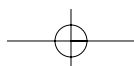


# UK University Commercialisation Survey: Financial Year 2004



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## October 2005

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# Foreword

The data in this survey report for the financial year 2003-2004 are collected from 106 institutions, an increase of 31 participants compared with last year, including 47 of the top 50 UK universities (by research income). This data provides a valuable representation of the commercialisation activities of UK universities and UNICO is extremely grateful to all those that participated in this year's survey. UNICO extends its gratitude to the Association of University Technology Managers (AUTM) for advanced sight of its survey of US universities for comparative purposes and to Professor Sir Keith O'Nions, Director General, Research Councils, for his support.

In summary, university technology transfer activity in the UK shows a stable trend and continues to expand and receive the support of the academic community. This trend indicates a steady increase in the number of people employed in commercialisation activity together with an increase in the number of invention disclosures. UNICO surveys illustrate a continual increase in licensing activity over the last 4 years with an increase in the total licensing income from £31.3m in 2003 to over £40m in 2004. Notably, the number of licence agreements has more than doubled during this period. The decrease in the amount of funding allocated to intellectual property protection is, however, of concern and may indicate that some universities are not able to access sufficient funding for this activity.

An increase in the total number of spinout companies established is reported, although it is noteworthy that compared with last year fewer universities hold shares in their spinouts. This may have been due to the introduction of Part 7, Income Tax Earnings & Pensions Act 2003 (Schedule 22). In this respect, UNICO is grateful to the Inland Revenue for working in close consultation with our board members to resolve the situation for academic founders in December 2004. Of the total spinouts established in 2004, 35% raised external investment finance indicating the creation of "investment ready" ventures appreciated by the investment community. It is apparent, however, that fewer university spinouts are being established with the use of University Challenge Seed Funds. This is presumably due to the fact that these funds are drawing to a close which may lead to a funding gap for this activity.

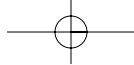
The survey illustrates, that whilst some UK universities are not engaged in the commercialisation of intellectual property in any substantial way, others are international benchmarks of excellence and commit significant resource to this area of activity. Commercialisation activity in many UK universities is still in its infancy, with 30% of participants having only starting their activities as recently as 2000. A comparison with US universities indicates that UK universities are spinning out more companies, but generate less licence income (per unit of research funding).

As regards the future, UNICO is confident that its activities, together with those of Praxis and AURIL will continue to bridge the knowledge gap between the more experienced university technology transfer offices and those less advanced. Earlier this year UNICO and Praxis formed a strategic alliance which will result in a better and clearer service to those involved in the academic technology transfer and commercialisation sector. In addition, UNICO is working with AUTM with regard to future surveys and a jointly hosted conference in the UK in December 2005.

UNICO looks forward to continue working with its membership to promote technology transfer in UK universities.

**Dr Nick Bourne**

On behalf of UNICO

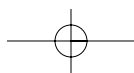
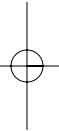
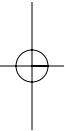


# Introduction

This report covers the fourth survey of UK University Commercialisation Activities. The study provides information on trends in the commercialisation of academic research by UK institutions. The report contains information on commercialisation in terms of invention disclosures, patenting, licensing and the creation of new spinout companies.

The research was conducted from April to June 2005 and asked institutions about their commercialisation activities during the 2004 financial year. It was conducted on behalf of UNICO, the organisation that represents knowledge commercialisation professionals in the UK

For further information regarding this project, please contact Sachin Dodhia at Experian on [Sachin.Dodhia@uk.experian.com](mailto:Sachin.Dodhia@uk.experian.com)



# Executive Summary

106 institutions took part in the FY2004 survey. This represents a large increase from the previous year and in order to get a more accurate reflection of the true changes between FY2004 and FY2003, analysis between institutions that took part in both financial years has been carried out. This will help give a more accurate representation of trends, as it will not be affected by the increase in sample size.

## Commercialisation Office Activities

- Employment in commercialisation activities shows a stable trend. A median value of five FTEs are being employed per institution with a total of 1,019 FTEs being employed by all the respondents during FY2004.

