIs	2001-02	5%	18%	31%	18%
	2000-01	4%	17%	22%	14%
Other	2001-02	4%	7%	6%	5%
	2000-01	2%	4%	4%	3%

Table A4ii

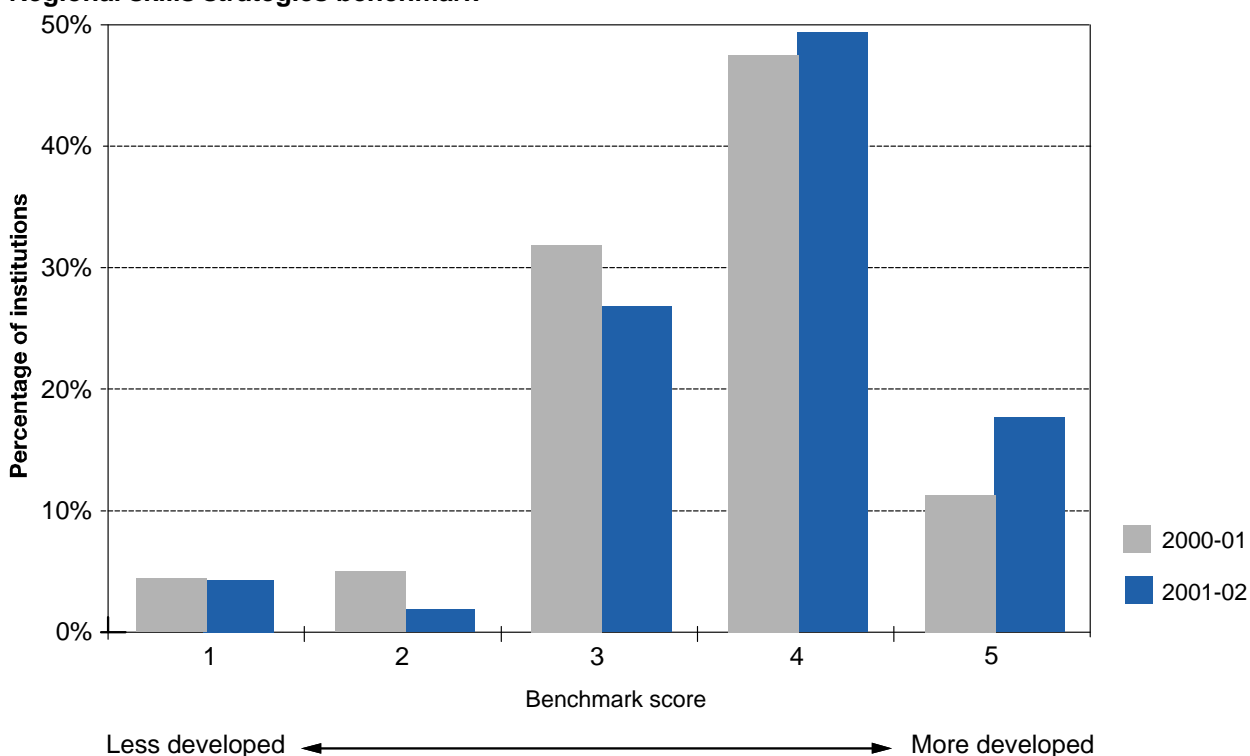
How priority sectors are determined, by area

Region or country	The HEI is a specialist institution focused on sector-specific areas	The HEI took its cue from priorities in RDA regional strategies	Response to demand from companies in these sectors	The HEI identified important business clusters in its region	These sectors had best fit with the institution's expertise	The HEI focused on a 'gap in the market' left by other HEIs	Other
North-East	0%	80%	100%	80%	100%	20%	0%
North-West	40%	80%	67%	73%	80%	13%	7%
Yorkshire & Humber	64%	36%	55%	45%	91%	9%	0%
East Midlands	22%	67%	67%	44%	100%	0%	11%
West Midlands	36%	91%	82%	82%	91%	27%	27%
East of England	44%	67%	67%	78%	100%	22%	0%
London	56%	31%	59%	49%	90%	15%	8%
South-East	33%	56%	72%	67%	94%	17%	0%
South-West	46%	77%	62%	54%	92%	31%	0%
England	44%	57%	66%	60%	92%	17%	6%
Northern Ireland	0%	100%	100%	50%	100%	0%	50%
Scotland	42%	47%	68%	47%	84%	21%	0%
Wales	23%	38%	77%	46%	85%	31%	0%
UK total	41%	55%	68%	57%	90%	18%	5%

A5 Is the HEI involved in the development and implementation of regional skills strategies in terms of the provision of expertise and data and the involvement of senior HE staff in regional partnerships?

45. Two-thirds of HEIs rate themselves above the medium point of ‘some but narrow engagement’, with 18 per cent of HEIs returning ‘pro-active engagement’ (up from 11 per cent in 2000-01). See Annex I for the benchmarking questions written out in full.

Figure A5
Regional skills strategies benchmark



A6 Is there business representation on your governing body?

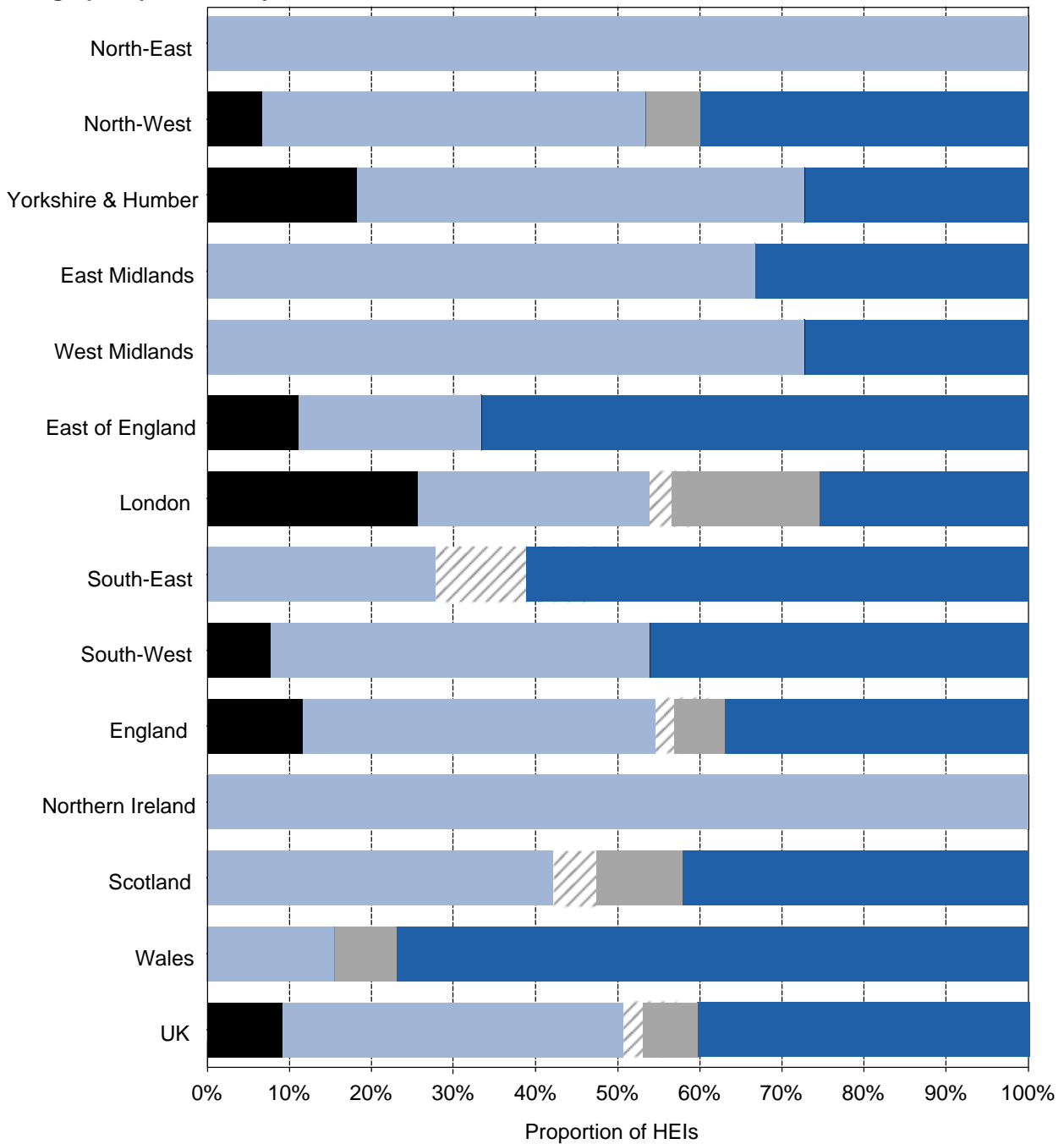
46. There has been a slight increase in the proportion of governors from a business background. The average number of governors remains approximately constant at 26 per HEI, while the percentage from business has increased by 2 per cent to 36 per cent.

A7 Which of the following areas is of greatest priority in your university’s institutional mission?

47. In both the East and West Midlands regions, RDA area is the most common response, with ‘area defined by HEI’ as the only other. The larger proportion of specialist HEIs in London is likely to account for the higher number of ‘area not of any significance to mission’ responses.

48. For all levels of research profile the top priority for HEIs is almost equally split between the government administrative regions and the regions defined by individual HEIs as their operating area. Together these two options represent the working area of over three-quarters of the UK HE sector. A small number of HEIs reported that the priority varied across their institutions; however, this survey seeks only to establish their overall institutional mission.

Figure A7
Geographic priorities, by area

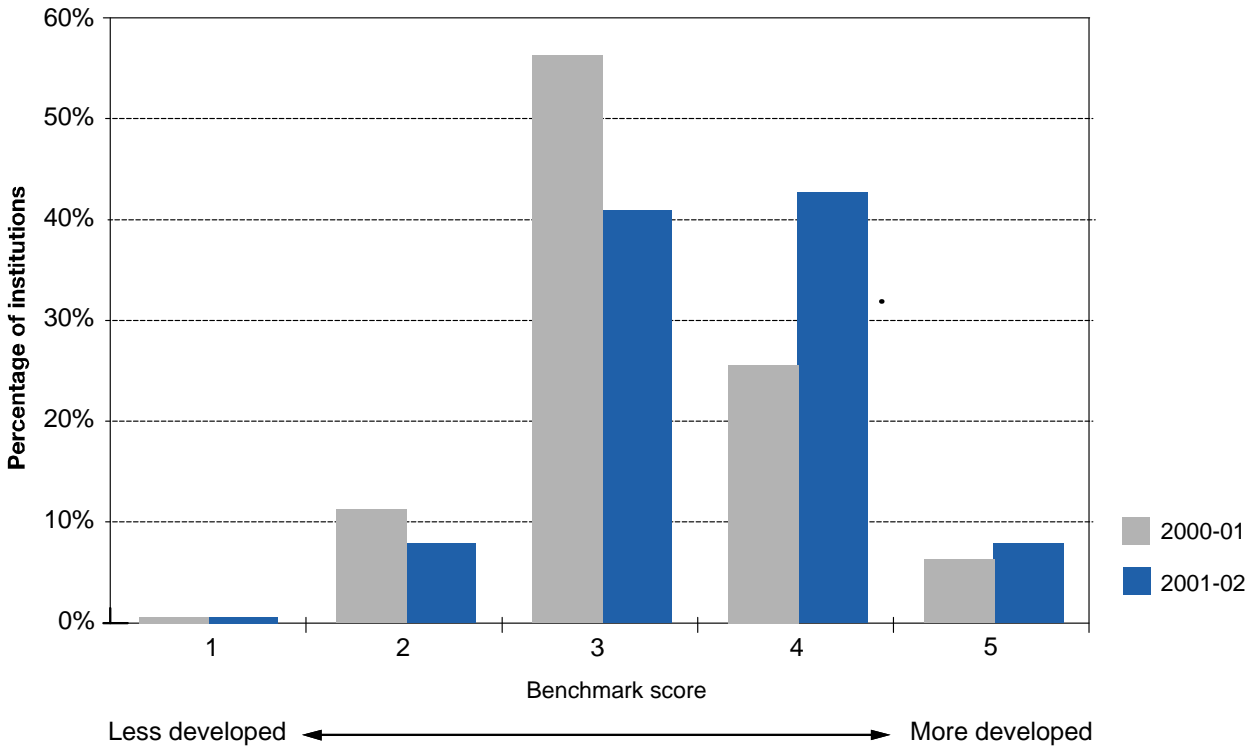


- Regional/local/other area not of any significance to mission
- RDA area (for example, East Midlands, Scotland)
- Local authority area (county or unitary)
- Locality/city or town
- Area defined by the HEI

A8 How would you rate the level of incentives for your staff to engage with industry and commerce?

49. About half (51 per cent) the respondents rated themselves above the middle category of 'some incentives in place, but with some barriers remaining'; this is an increase of 19 per cent from 2000-01. This trend may be expected to continue with the further development of the third stream of funding. See Annex I for the benchmarking questions written out in full.

Figure A8
Staff incentives to engage with business benchmark



Section B: Collaborative research with business

50. Questions in this section refer to research-oriented activities, some of which have a public funding component (B1, B3 and B4) and others that are more often described as contract research (B2) or potentially net revenue-generating (B5). Reporting data under this section is problematic for a number of HEIs, as in previous years (28 of them needed to be contacted this year to discuss discrepancies in their reporting between HE-BI and the HESA Finance Statistics Return). Business contributions in Research Council awards, for example, range from major and critically important to limited and tentative, and previous statutory reporting has not required separate recording of the business content.