## Invention Disclosures and Patents

- A total of 2,871 new invention disclosures were received during FY2004. Within the matched sample, an average of 36 new invention disclosures were received per institution compared to 32 during FY2003.
- The average number of new patents filed (11) and granted (7) has remained at a similar level to FY 2003 (matched sample). 885 new patent applications were filed during FY2004 with 569 being granted (whole sample).
- A greater proportion of new patents were granted from outside the UK. A fifth of new patents were granted in the UK.
- Expenditure on IP protection has fallen during FY2004. On average, £146K was spent per institution during F2004 compared to £175K during FY2003 (matched sample). £12 million was spent in total on IP protection during the last financial year.

## Licensing Activity

- Licensing activity has increased with the average number of LOAs (licences, options and agreements) executed rising from eight per institution during FY2003 to 20 per institution during FY2004 (matched sample). This is largely due to the significant increase in the average number of licence agreements (from five in FY2003 to 18 in FY2004). In total, the respondents executed 1,406 LOAs during FY2004.
- The average amount of revenue generated from LOAs has risen for respondents within the matched sample (from £277K in FY2003 to £315K in FY2004). In total, £40.3 million was generated as licence income from all the respondents with £24.3 million coming from Higher Education Institutions.

## Spinout Company Activity

- The average number of spinout companies formed per institution has risen from two in F2003 to three in FY2004 (matched sample). In total, all the respondents formed 229 new spinout companies during FY2004.
- 52 per cent of the spinout companies formed during FY2004 are part or fully owned by the institutions that formed them. 850 existing spinout companies have shares held in them by the institutions that created them.
- 35% of the spinout companies formed during FY2004 were funded through external investment funding. 11 per cent raised investment through UCSF and 24 per cent through non-UCSF funding.

# Summary Tables

## ALL INSTITUTIONS <sup>1</sup>

|  | FY2004      |          | FY 2003     |          | FY 2002  | FY2001   |
|--|-------------|----------|-------------|----------|----------|----------|
|  | Sum         | Mean     | Sum         | Mean     | Mean     | Mean     |
| FTEs   | 1,019       | 10       | 709         | 10       | 6        | 5        |
| Invention disclosures received                 | 2,871       | 28       | 2,157       | 31       | 18       | 14       |
| Priority patent applications filed             | 885         | 9        | 826         | 11       | 9        | 8        |
| Patents granted – total                        | 569         | 6        | 669         | 10       | 3        | 3        |
| Patents granted – UK                           | 141         | 1        | 118         | 2        |          |          |
| Patents granted – US                           | 130         | 1        | 98          | 2        |          |          |
| Patents granted – Other                        | 298         | 3        | 453         | 8        |          |          |
| IP protection expenditure                      | £12,006,571 | £116,569 | £12,591,138 | £170,151 | £93,090  | £85,184  |
| LOAs executed                                  | 1,406       | 14       | 596         | 8        | 5        | 4        |
| Licence agreements executed                    | 1,188       | 12       | 333         | 5        |          |          |
| Option agreements executed                     | 100         | 1        | 101         | 2        |          |          |
| Assignment agreements executed                 | 118         | 1        | 162         | 3        |          |          |
| LOAs yielding income                           | 2,148       | 21       | 775         | 11       |          |          |
| Licence income received                        | £40,344,543 | £395,535 | £31,370,187 | £429,729 | £178,992 | £165,836 |
| Spinout companies set up                       | 229         | 2        | 151         | 2        | 1        | 2        |
| Spinout companies shares held in               | 118         | 1        | 140         | 2        | 1        | 2        |
| Spinout companies raised through UCSF          | 26          | 0        | 34          | 1        |          |          |
| Spinout companies raised through other sources | 54          | 1        | 63          | 1        |          |          |
| Existing spinout companies shares held in      | 850         | 8        | 683         | 9        |          |          |