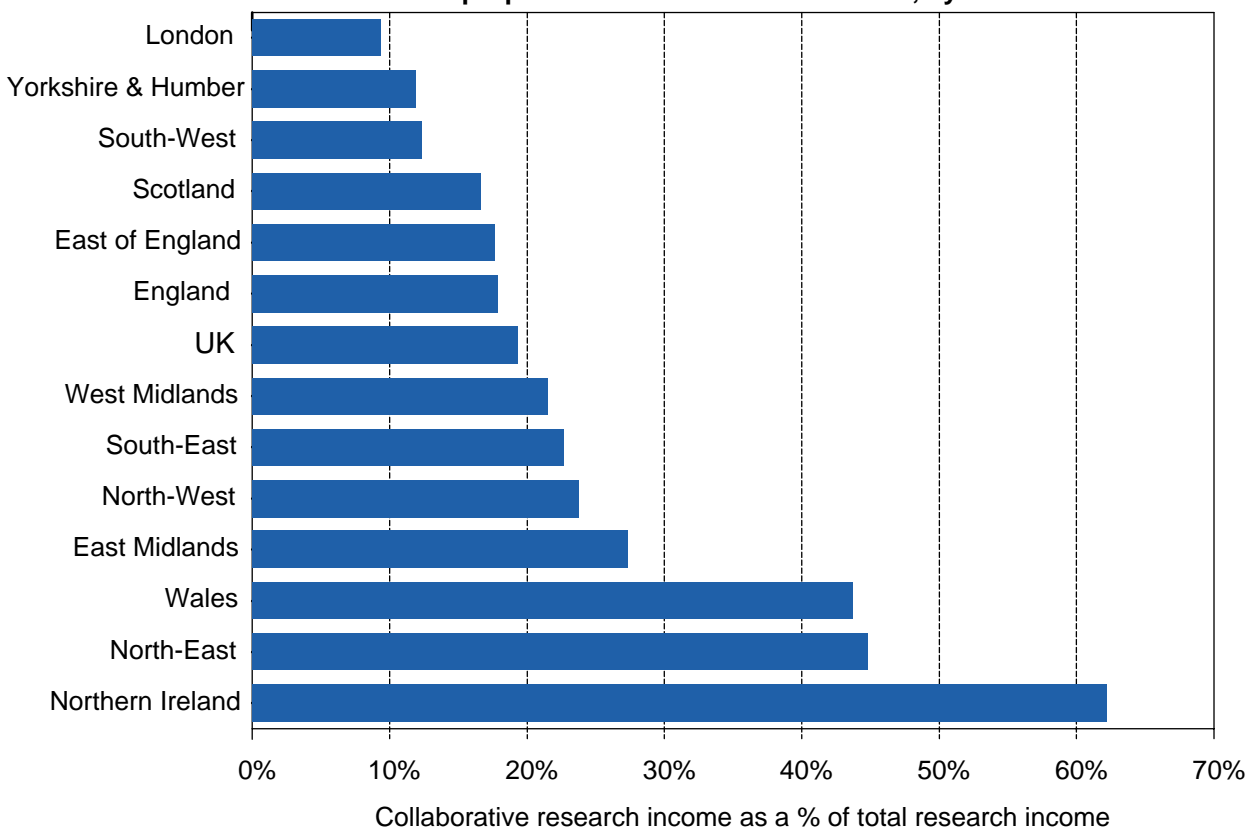
B1 What was the HEI's income from public-funded collaborative research grants involving business co-funding or formal collaboration?

51. Data on collaborative research remain prone to concerns about robustness due to its complex nature and the diverse range of data capture systems in the HE sector. Historically HEIs have not been obliged to record the detail of business contributions to public funded research grants, and the burden of analysing records ad-hoc is high.

52. Figure B1i shows that publicly funded collaborative research income as a proportion of total research income varies substantially across the UK: from less than 10 per cent in London to over 60 per cent in Northern Ireland. When looking at these data by research profile (Figure B1ii), as may be expected, formal collaborative research is more significant for lower research profile institutions.

Figure B1i

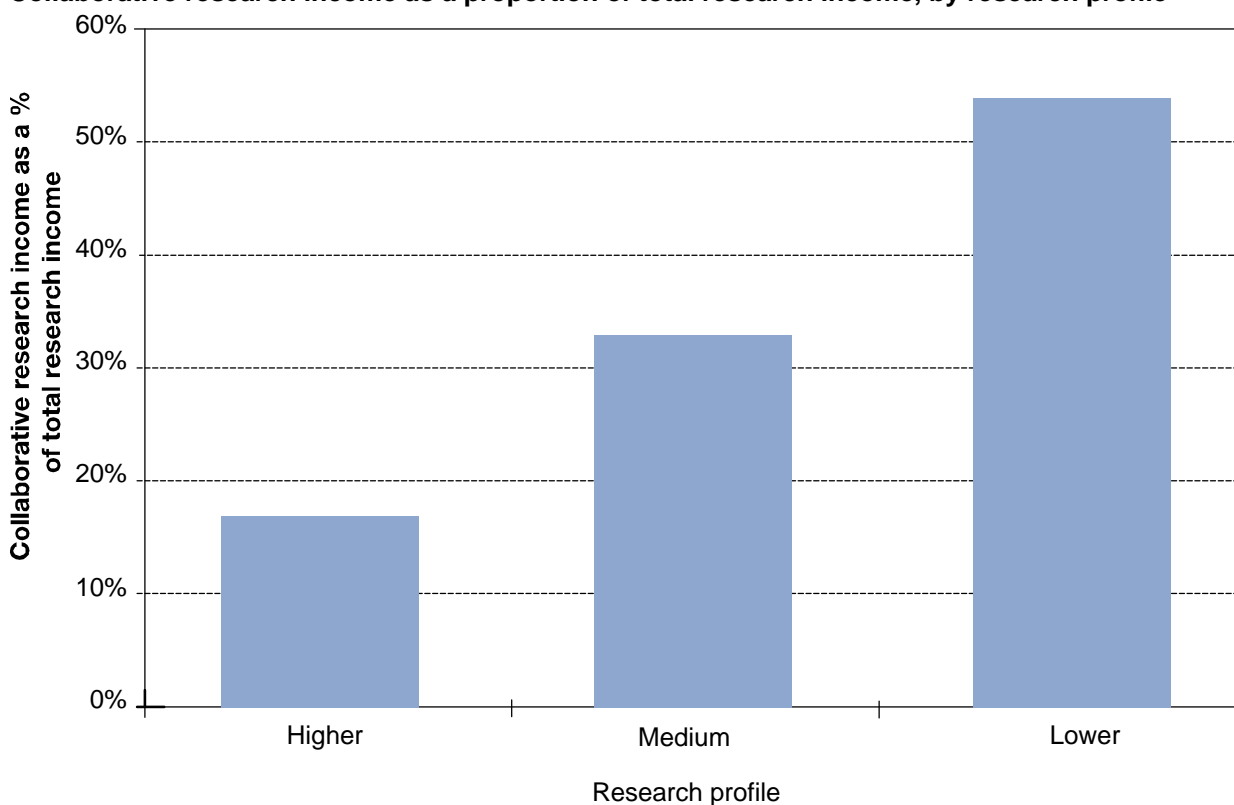
Collaborative research income as a proportion of total research income, by area



Source: HE-BI survey 2003 and HESA FSR 2001-02

Figure B1ii

Collaborative research income as a proportion of total research income, by research profile



Source: HE-BI survey 2003 and HESA FSR 2001-02

B2 Approximately how many contracts with businesses were signed during 2001-02 and what was the total value? How many and what was the value of contracts with SMEs?

53. While higher research profile institutions represent nearly two-thirds of the total number of contracts, lower research profile HEIs have a larger proportion of their contracts with SMEs. Since 2000-01 the total number of contracts has increased, while the number of contracts with SMEs has fallen. Accordingly, the proportion of value represented by contracts with SMEs has decreased from 13 to 12 per cent. The average value per contract for the higher research profile HEIs is £39,000 as opposed to £15,300 and £11,000 for medium and lower research profile HEIs respectively.

54. Around one in six HEIs still find it impossible to return data split by size of partner. Sharing of good practice between HEIs in data systems for third stream activity may reduce the occurrences of this problem. As can be seen in Figures B2i, B2ii and Table B2iii, barriers to development of activity differ depending on the research profile of the HEI; those who work with a higher proportion of SMEs (for example, lower research profile HEIs) may require greater infrastructure support. Considering the average value of a contract is £29,600, with the average SME contract at around £11,200, HEIs with a higher proportion of contracts with SMEs are likely to have a longer road toward self-sustaining activity.

Figure B2i
Number of contracts with business, by research profile

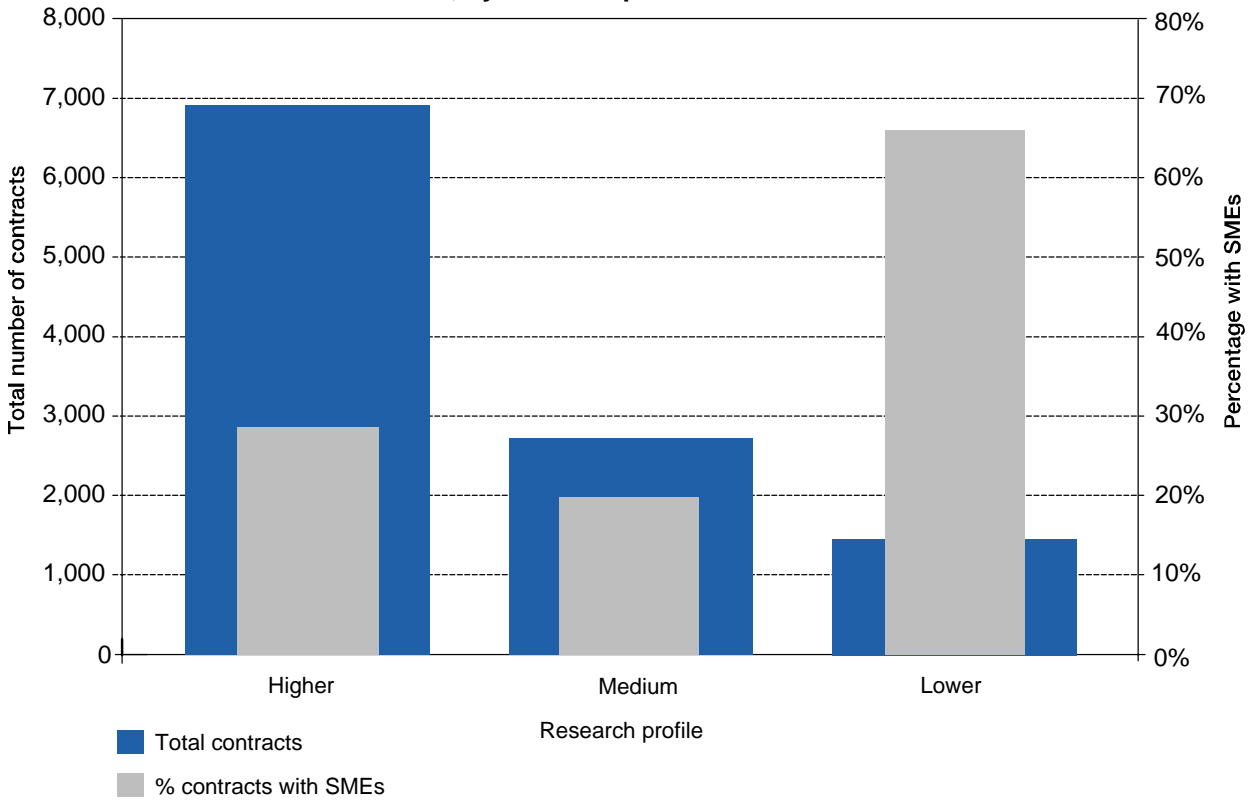


Figure B2ii
Value of contracts with business, by research profile

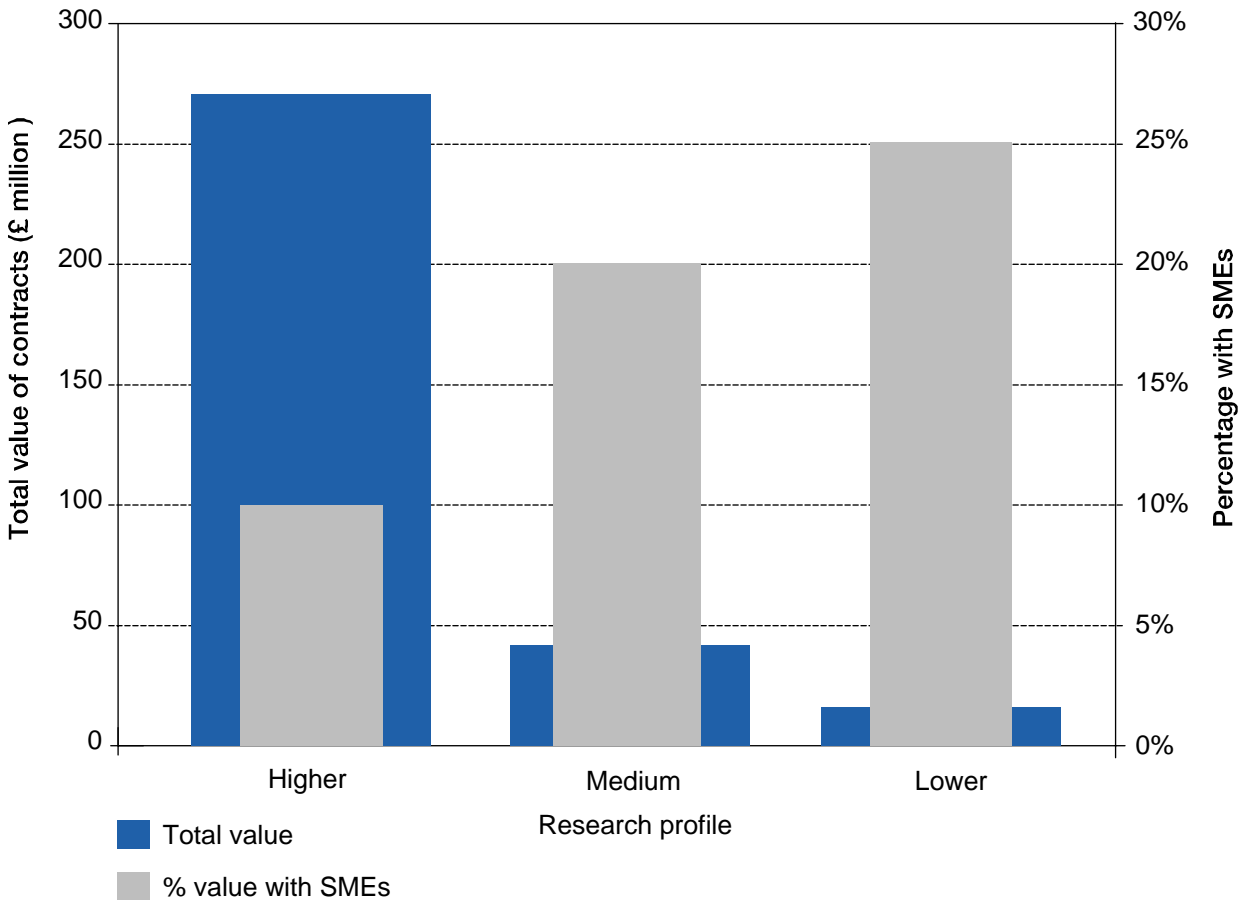
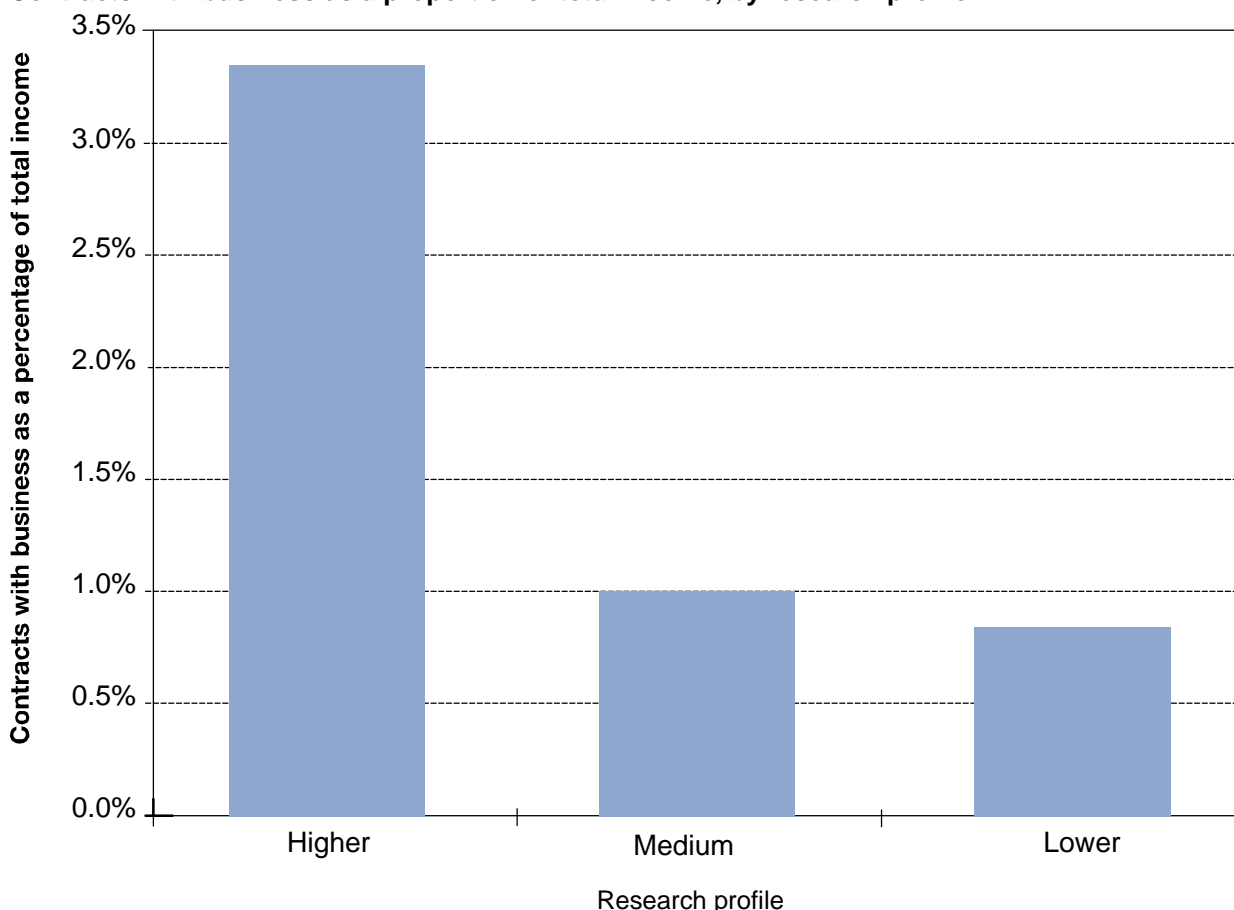


Table B2iii
Number of contracts with business, by research profile

Research profile of HEI	% of value of contracts with SMEs	Total value of contracts with SMEs (£000s)	Total value of contracts (£000s)	% of number of contracts with SMEs	Number of contracts with SMEs	Number of contracts
Higher	10%	27,093	270,620	29%	2,012	6,922
Medium	20%	8,288	41,688	20%	541	2,721
Lower	25%	3,966	16,141	66%	957	1,460
UK total	12%	39,347	328,449	32%	3,510	11,103

55. Figure B2iv indicates that contracts with business form about 1 per cent of total income for medium and lower research profile HEIs, which may be significant; however this type of income is more important for the higher research profile institutions.

Figure B2iv
Contracts with business as a proportion of total income, by research profile



Source: HE-BI survey 2003 and HESA FSR 2001-02

B3 How many CASE awards did the HEI hold (number of students funded) and for how many was the partner within the same region?

56. Co-operative Awards in Science and Engineering (CASE) awards are often initiated on the basis of research activity rather than simply to generate business interaction. However both can lead to wider

collaborations and form part of strategic relationships. The number of CASE awards has risen by 14 per cent, while the number with partners in the same region has risen by around 4 per cent.

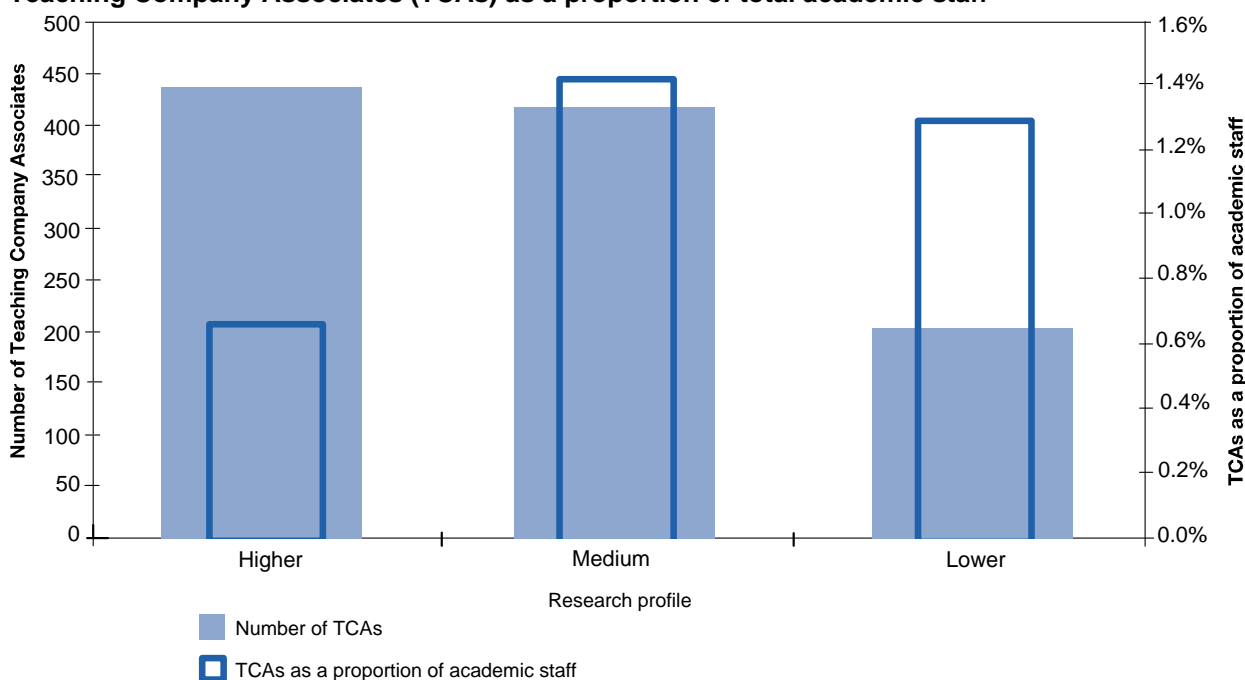
B4 What were the numbers of Teaching Company Programmes and Teaching Company Associates, and what proportion were with firms within the same region?

57. Numbers of Knowledge Transfer Partnerships (formerly Teaching Company Schemes) have risen by 11 per cent, and there has been an 18 per cent shift towards working within the same region.

Table B4i
Knowledge Transfer Partnerships activities

		Research profile of HEI			UK total
		Higher	Medium	Lower	
Total Teaching Company Programmes	2001-02	405	380	200	985
	2000-01	360	379	152	891
Total Teaching Company Associates	2001-02	438	418	204	1,060
	2000-01	404	400	165	969
Teaching Company Programmes with regional partners	2001-02	302	293	157	752
	2000-01	251	247	141	639
Teaching Company Associates with regional partners	2001-02	324	310	154	788
	2000-01	281	266	151	698

Figure B4ii
Teaching Company Associates (TCAs) as a proportion of total academic staff



Source: HE-BI survey 2003 and HESA Individualised staff record 2001-02

58. Figure B4ii shows the variation in proportion of academic staff involved in activity funded by Knowledge Transfer Partnerships across the UK research profile.

B5 Does the HEI provide equipment-related services for business, such as facilities, analysis and testing?

59. While there has been a small increase in the number of firms returned under question B5 compared with the previous survey, the income reported has almost doubled. The question text was altered to include facilities used by business and the community in an attempt to capture services such as performance and gallery space. It is unclear how this question is understood by respondents, and more guidance is required. Data returned show a 95 per cent increase in income, but much of this is likely to be from improved reporting.

Section C: Intellectual property

60. Questions in this section refer to both policy and practice regarding the volumes of IP-based activity and income generated. Validation checks showed some inconsistencies in returns between years, but data confidence levels are medium to high. Year on year comparison is still useful and indicates continuing growth in activity. The substantial increase in disclosures may be taken as a proxy for the continuing culture change among academic staff working with IP.

61. The Lambert report on Business-University collaboration (see paragraph 17) suggests that more strategic development should be focused on licensing activity (although HEIs have been known to over-value their IP). Experience in the UK and the US shows that making a profit is possible but is achieved by only a minority of mainly high research profile universities. In recent years it has been recognised that HEIs have a responsibility for the proper handling of IP – it brings a range of benefits to them, the region and the nation, and can be an integral part of strategic relationships where the main benefits to the HEI could be academic development through wider knowledge exchange.

C1 Do you monitor the number of invention disclosures made each year?

62. Even allowing for the increase in response rate for the survey, there is an increase in the proportion of HEIs that monitor disclosures. However, there are still a large number of HEIs that do not (30 per cent), the majority among lower research profile HEIs. A formal definition of disclosure should be developed as part of the ongoing process of standardising third stream terminology.

C2 If yes, how many disclosures have been made in 2001-02?

63. The upward trend of disclosure numbers continues, although the increase is entirely among higher research profile HEIs; there has been a small drop for the remainder of the sector. The 19 per cent increase in disclosure for higher research profile institutions suggests further embedding of third stream activities.

Table C2
Number of disclosures, by research profile

Research profile of HEI	2001-02	2000-01
Higher	2,139	1,799
Medium	277	280
Lower	62	80
UK total	2,478	2,159

C3 Does the HEI exert ownership over intellectual property by filing patents?

64. Approximately two-thirds of HEIs file patents, with the majority of them working in partnership with another organisation. This question refers to a mature field of work for many HEIs, although, with over 30 per cent of the sector not filing patents, further strategic development is desirable, perhaps in the form of collaboration.

C4 How many patents have been filed by or on behalf of the HEI in the last year?

65. The question text was altered slightly this year to address concerns about validation and definitions. While the figures for 2001-02 are more robust, this alteration somewhat reduces the reliability of comparison between survey years. There are increases overall in both new and repeat filings, although there has been a drop in patents granted. However, number of patents granted is more likely to reflect activity levels in the HEI up to four or five years previously. It is important to continue to closely

monitor patent activity, but it should not be seen as a useful indicator in isolation from others (for example spin-off companies and licences).

Table C4
Patent actions, by research profile

Research profile of HEI	Cumulative number of patent actions (filed or granted)		Number of new patents filed		Number of patents granted	
	2001-02	2000-01	2001-02	2000-01	2001-02	2000-01
	Higher	1,550	1,226	829	747	155
Medium	320	209	130	121	41	40
Lower	37	52	8	28	3	8
UK total	1,907	1,487	967	896	199	250

C5 Does the HEI have an in-house capability to seek out licensing opportunities for its IP, or does it use an external agency?

66. Responses showed that 61 per cent of the sector have an in-house capability to seek out IP. If the positive trend continues, it is likely that, with continued investment in third stream activity, the vast majority of HEIs will develop formal IP exploitation policies. As mentioned in question C3, it may be expected that HEIs will collaborate to form a substantial enough IP base.

C6 How many licences/options have been executed on the basis of HEI-owned intellectual property over the last year?

67. There has been a slight increase in the number of non-software licences granted to UK companies, although, on the whole, licensing activity has dropped. There are no specific validation concerns, although a longer time line is needed to establish trends in licensing activity.

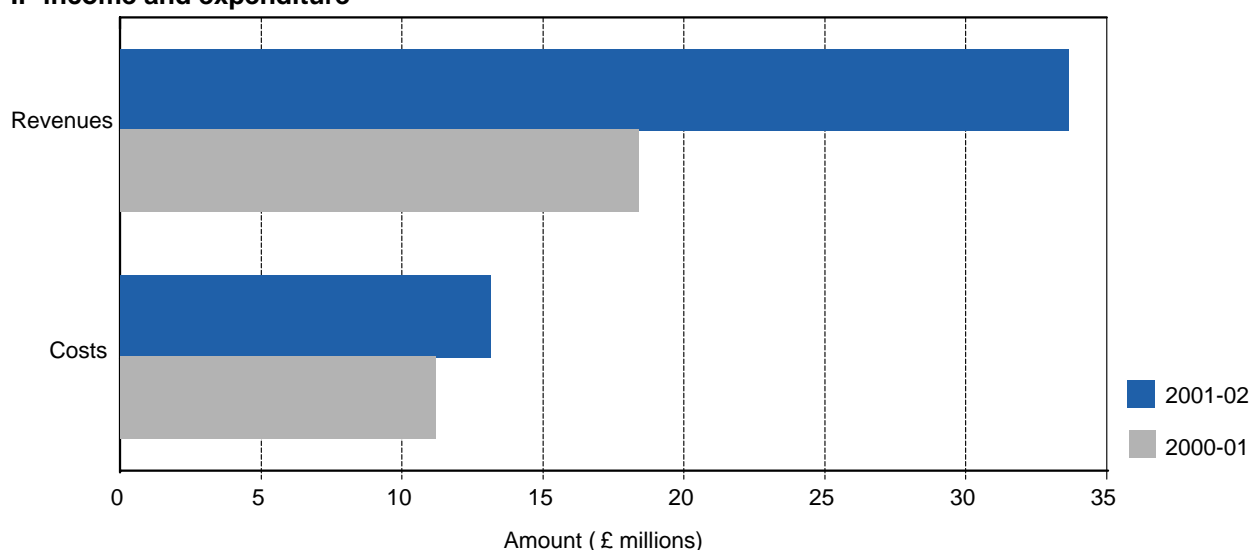
Table C6
Licensing activity, by research profile

Research profile of HEI	Non-software licences				Software licences only			
	Licences granted to UK based companies		Licences granted to companies based overseas		Licences granted to UK based companies		Licences granted to companies based overseas	
	2001-02	2000-01	2001-02	2000-01	2001-02	2000-01	2001-02	2000-01
Higher	251	236	84	115	79	120	65	80
Medium	63	65	6	11	39	114	2	3
Lower	10	5	1	1	13	3	2	4
UK total	324	306	91	127	131	237	69	87

C7 and C8 What have been the total revenues and costs from IP?