<sup>1</sup> 106 institutions

**MATCHED SAMPLE <sup>2</sup>**

|  | FY2004      |          | FY 2003     |          |
|--|-------------|----------|-------------|----------|
|  | Sum         | Mean     | Sum         | Mean     |
| FTEs   | 665         | 10       | 602         | 10       |
| Invention disclosures received                 | 2,257       | 36       | 1,897       | 32       |
| Priority patent applications filed             | 721         | 11       | 729         | 12       |
| Patents granted - total                        | 441         | 7        | 438         | 7        |
| Patents granted - UK                           | 121         | 2        | 94          | 2        |
| Patents granted - US                           | 108         | 2        | 82          | 2        |
| Patents granted - Other                        | 212         | 4        | 262         | 5        |
| IP protection expenditure                      | £9,176,814  | £145,664 | £11,004,057 | £174,668 |
| LOAs executed                                  | 1,251       | 20       | 506         | 8        |
| Licence agreements executed                    | 1,088       | 18       | 298         | 5        |
| Option agreements executed                     | 71          | 1        | 79          | 2        |
| Assignment agreements executed                 | 92          | 1        | 129         | 2        |
| LOAs yielding income                           | 1,490       | 24       | 728         | 12       |
| Licence income received                        | £19,824,867 | £314,680 | £17,459,415 | £277,134 |
| Spinout companies set up                       | 189         | 3        | 130         | 2        |
| Spinout companies shares held in               | 89          | 1        | 121         | 2        |
| Spinout companies raised through UCSF          | 20          | 0        | *           | *        |
| Spinout companies raised through other sources | 43          | 1        | 55          | 1        |
| Existing spinout companies shares held in      | 635         | 10       | 581         | 9        |

\* Sample size invalid

<sup>2</sup> 64 institutions

# 1 Commercialisation Office Activities

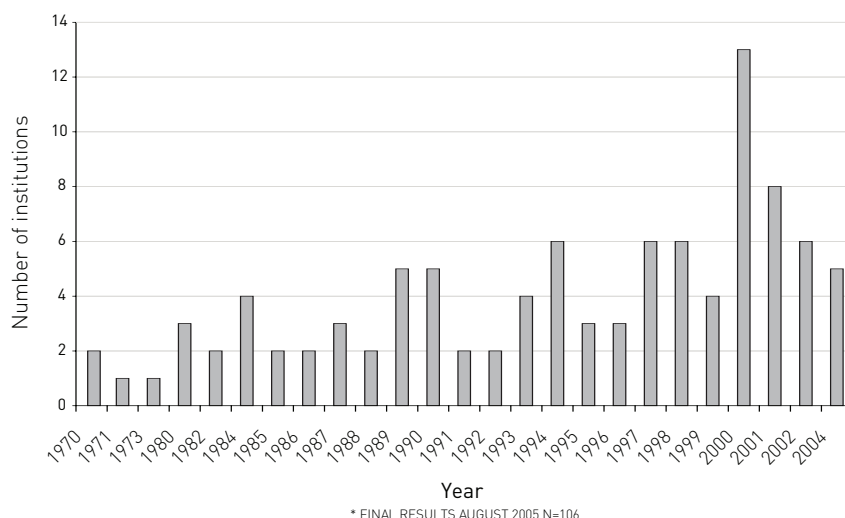
Commercialisation is the process through which research discoveries are brought to the market place and new ideas or discoveries are developed into new products, services or technologies that are sold around the world.

Universities and research institutions are increasingly recognised as being among the world leaders in the development of new scientific knowledge. The full potential of this knowledge is realised when it is converted into new and better products and services. This process is called commercialisation - the bridge between the worlds of science and business.

## 1.1 INITIATION OF UNIVERSITY COMMERCIALISATION ACTIVITIES

Commercialisation activities have steadily increased since the early 1980s and this has continued throughout the 1990s (see Figure 1). A large proportion of institutions started their commercialisation activities between 1997 and 2004 with 30 per cent of institutions starting since 2000. The number of institutions dedicating staff towards commercialisation activities has also steadily increased since the early 1980s and by the end of the 2004 financial year (FY2004), over 79 per cent of institutions had at least two full time equivalent employees (FTEs) in commercialisation activities.