68. UK figures suggest that IP exploitation produces profits, and that income from IP has risen by more than protection costs. While the data are more reliable than in previous years, there were still nearly a third of HEIs whose IP income returned in the HESA FSR differed from HE-BI. This is most commonly due to different accounting methods used by IP specialist staff and those in the central finance office. Sixty-two HEIs made a net loss on IP activities in 2001-02, with a large proportion of IP revenue still going to a handful of institutions.

Figure C7
IP income and expenditure



C9 Is there a requirement within the HEI to report the creation of the following types of intellectual property?

69. The data show broadly balanced IP reporting requirements across the sector. The breakdown by research profile shows good levels of required reporting across nearly all categories; however, the higher research profile institutions are strongest in most categories.

Table C9

Proportion of HEIs that require IP creation to be reported, by research profile

	Research profile of HEI			UK total
	Higher	Medium	Lower	
Inventions	85%	56%	39%	60%
Computer software or databases	51%	38%	30%	40%
Literary or artistic works	7%	20%	20%	16%
Educational software and multimedia	38%	42%	30%	37%
Industrial designs	45%	45%	33%	41%
Trademarks	55%	53%	37%	48%
Integrated circuit topographies	31%	25%	19%	25%
New plant or animal varieties	49%	33%	20%	34%

C10 and C11 Are individuals rewarded by the institution for their intellectual property?

70. There has been a modest improvement in HEIs who reward staff for IP, although anecdotal evidence suggests that some of the more developed HEIs are treating IP as part of a more strategic approach to knowledge transfer.

Table C10

Number of HEIs that reward individuals for IP

	2001-02	2000-01
Yes	113	103
No	51	57

71. In this year's questionnaire a free text field was added for institutions to describe their IP reward policy. Approximately one-third of respondents added this information, and the results suggest that a wide spectrum of arrangements is in place. At the most basic level, some HEIs report a simple flat rate dispersal between inventor and HEI, although some employ a three-way split to include the department/research group. A significant proportion of those who responded seem to have more advanced systems in place, including a sliding scale of rewards. Informal networks such as the AURIL message board are seen as valuable for sharing good practice on IP management.

Section D: Consulting activities

72. Questions in this section refer to the provision of expert advice and work which, while it may involve a degree of analysis, measurement or testing (as in question B5), is crucially dependent on a high degree of intellectual input from the HEI to business. Such work is usually paid for at a market rate, and may deliver stronger IP rights to the business client than would apply in a collaborative research relationship. Where consultancy develops into research, the generation of new knowledge or understanding, it would more properly be recognised as research rather than consultancy, and the HEI would often expect to reap academic benefits.

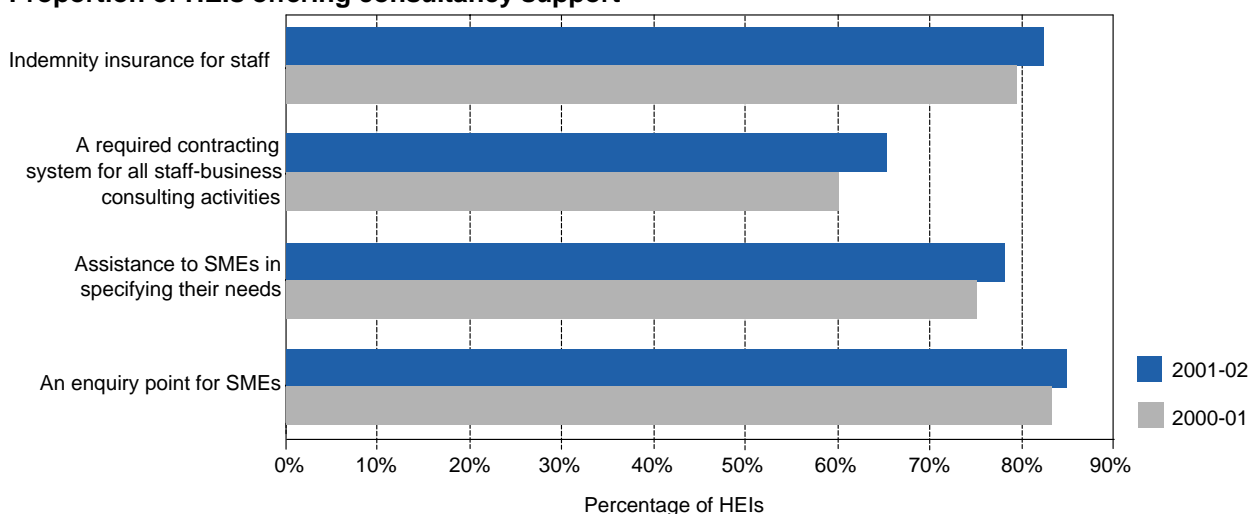
73. Data in section D relate to structure, process and volume measures. It is reported across the sector that it has been difficult to capture at an institutional level the full data from individual departments or schools, which may account for the somewhat erratic figures between survey years. There has been widespread development of consultancy capacity and some substantial increase in outputs.

D1 Does the HEI have a central dedicated unit which provides the following?

74. Development of consultancy activity as a central part of an institution's mission seems substantial: 85 per cent of HEIs offer an enquiry point for SMEs, and there has been a 5 per cent increase in HEIs providing a formal contract system for consultancy. Consultancy activity is a valuable proxy for knowledge exchange. While definitions need to be developed to improve the robustness of data collected, it is important to recognise that an HE-business interaction may include a range of activities variously described as consultancy, contract research, equipment services and in other ways.

Figure D1

Proportion of HEIs offering consultancy support

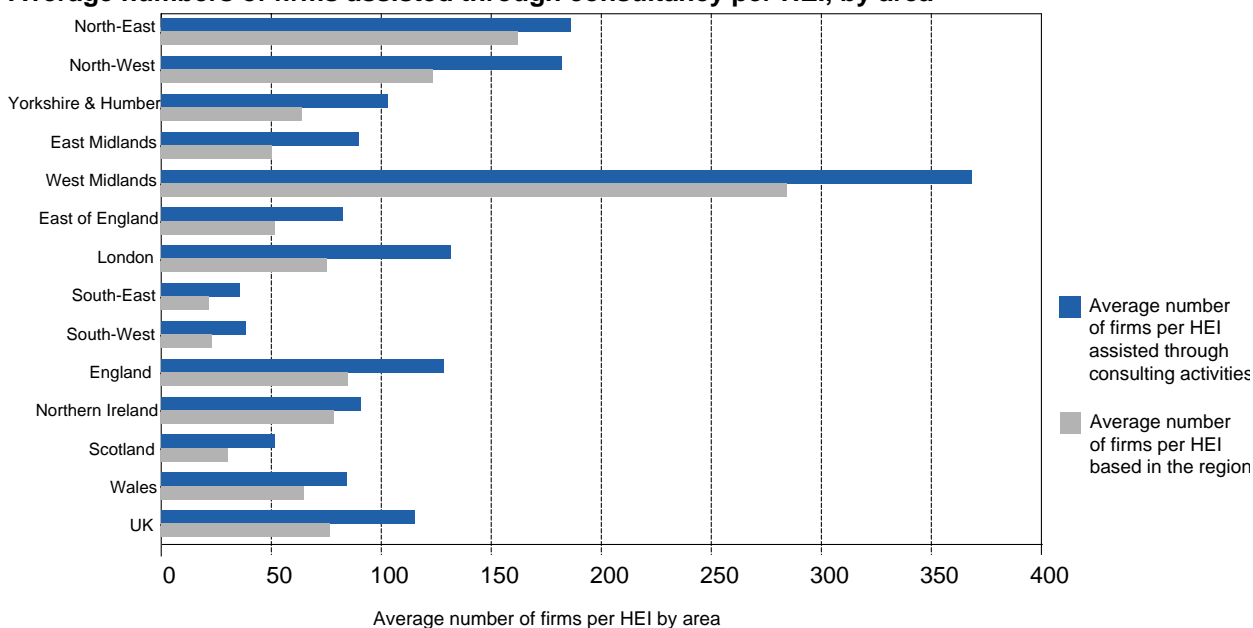


D2 How many firms have been assisted through consulting activities and what percentage have been based in the region?

75. There has been a slight increase in firms assisted through consultancy, although it is suggested that HEIs still cannot capture the full spectrum of their consulting activity. The West Midlands region's dominance in this question appears to be due in part to high activity levels but also to one HEI in particular confirming that it assists a surprisingly high number of firms. In all areas, the majority of consultancy is carried out within the same region as the HEI.

Figure D2

Average numbers of firms assisted through consultancy per HEI, by area



D3 What has been the total number of contracts and income from consulting handled through formal HEI channels?

76. There has been a substantial increase in income from consultancy, some of which is likely to be due to more complete responses. We approached a number of HEIs to query large changes between data returned in 2000-01 and 2001-02; as a result in a handful of cases the figure returned (and subsequently published) during the last survey period was revised.

77. Where number of contracts have fallen (medium research profile HEIs) one HEI has substantially increased its return, suggesting previously flawed collection; another HEI did not return figures for 2001-02 despite substantial figures for 2000-01. Overall, there has been an 18 per cent increase in income from consultancy returned between survey years.

Table D3

Average consultancy income and contracts per HEI, by research profile

Research profile of HEI	Average income per HEI (£000s)		Average number of contracts per HEI	
	2001-02	2000-01	2001-02	2000-01
Higher	1,467	1,307	135	134
Medium	397	374	41	75
Lower	363	265	46	32
UK total	745	647	74	80

D4 Does the HEI have a commercialisation company or department to manage consulting links and other external interactions?

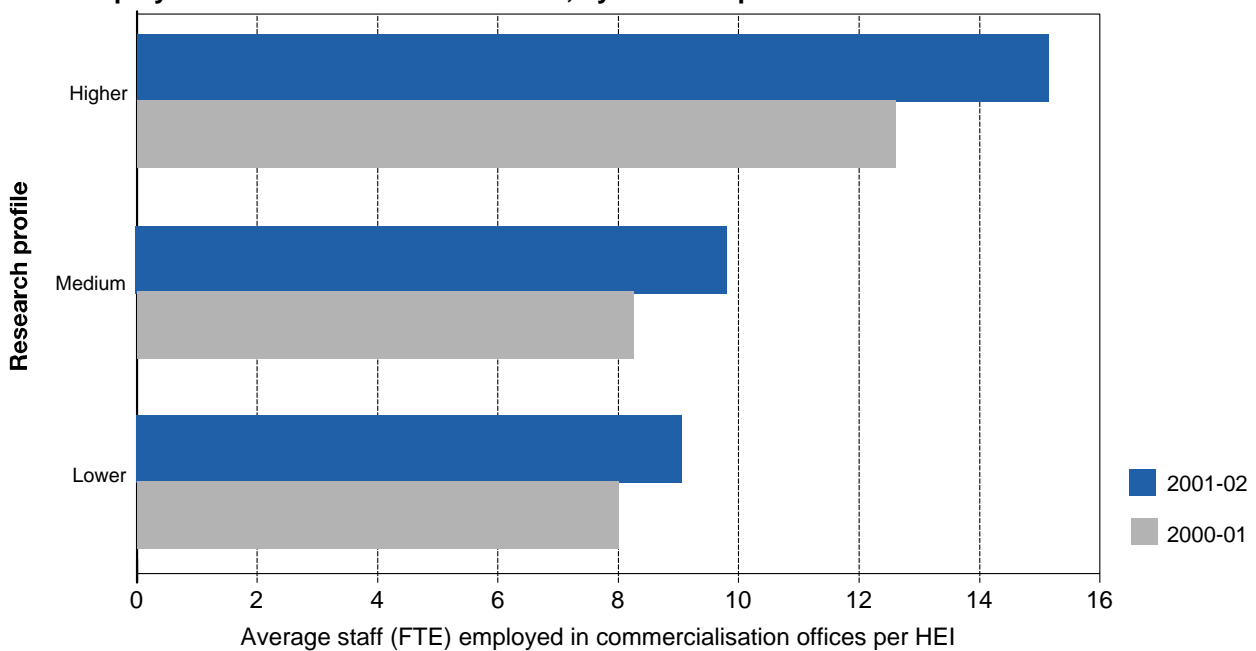
78. There has been an increase in the number of HEIs with internal departments to manage consultancy (from 60 to 74, with only 13 per cent of HEIs not having one). This question is a rather crude

indicator of culture change, but is likely to be a measure of capacity building supported by third stream funding.

D5 How many staff are employed in commercialisation and industrial liaison offices?

79. The upward trend in numbers of commercialisation staff noted in the previous survey continues with 1,836 full time equivalent (FTE) staff employed in 2001-02, an increase of 19 per cent. Evidence from monitoring of funding streams suggests that there are critical shortages in some areas; however, funding has recently been awarded by the OST to develop training provision for knowledge transfer practitioners (see OST web-site under Knowledge Transfer/Exploitation Funding). While, on average, the higher research profile HEIs tend to employ more staff, the average for the remainder is just over 9.5 FTE per HEI.

Figure D5
Staff employed in commercialisation offices, by research profile



Section E: Spin-off firms

80. Questions in this section refer to the establishing of new legal entities and enterprises created by the HEI or its employees to enable the commercial exploitation of knowledge arising from academic research. Such companies may or may not be partly owned by the relevant HEI, or by existing or previous members of the HEI. Other start-up companies may be formed by HEI staff or students, without the direct application of HEI-owned IP.

81. Since the focus of the survey, at its broadest, is on the economic or social impact of the HEI, the usual criterion to define a spin-off firm is that the new company would not have come into existence without intellectual input from the institution. Data were collected on volume (number of spin-offs and turnover) and support mechanisms provided. There has been substantial development of data capture systems since the previous survey, which explains some of the notable increases. Where an HEI is a shareholder, some company information is provided but may not be publicly available until accounts are filed with Companies House. Validation of data was a complex process, and confidence is higher for the number of spin-offs established than for financial information.

E1 Spin-off company numbers, staffing and turnover

82. This question remains hard for HEIs to fully answer due to the external nature of these companies once they have been set up. For all categories of spin-off, save graduate start-ups, there has been a slight reduction in numbers. However, there is a substantial increase in the number of institutions returning figures for turnover and staff numbers, suggesting that these increases should be viewed with caution. Anecdotal evidence suggests that spin-off numbers are not a useful indicator of the impact of third stream activity.

Table E1

Spin-off company numbers, staffing and turnover

		Spin-offs with some HEI ownership	Formal spin-offs, not HEI- owned	Staff start- ups	Graduate start-ups
Number established	2001-02	199	14	35	337
	2000-01	220	28	60	238
Number still active which have survived at least 3 years	2001-02	434	57	152	278
	2000-01	425	57	166	140
Estimated employment of all active firms (FTE)	2001-02	6,168	5,997	1,479	2,263
	2000-01	4,979	5,731	356	531
Estimated turnover of active firms (£000s)	2001-02	242,801	46,963	27,871	66,890
	2000-01	181,851	30,586	26,240	53,600

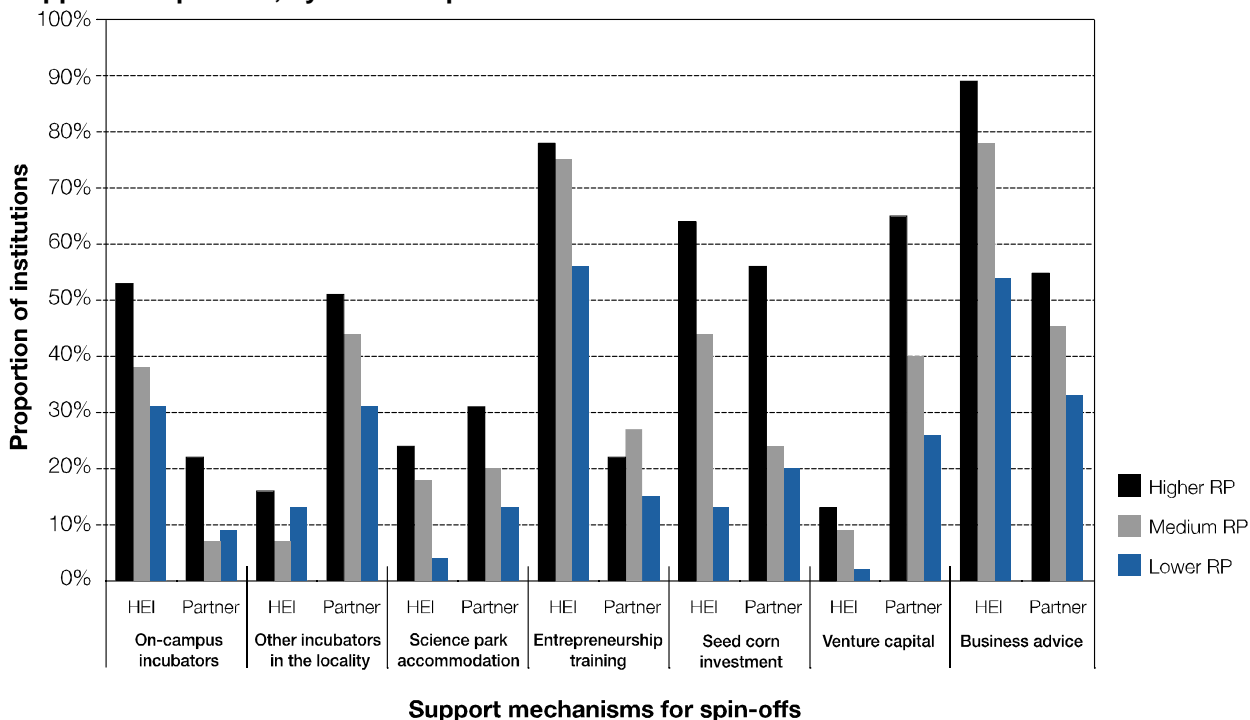
E2 What has been the income to the HEI from the sale of shares in spin-off companies during 2001-02?

83. The income from sale of spin-off shares has fallen from £30 million to £14 million, with only 12 HEIs returning any data at all. From the data returned, it appears that there has been an increase in income for those of a medium research profile this year. This indicator should be understood as a measure of the more volatile and unpredictable side of knowledge transfer, although it will be useful for tracking trends over a number of years. It is unlikely that indicators could be developed from sale of equity, although it is important information in understanding the complex nature of third stream activity.

E3 Does the HEI provide support for spin-offs through the following mechanisms, either provided by the HEI or in collaboration with a partner organisation?

84. Overall, there has been very little change in support for spin-offs since 2000-01, although higher levels of incubators are probably a good sign of increasing demand.

Figure E3i
Support for spin-offs, by research profile



85. Table E3ii shows the sum of support for spin-offs from HEIs and through partners where provision in an area is available through both routes, hence totals may exceed 100 per cent. Figures in bold are those below the England/UK percentage total (as appropriate), highlighting relatively less provision in the respective area. All categories in London appear below the national average, which is likely to be due to the high number of specialist HEIs in the region. Conversely, the North-East and West Midlands regions are above the English average in all categories.

Table E3ii

Sum of HEI- and partner-provided support for spin-offs, by area

Region or country	On-campus incubators	Other incubators in the locality	Science park accommodation	Entrepreneurship training	Seed corn investment	Venture capital	Business advice
North-East	60%	100%	60%	200%	120%	100%	180%
North-West	53%	67%	33%	93%	67%	73%	107%
Yorkshire & Humber	45%	45%	55%	73%	91%	55%	136%
East Midlands	67%	78%	44%	122%	78%	44%	144%
West Midlands	64%	73%	82%	127%	82%	82%	136%
East of England	56%	44%	44%	56%	56%	44%	89%
London	38%	33%	8%	51%	51%	28%	82%
South-East	39%	61%	44%	100%	78%	44%	133%
South-West	46%	38%	8%	77%	62%	23%	115%
England	51%	52%	33%	85%	68%	47%	113%
Northern Ireland	100%	100%	100%	200%	150%	150%	150%
Scotland	58%	63%	58%	105%	100%	68%	137%
Wales	69%	54%	31%	115%	77%	62%	138%
UK total	54%	54%	37%	91%	74%	52%	118%

Section F: Training and personnel links

86. Questions in this section refer to

- the process HEIs use to determine what training to make available to employers
- the arrangements for undergraduate placements in business.

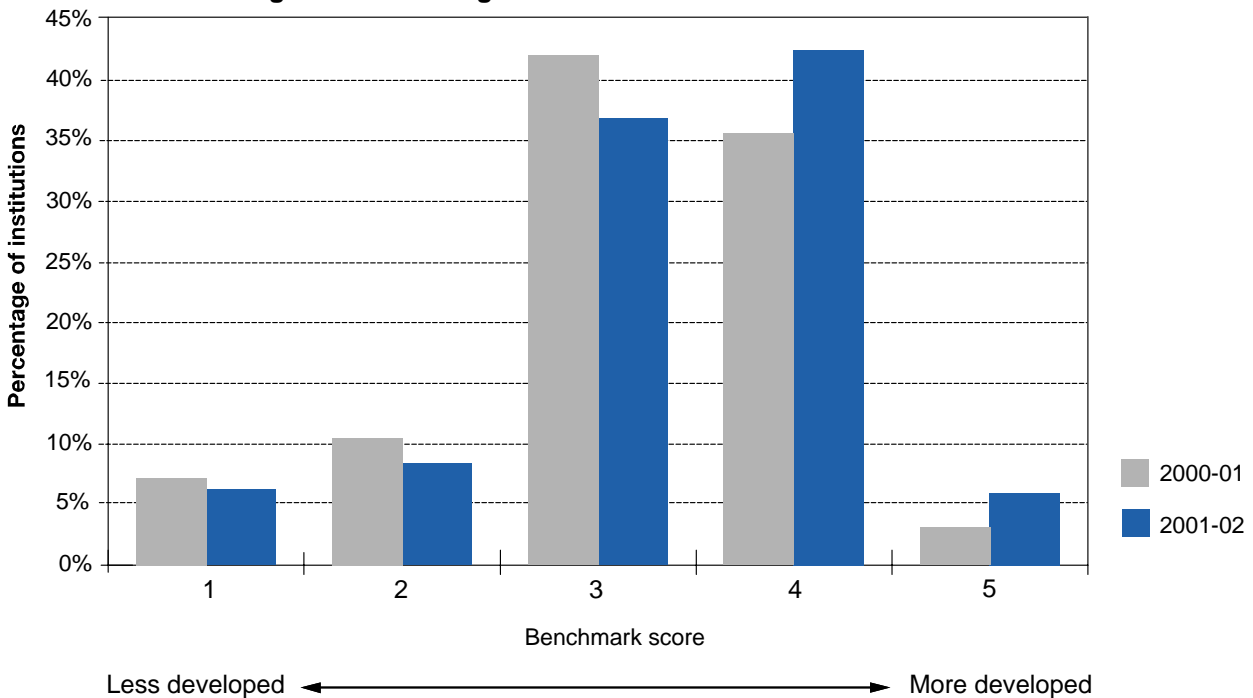
Interaction between staff, students and business is recognised as a key part of the higher levels of people movement and interaction that characterise much effective transfer or exchange of knowledge. Data relating to courses for business, while more completely reported than previous survey years, are still in need of clearer definition and centralised capture systems.

F1 To what extent does the HEI monitor skills needs and sectoral change though labour market intelligence (LMI), and take this into account in planning provision?

87. There has been a modest shift towards greater involvement with LMI, suggesting further strategic development. See Annex I for the benchmarking questions written out in full.

Figure F1

Labour market intelligence monitoring benchmark

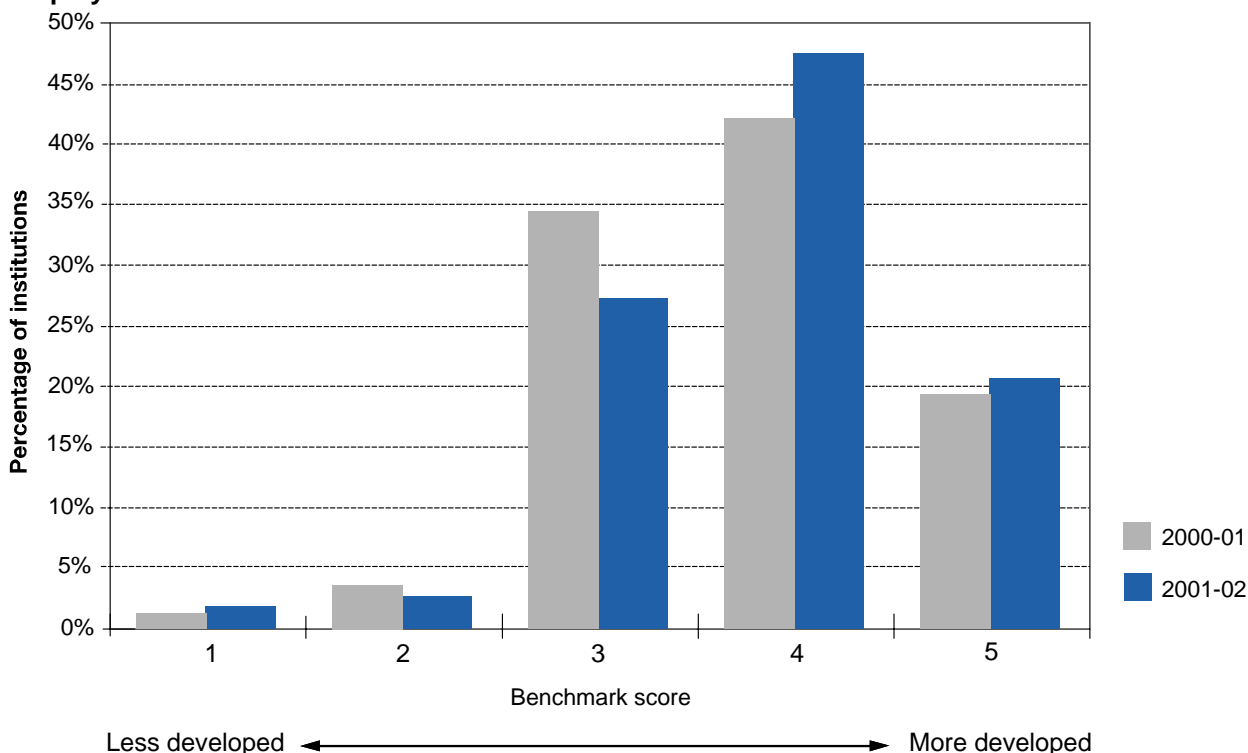


F2 To what extent do individual courses actively involve employers in the development of content and regular reviewing of the curriculum?

88. The results are similar to question F1 but with more HEIs in categories 4 and 5. This suggests further culture change within the sector. Nearly 70 per cent of the sector rates itself as more developed than the medium point of ‘some dialogue ... but limited for example to specific vocational areas’. See Annex I for the benchmarking questions written out in full.

Figure F2

Employer involvement in curriculum benchmark



F3 How many undergraduates undertake placements in business?

89. Data returned regarding student placements still seem to be volatile due to a lack of central capture. It appears that many large changes (for example, 'Other' placements in HEIs of a higher research profile) are due to a handful of large HEIs returning data for the first time for 2001-02.

Table F3

Proportion of undergraduates taking placements

Research profile of HEI	1 year sandwich placement	Shorter placements required for course	Optional placements organised by HEI	Other	Total
Higher	1.1%	4.1%	0.4%	3.6%	9.2%
Medium	3.6%	4.6%	0.7%	1.6%	10.5%
Lower	1.8%	7.3%	2.2%	0.7%	12.0%

Source: HE-BI survey 2003 and HESA student record 2001-02

F4 How are these placements organised?

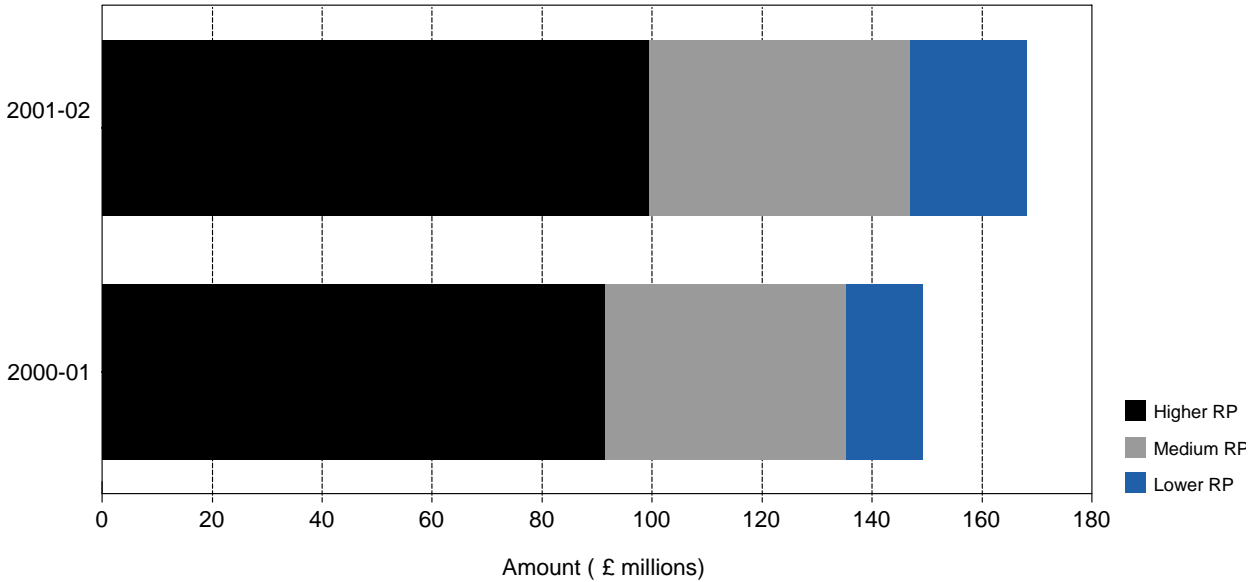
90. While there appears to be little change this year in the level of central handling of placements, there have been increases in other methods. In fact none of the categories have fewer placements compared with 2000-01. However, as multiple answers could be selected by HEIs, this increase could suggest a rise in activity that has not been strategically planned.

F5 Provision of courses for business, number of students and total income?

91. There are increases in both provision and income (12.5 per cent increase in income) from courses for business, although data on number of individuals (which were requested by FTE) were still impossible for many institutions to collate and return. This question remains particularly interesting to funding bodies

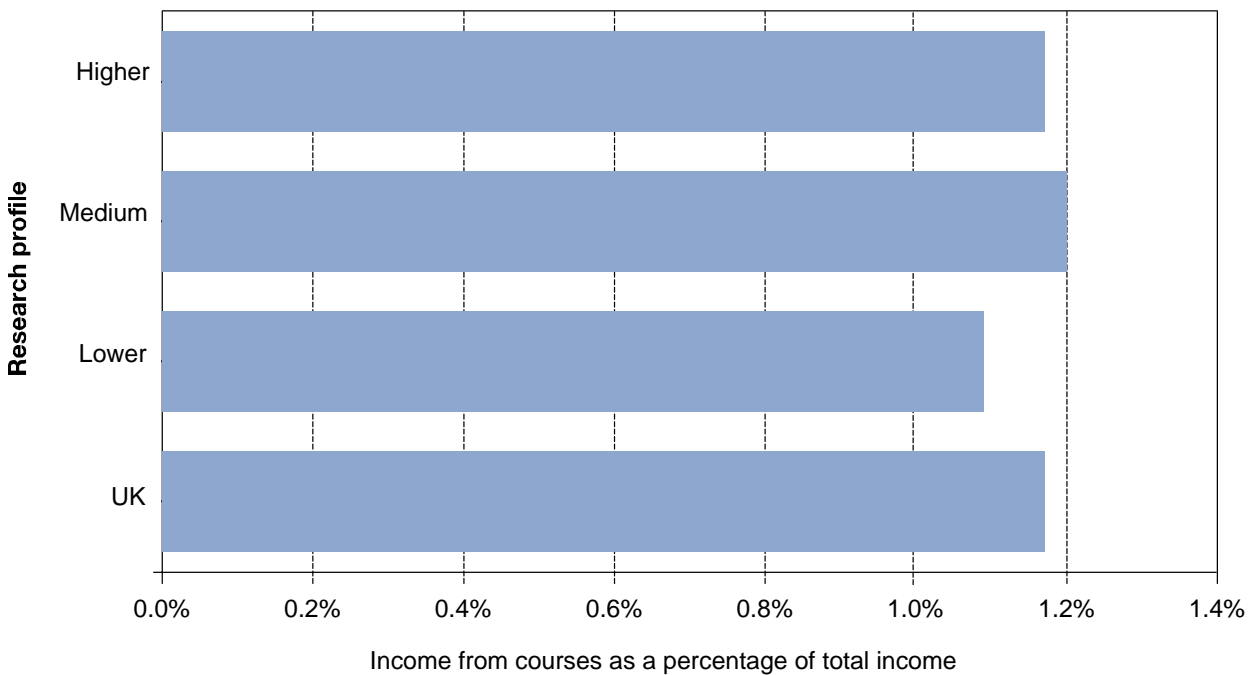
and institutions but will benefit from clearer guidance and time to be embedded in central management processes.

Figure F5i
Income from courses for business, by research profile



92. Additional analysis of continuing professional development (CPD) income as a proportion of total income shows the activity to be of comparable importance across the research profile. This suggests a potentially useful metric, providing collection becomes suitably reliable.

Figure F5ii
Income from courses for business as a proportion of total income, by research profile



Source: HE-BI survey 2003 and HESA Finance Statistics return 2001-02

Section G: Support for economic development activity (national and regional)

93. Questions in this section refer to the sources, scale and application by HEIs of various economic development funds and initiatives, and to the levels of engagement between HEIs and local and regional bodies. Data in this section suggest movement towards more strategic links with industry. The role of RDAs, Government Offices and other regionally based bodies with an economic development agenda is developing rapidly, including in partnerships with HE. This and the commitment to a permanent third stream of funding are likely to continue, resulting in substantial changes to the range and mix of HEIs' economic development activity.

G1 and G2 Has the HEI received funding from any of the following regeneration programmes (EU and UK) in 2001-02? If so, how much?

94. While there has been a drop in numbers of grants and funding from EU sources to UK HEIs, the total amount of regeneration funding increased by 7 per cent to just under £127 million. Much of this has been returned under Other. Where HEIs were asked to specify the other sources of funding, popular responses included RDA and third stream funding. While there has been a drop in total UK resource (both revenue and capital funding) from the European Regional Development Fund (ERDF), it appears that both the higher and medium research profile institutions have in fact received increased funding. However, data are still not robust, and one HEI accounts for much of the apparent increase.

Figure G1i
Number of HEIs receiving regeneration funding, by research profile

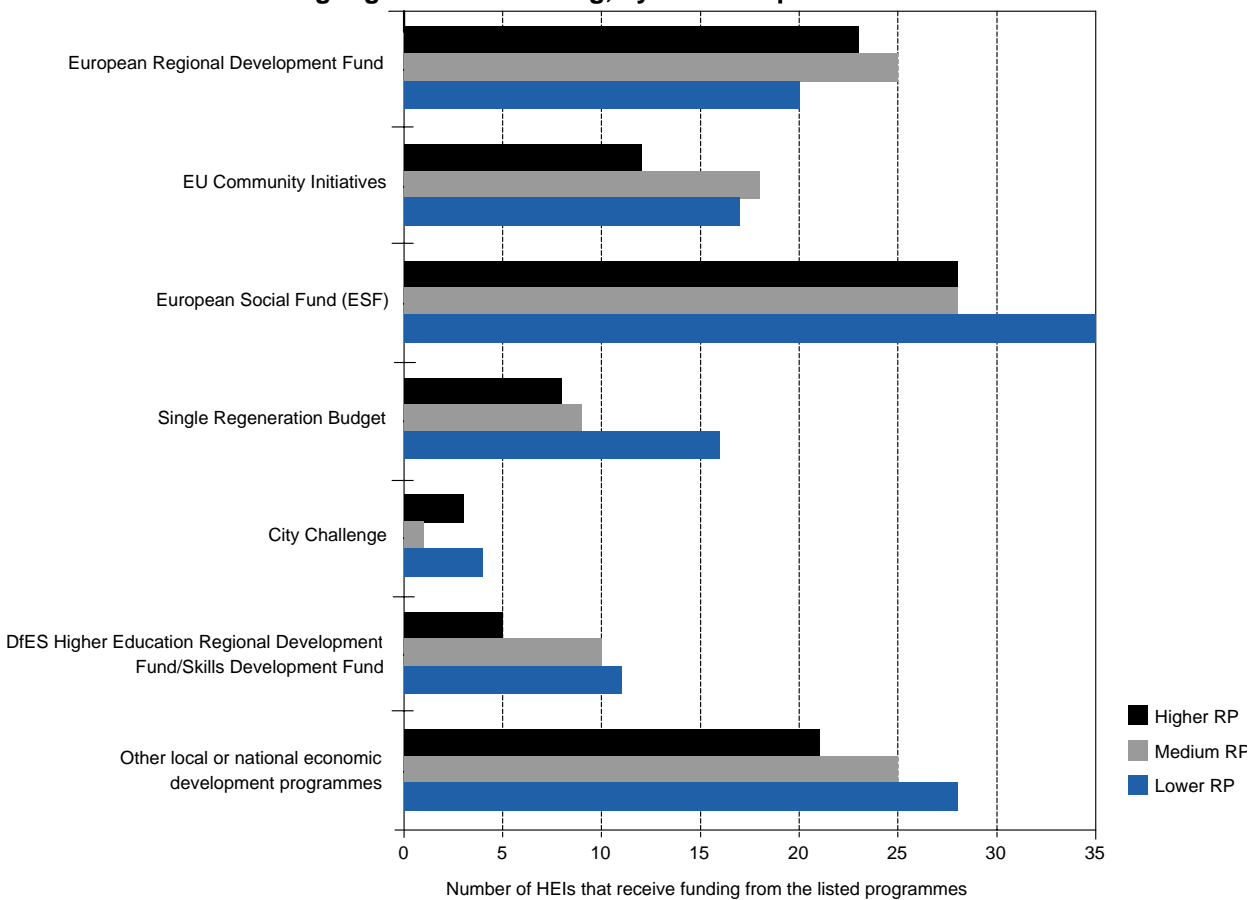
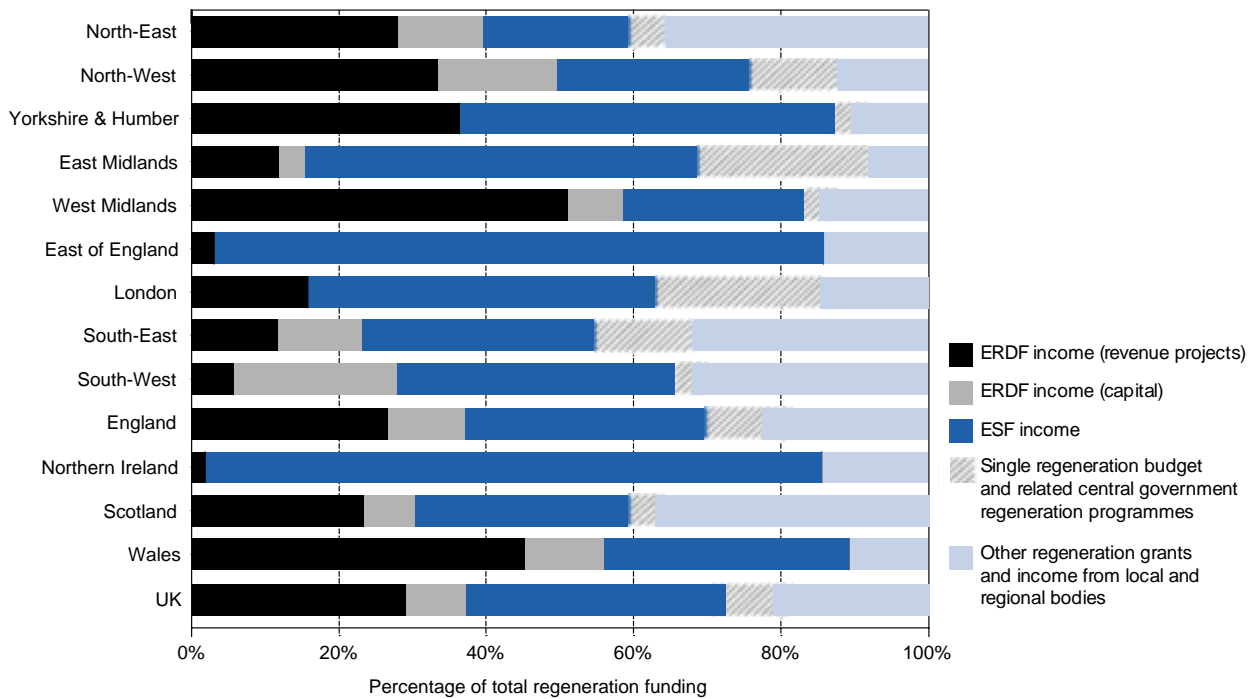


Figure G1ii
Proportion of regeneration funding, by area



G3 What role do regeneration programmes play for the HEI?

95. As may be expected, there have been no substantial developments in the application of regeneration funding between survey years, although it is worth noting the increase in building strategic links by HEIs across the research profile spectrum. Also, the North-East, West Midlands and Scotland are substantially above the UK average in building links with local industry. The South-East, South-West and Wales are all strong on the more general category of facilitating partnerships.

Table G3i

Role of regeneration funding within HEIs, by area

Region or country	Additional funds for teaching, training	Additional funds for research	Enabling capital projects – new building/ accommodation	Acquiring research equipment (used also by industry)	Building strategic links with local industry	Fulfilling regional mission through new services to industry	Facilitating partnerships	Enhancing knowledge of labour market needs	Enhancing redesign of curriculum	Facilitating community development	Other
North-East	60%	0%	40%	20%	80%	60%	20%	0%	0%	0%	20%
North-West	40%	13%	33%	7%	53%	47%	40%	0%	13%	33%	0%
Yorkshire & Humber	36%	18%	9%	0%	64%	36%	27%	0%	0%	27%	0%
East Midlands	67%	11%	33%	0%	33%	33%	33%	33%	11%	22%	11%
West Midlands	36%	9%	18%	18%	73%	73%	36%	0%	0%	9%	0%
East of England	22%	11%	11%	0%	56%	11%	22%	22%	22%	0%	0%
London	21%	21%	5%	5%	18%	18%	23%	8%	3%	21%	3%
South-East	33%	17%	11%	17%	39%	39%	56%	0%	6%	6%	0%
South-West	23%	15%	23%	8%	54%	31%	46%	15%	15%	15%	0%
England	32%	15%	16%	8%	43%	34%	34%	8%	7%	17%	2%
Northern Ireland	100%	50%	50%	0%	0%	100%	0%	0%	0%	0%	0%
Scotland	32%	11%	21%	11%	68%	47%	47%	0%	0%	11%	5%
Wales	46%	23%	15%	0%	54%	54%	77%	8%	0%	23%	0%
UK total	34%	16%	17%	7%	46%	38%	38%	7%	5%	16%	2%

Table G3ii

Role of regeneration funding within HEIs, by research profile

		Research profile of HEI			UK total
		Higher	Medium	Lower	
Additional funds for teaching, training	2001-02	33%	33%	37%	34%
	2000-01	40%	34%	43%	37%
Additional funds for research	2001-02	20%	20%	7%	16%
	2000-01	26%	26%	6%	19%
Enabling capital projects – new building/accommodation	2001-02	24%	13%	15%	17%
	2000-01	23%	11%	17%	18%
Acquiring research equipment (used also by industry)	2001-02	11%	5%	6%	7%
	2000-01	9%	8%	6%	8%
Building strategic links with local industry	2001-02	42%	53%	44%	46%
	2000-01	40%	49%	41%	43%
Fulfilling regional mission through new services to industry	2001-02	33%	45%	35%	38%
	2000-01	34%	40%	43%	39%
Facilitating partnerships	2001-02	36%	31%	48%	38%
	2000-01	32%	25%	54%	37%
Enhancing knowledge of labour market needs	2001-02	7%	2%	11%	7%
	2000-01	11%	4%	13%	9%
Enhancing redesign of curriculum	2001-02	2%	9%	6%	5%
	2000-01	0%	9%	13%	8%
Facilitating community development	2001-02	9%	16%	24%	16%
	2000-01	8%	15%	31%	18%
Other	2001-02	2%	4%	2%	2%
	2000-01	4%	4%	6%	4%

G4 Which of the following statements best describes your partnership arrangements with local and regional bodies?

96. While the North-East region stands out in the top bracket, it should be borne in mind that there are only a small number of HEIs and the region is relatively homogenous in terms of HE provision. In the UK as a whole 23 per cent of HEIs rate themselves in the highest category of 'active and creative engagement with community programmes'. See Annex I for the benchmarking questions written out in full.

Figure G4i

Partnerships with area bodies benchmark

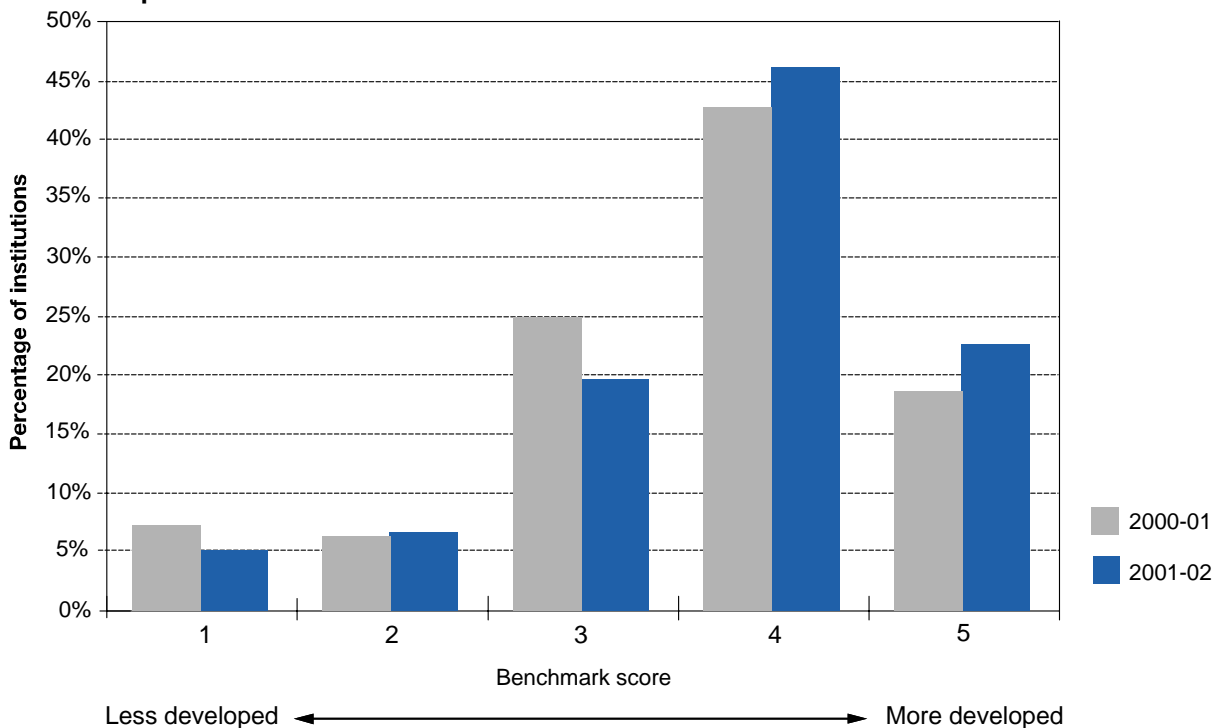


Table G4ii

Partnerships with area bodies benchmark, by area

Region or country	Benchmark score				
	1	2	3	4	5
North-East	0%	0%	0%	40%	60%
North-West	0%	7%	0%	53%	40%
Yorkshire & Humber	9%	9%	0%	55%	27%
East Midlands	0%	0%	0%	67%	33%
West Midlands	0%	0%	9%	45%	45%
East of England	0%	0%	22%	56%	22%
London	15%	13%	33%	33%	5%
South-East	0%	6%	28%	50%	17%
South-West	0%	8%	23%	54%	15%
England total	5%	7%	18%	47%	22%
Northern Ireland	0%	0%	0%	100%	0%
Scotland	5%	5%	32%	42%	16%
Wales	0%	8%	15%	38%	38%
UK total	5%	7%	20%	46%	23%

Less developed ← → More developed

Section H: Administration of the questionnaire

97. There is practically no limit to the amount and level of detail of reliable quantitative and qualitative data which could be obtained from the HE sector. However, the cost of collecting data rises steeply as the information departs further from what is directly useful and/or already available to HEIs for their own management purposes. Costs of data reporting can be measured simply in terms of time and employment, but it is also important to recognise the opportunity and potential demotivation costs incurred in increasingly onerous data gathering. The reliability of data is important and is best maintained when data are simple, repeatably gathered and locally valuable, avoiding any incentive to use inaccurate estimation.

H1 Approximately how much time was spent in completing this questionnaire, and what do you estimate was the cost to your institution?

98. The total reported cost to the sector for completing the survey was just under £163,000, approximately 7 per cent higher than the previous year. A number of institutions did not return estimates for the time and cost of completing the survey, commenting that it involved many people from across the institution and was impossible to calculate.

99. As may be expected, the exercise was more costly for institutions of higher research intensity. The cost will reduce as data collection systems for third stream activity are embedded.

Figure H1i

Average cost to the HEI of completing the HE-BI survey, by research profile

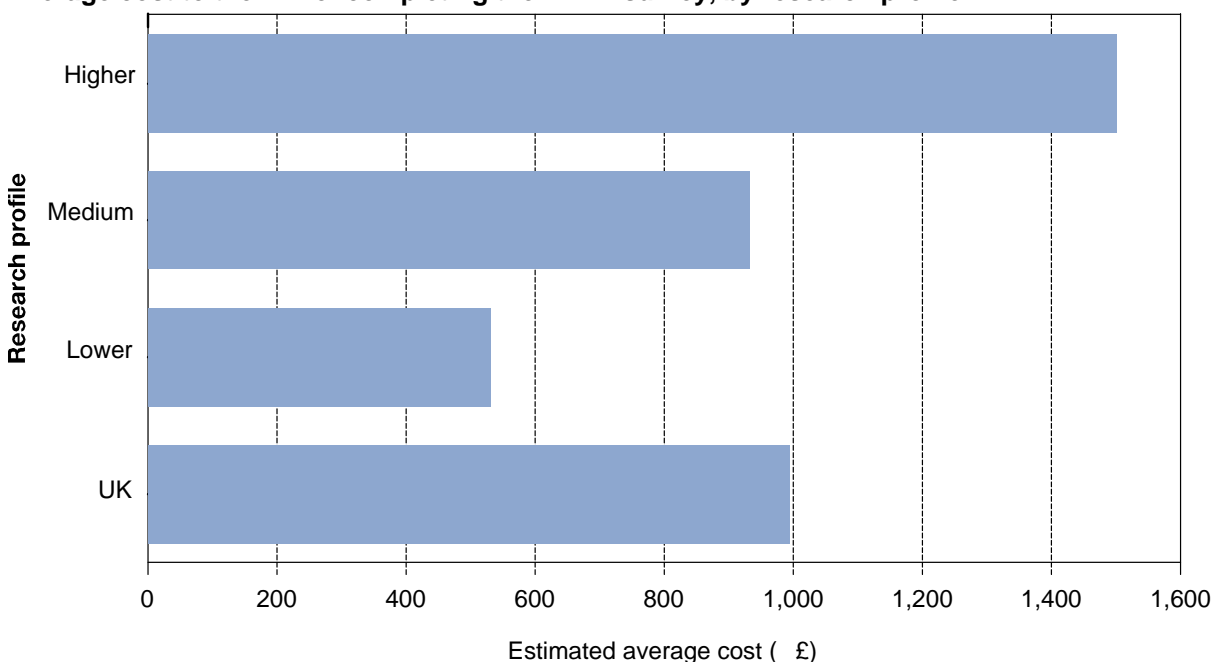
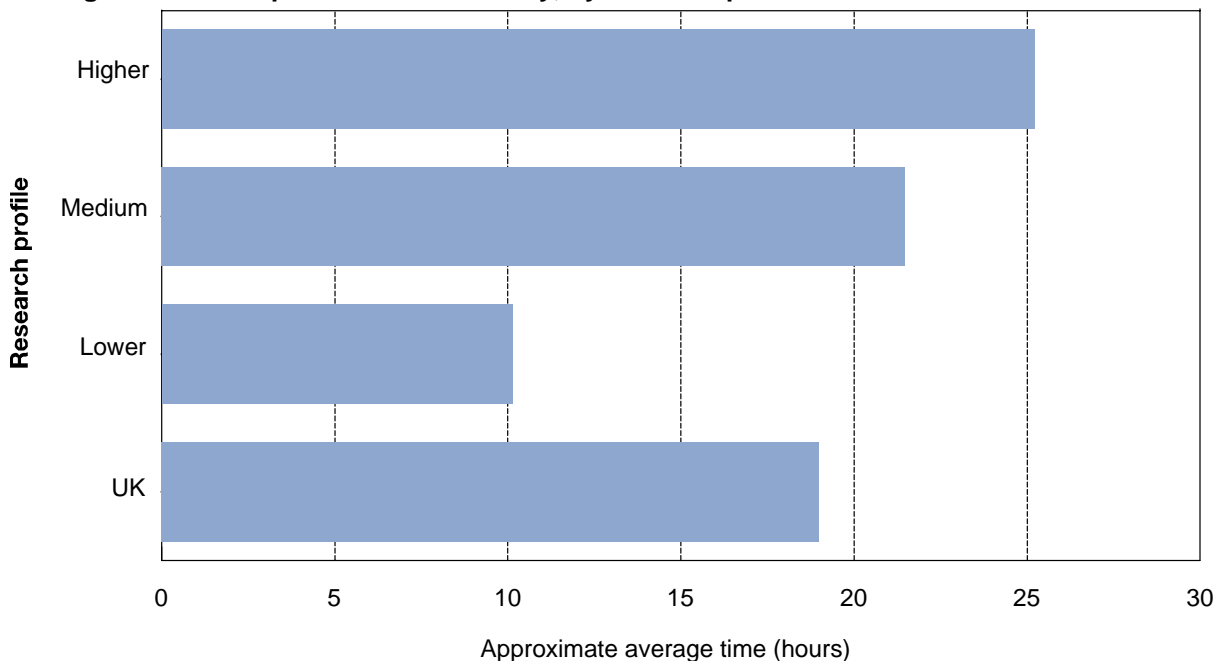


Figure H1ii

Average time to complete the HE-BI survey, by research profile



H2 Were any of the questions impossible to answer due to the unavailability of data?

100. While substantial progress has been made across the sector in implementing more sophisticated data capture systems, many institutions still find it difficult to return complex financial and numeric data. The sections most affected are B, C, D and E and in particular numbers and income from services to business (B5), consultancy income and contract numbers (D2 and D3) and detail on spin-off companies (E1). It is likely that until data requirements of funding bodies and HEI managers are more embedded, figures returned will be based to some extent on ad-hoc collection and therefore fluctuation.

101. With the proposed review of data collected under HE-BI (which will be undertaken to reflect significant developments in the strategic aims of the third stream since 2000), it is likely that there will be substantial changes to the questionnaire terminology and definitions, as well as what data are requested. While these developments will prejudice comparisons between 2001-02 data and the next survey, they will provide a far more defined route toward indicators that may inform funding.

Annex A Full results by area 2001-02 and 2000-01 (English regions 2001-02 only)

Annex B Full results by research profile 2001-02 and 2000-01

Annex C Questionnaire

These annexes can be downloaded from the HEFCE web-site under Publications.

Annex D

International comparisons

Analysis

1. In order to compare the UK HE sector with those of other countries, internationally equivalent statistics must be available. For the US and Canada the Association of University Technology Managers (AUTM) Licensing Survey collects information for North American HE institutions similar to that which is gathered in the HE-BI survey in the UK. Currently few other internationally comparable data are collected, although work has begun on benchmarking within the EU.
2. Comparing raw data is not 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. Benchmarking is also difficult because definitions used may vary from survey to survey, and AUTM samples only the top North American research institutions rather than the whole HE sector. For this reason some form of normalisation is needed to allow for valid comparison. The previous HE-BI and AURIL/UNICO-NUBS surveys used research expenditure as the most appropriate proxy for unit resource. The latest AURIL/UNICO-NUBS survey (2002) normalizes by the gross domestic product of each country. However, this is most likely to be of use to compare differences in the relative amounts of funding available in each country rather than benchmarking levels of research output.
3. US institutions in the AUTM survey generated 402 spin-offs from a research base of £19 billion, contrasting with 213 from £3 billion in the UK HE-BI survey during the reporting period. US institutions formed one spin-off for every £47.6 million of research expenditure compared with around £15 million per spin-off in the UK.
4. Formation of new spin-off companies and licence income are compared in the two surveys, but patent awards are not. This is because international differences in the handling of patent awards make them a less robust comparative indicator.
5. Licensing technology provides another route for income generation and for delivering benefit. Comparing licence income (excluding equity sales) as a percentage of research expenditure, US institutions generated 2.8 per cent compared to 1.1 per cent for UK institutions during the HE-BI reporting period. The UK percentage has almost doubled from the previous year.
6. Taken together, the licensing and spin-off data suggest that different strategies dominate the exploitation of IP in the US and UK. US institutions perform more strongly in licensing in comparison with the UK, where new spin-off companies are more likely to be formed.

Table A
Commercialisation activity in the UK and US, 2001-02

	US universities AUTM survey	UK HEIs HE-BI survey
Number of institutions	142	164
Research funding Industrial (000s)	£1,559,203	£198,295
Research funding Public (000s)	£12,268,264	£2,086,777
Total research funding (000s)	£19,144,424	£3,191,050
Licences	3,300	615
Licence income (000s)	£527,778	£33,641
Licence income as percentage of total research expenditure	2.8%	1.1%
Spin-off companies formed	402	213
Research £ expenditure per spin-out (000s)	£47,623	£14,981

Source of US data: AUTM Financial Year 2001 report

Notes to Table A

7. The total number of UK HE institution spin-off companies in Table A is taken from the HE-BI survey, including both those with some HEI ownership and those companies that use HE intellectual property as a basis for their operation.

8. The UK research expenditure is taken from the HESA FSR 2001-02, Table 6 Expenditure by Activity: Total research grants and contracts. This comprises aggregate research funding from OST Research Councils; UK charitable income; UK central government; local, health and hospital authorities; UK industry; commerce; public corporations; EU sources, and other overseas income. Excluded from the table are the Research Councils' block grant for research, the data for which can be obtained from HESA FSR 2001-02 Table 5b. Institutions are free to use their total block grant funds 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.

9. The US figures are from the AUTM survey. The number of start-up companies formed is divided by the total sponsored research expenditure. The start-up companies defined in this survey are those dependant on institutions' technology for initiation, and so are equivalent to those spin-off companies recorded in the UK's HE-BI surveys. Research expenditure is taken over the 2001 fiscal year and includes all research support committed to an institution even if the funds are to be spent over several years. It should be noted that Canadian institutions do not generally return staff salaries as research expenditure, and as no data are available it is not possible to provide a meaningful benchmark for these institutions.

10. The exchange rate used is the annual average for 2001 from the Bank of England and is 1.44 US dollars to the £.

References

Association of University Technology Managers Licensing Survey: FY2001
 University Companies Association – Nottingham University Business School: FY2002

Annex E

List of abbreviations

AURIL	Association for University Research & Industry Links
AUTM	Association of University Technology Managers
CASE	Co-operative Awards in Science and Engineering (postgraduate studentships)
EU	European Union
FSR	Finance Statistics Return (HESA)
FY	Financial year
HE	Higher education
HE-BI	Higher education-business interaction
HEFCE	Higher Education Funding Council for England
HEI	Higher education institution
HEIF	Higher Education Innovation Fund
HEROBC	Higher Education Reach-out to Business and the Community Fund
HESA	Higher Education Statistics Agency
IP	Intellectual property
NUBS	Nottingham University Business School
OST	Office of Science and Technology
RDA	Regional Development Agency
RP	Research profile
SME	Small and medium-size enterprise
UNICO	University Companies Association

Annex F

HE-BI Stakeholders group

Adrian Hill Higher Education Funding Council for England (Chair)

Patricia Ambrose Standing Conference of Principals

Catherine Benfield Higher Education Statistics Agency

Linda Bradley Department for Employment and Learning

Tim Bradshaw Confederation of British Industry

Teresa Cooper Higher Education Funding Council for Wales

Ian Harrison Department of Trade and Industry

Tim Horton HM Treasury

David Leech Engineering & Physical Sciences Research Council

Amber Longstaff Department for Education and Skills

Helen Mansfield Universities UK

Michael McPartlin Scottish Higher Education Funding Council

Gerhard Mors Scottish Executive

Glenys Timmons Office of Science and Technology

Officers

Adrian Day Policy officer, HEFCE

Laura Eastman 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

Bolton Institute of Higher Education
University of Central Lancashire
University College Chester
Cumbria Institute of the Arts
Edge Hill College of Higher Education
Lancaster University
University of Liverpool
Liverpool Hope University College
Liverpool John Moores University
University of Manchester
UMIST
Manchester Metropolitan University
Royal Northern College of Music
St Martin's College
University of Salford

Yorkshire & the Humber

University of Bradford
University of Huddersfield
University of Hull
University of Leeds
Leeds Metropolitan University
Northern School of Contemporary Dance
University of Sheffield
Sheffield Hallam University
Trinity & All Saints
University of York
York St John College

East Midlands

Bishop Grosseteste College, Lincoln
De Montfort University
University of Derby
University of Leicester
University of Lincoln

Loughborough University
University College Northampton
University of Nottingham
Nottingham Trent University

West Midlands

Aston University
University of Birmingham
University of Central England
Coventry University
Harper Adams University College
Keele University
Newman College of Higher Education
Staffordshire University
University of Warwick
University of Wolverhampton
University College Worcester

East of England

Anglia Polytechnic University
University of Cambridge
Cranfield University
University of East Anglia
University of Essex
University of Hertfordshire
University of Luton
Norwich School of Art & Design
Writtle College

London

Birkbeck College
Brunel University
Institute of Cancer Research
Central School of Speech and Drama
City University, London
Conservatoire for Dance and Drama
University of East London
Institute of Education
Goldsmiths College, University of London
University of Greenwich
Imperial College
King's College London
Kingston University
University of London
London Business School
London School of Economics & Political Science

London School of Hygiene & Tropical Medicine
The London Institute
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
RCN Institute
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 College
University of Surrey Roehampton
Thames Valley University
Trinity College of Music
University College London
University of Westminster
Wimbledon School of Art

South-East

University of Brighton
Buckinghamshire Chilterns University College
Canterbury Christ Church University College
University College Chichester
University of Kent
Kent Institute of Art & Design
King Alfred's College, Winchester
Open University
University of Oxford
Oxford Brookes University
University of Portsmouth
University of Reading
Royal Holloway, University of London
University of Southampton
Southampton Institute
University of Surrey
The Surrey Institute of Art & Design University College
University of Sussex

South-West

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

Northern Ireland

Queen's University Belfast
University of Ulster

Scotland

University of Aberdeen
University of Abertay Dundee
Bell College
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
The University of Paisley
Queen Margaret University College
Robert Gordon University
Royal Scottish Academy of Music and Drama
University of St Andrews
Scottish Agricultural College
University of Stirling
University of Strathclyde
UHI Millennium Institute

Wales

Cardiff University
University of Glamorgan
North East Wales Institute of Higher Education
Royal Welsh College of Music and Drama

Swansea Institute of Higher Education
Trinity College, Carmarthen
University of Wales, Aberystwyth
University of Wales, Bangor
University of Wales, Lampeter
University of Wales, Swansea
University of Wales College of Medicine
University of Wales College, Newport
University of Wales Institute, Cardiff

Annex H

Method (process) and robustness

1. The HE-BI 2001-02 survey covers the whole UK HE sector and its development has been overseen by the HE-BI Stakeholders group (members are listed in Annex F).

Survey design

2. While it was desirable to address some of the perceived ambiguities of the previous HE-BI survey (for academic year 2000-01) and limit the burden on all parties, it was decided that the questionnaire should be changed as little as possible this time, to allow comparisons to be drawn between the two years. Changes to some questions were made however, to increase reliability of the data.

Data collection

3. To allow the sector to prepare effectively for completing the survey, HEIs were given advance warning of it through HEFCE's Council Briefing, and 2000-01 respondents were contacted directly by e-mail. The basic questionnaire was sent to those who had not responded last year, while those who had responded to the previous survey received questionnaires that contained the HEI's data from 2000-01.

4. Data were collected electronically. Each HEI completed a questionnaire (in an Excel workbook) specific to the institution already containing its data from 2000-01, and data from these questionnaires were loaded onto a dedicated database at HEFCE.

Validation and robustness

5. All UK HEIs (as funded by the appropriate national body) responded to the survey, with the majority meeting the July 2003 deadline.

6. To ensure that the data are reliable, detailed validation and credibility checks have been applied throughout the survey. The questionnaires that institutions completed were subject to validation checks, to ensure that institutions had provided all necessary information, and to request confirmation of any suspect large changes in data between survey years (such as +/- 20 per cent).

7. Once data were loaded onto the dedicated database they were validated by:

- comparing data across all institutions and questioning outliers
- where appropriate, comparing data to those in HEIs' finance return to HESA, again checking back with institutions where data were inconsistent.

8. In a small number of cases, after questioning institutions, it was necessary to correct data previously collected for 2000-01.

9. Most of the discrepancies referred to in paragraphs 7 and 8 resulted from differences in accounting methods and variation of understanding or definition between individuals returning data. The HESA finance return is most commonly returned through each HEI's central finance office, whereas HE-BI returns came mainly from the senior third stream individual or office. In a number of cases it was found that the HE-BI figure was correct, indicating that the survey was helping to improve

the reliability of data collection in institutions. This further supports the case for a single route of reporting for key third stream data.

10. These checking procedures were thorough and time-consuming. Each apparent discrepancy was investigated directly with the responding HEI; this was a demanding process but essential to give the high level of confidence in the data.

11. Unless otherwise stated, data in this report are not subject to any further substantial validation concerns and would be useful in any analysis. Where qualifying comments on robustness of the data are needed, these are included within the discussion text of the question concerned.

Survey sample

12. As at 1 August 2001, 100 per cent of UK HEIs responded to the survey. The data set for 2000-01 has also been expanded to include three HEIs which joined the sector on 1 August 2001, but does not include data for the four HEIs who responded for the first time for 2001-02. When comparing absolute numbers (rather than percentages) between survey years, it should be remembered that there is a small difference in sample size (of four HEIs).

13. Data collected from the Scottish Agricultural College have not been included in this report. Funded by the Scottish Executive rather than SHEFC, SAC operates differently from other UK HEIs, and including its data would entirely mask institutions with less developed knowledge transfer activity.

14. Not all of the responding institutions completed every part of the survey questionnaire, but many have completed more of the survey this year than last. In these cases it is impossible to differentiate systematically between increases in activity and increases in reporting. However, some HEIs still find it difficult to return complex data, for example with regard to details of contracts with SMEs or performance of spin-off companies. Dissemination and exchange of good practice may facilitate this; the means of achieving this is under consideration.

Analysis and publication

15. Analysis has been handled by HEFCE's Analytical Services Group. The electronic returns were loaded into a dedicated bespoke database. The data were disaggregated by English region (for 2001-02 only), by nation and by research profile, and are represented by graphs and tables, with explanatory text where necessary. UK nations and English regions are collectively referred to by 'area' in tables and graphs (for example; Wales and the South-West are both referred to as areas in the HE-BI survey).

16. Research profile (RP) has replaced the term 'research intensity' used in the 2002 HE-BI survey to avoid any implication of a pre-determined categorisation of HEIs. However we still wish to provide information on how research income affects the sector's third stream priorities. For information on the calculation of research intensity or research profile, see paragraph 40 in HEFCE 2003/11.

HE-BI Stakeholders group

17. Throughout this process the HE-BI Stakeholders group was consulted regarding presentation of information, usefulness of the forms of analysis and comparisons, and the structure of the report.

Annex I Benchmark descriptions

Benchmarking questions have three statements describing a spectrum of development in the relevant area. The higher the number the greater the level of development. In all cases the statements are labelled 1 (least developed), 3, and 5 (most developed). A response of 4 suggests benchmarking at a level that falls between statements 3 and 5.

A2 Does the HEI have a strategic plan for business support?

1	2	3	4	5
No strategic plan in place. Ad hoc approach to business support.		Strategic plan developed and only partially implemented, or restricted to certain departments or central functions only.		Strategic plan developed as a result of an inclusive process across the whole HEI. Accepted across almost all units and recommendations implemented. Use of plan to set targets and monitor achievement.

A5 Is the HEI involved in the development and implementation of regional skills strategies in terms of the provision of expertise and data and the involvement of senior HE staff in regional partnerships?

1	2	3	4	5
Passive response to skills strategies. No involvement in steering committees, no provision of data or expertise. No attempt to influence or respond to strategy during consultation.		Some engagement with regional partners and provision of expertise and data, but approached as a narrow sectoral interest. Involvement from officers with defined role rather than leadership inputs.		Pro-active engagement providing expertise, data, interpretation and leadership inputs. HEI seen as a core asset in the region and a central element within the skills strategy.

A8 How would you rate the level of incentives for your staff to engage with industry and commerce?

1	2	3	4	5
Barriers outweigh any incentives offered. General corporate culture is focused on internal activities and narrow interpretation of teaching and research. Collaboration with industry seen by staff as detrimental to career progression.		Some incentives in place, but with some barriers remaining. Typically policy may be generally supportive but there is a lack of understanding across the institution. Promotions committees still take a narrow focus on research even though guidance suggests industrial collaboration is valued equally.		Strong positive signals given to all staff to encourage appropriate levels of industrial collaboration. Incentive procedures well established and clearly understood and applied.

F1 To what extent does the HEI monitor skills needs and sectoral change through labour market intelligence (LMI), and take this into account in planning provision?

1	2	3	4	5
No monitoring of skills, general use of LMI, or collaboration with employers.		Moderate responsiveness – some changes in provision based on forecasting of demand using LMI, but little ongoing dialogue with employers and other bodies. LMI would typically be examined in central service units but not disseminated and used in departments.		Sophisticated monitoring systems at HEI level, with provision of appropriate data to individual departments. Evidence that information from LMI and employer suggestions are acted upon at central and departmental levels.

F2 To what extent do individual courses actively involve employers in the development of content and regular reviewing of the curriculum?

1	2	3	4	5
No links with employers in development of locally oriented courses or overall shaping of the curriculum.		Some dialogue with employers and other bodies about the nature of courses, but limited for example to specific vocational areas, or one-off exercises.		All departments regularly consult with employers and other partners on curriculum where relevant. Specialist subjects are kept up to date and relevant to the labour market. More generic skills developed in all courses as required.

G4 Which of the following statements best describes your partnership arrangements with local and regional bodies?

1	2	3	4	5
No engagement with community regeneration schemes, apart from individual efforts.		Some representation of the HEI on local partnerships at senior management level, but with limited implementation capability. Main focus is on research role and possible property development role.		Active and creative engagement with community programmes, with the HEI taking a leadership position and applying a wide variety of resources. Community regeneration seen as a mainstream activity with role for access policy, link to student community action and staff involvement as part of staff development.