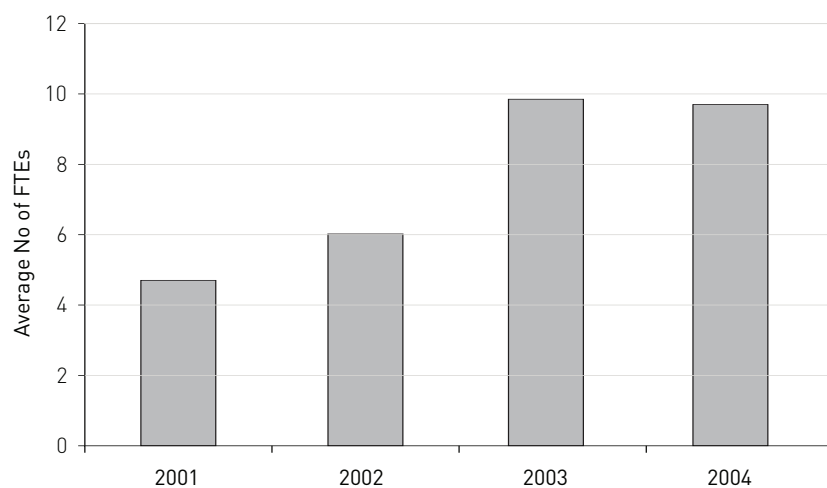
**Figure 1: Year in which university started commercialisation activities**



## 1.2 EMPLOYMENT IN COMMERCIALISATION ACTIVITIES

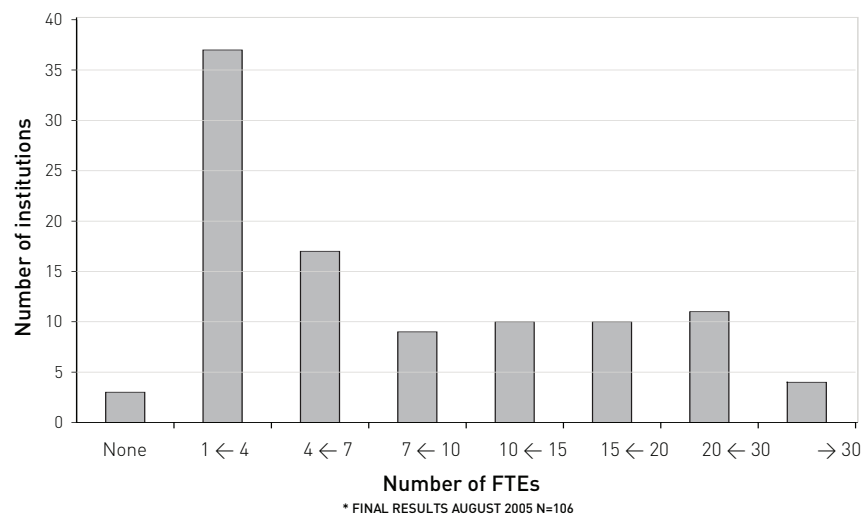
Employment in technology transfer and commercialisation activities has been increasing over the past few years. This is not surprising given the increase in activities in commercialisation in recent years. Looking at Figure 2, there has been a steady increase in the average number of full-time equivalents employed in commercialisation activities between 2001 and 2003. At the end of the 2004 financial year, the total number of FTEs employed in technology transfer and commercialisation activities was 1,019 across all respondents. During FY2004, an average of 10 FTEs were employed per institution, the same level as in FY2003, an increase of four from 2002 (average of six FTEs) and an increase of five from 2001 (average of five FTEs).

Figure 2: Average number of FTEs employed in commercialisation activities FY2001-2004



Looking at Figure 3, we are able to see the majority of institutions employ between one and four FTEs while 14 per cent of institutions have more than 20 FTEs indicating there is a great deal of variance in the number of FTEs each institution employs. Given this, a median value of five employees per institution might be more representative of the sample.

Figure 3: Number of FTEs employed in commercialisation activities FY2004



### 1.2.1 Matched Sample Analysis

In order to get a more accurate reflection of the true changes between FY2004 and FY2003, it is worth investigating changes between institutions that took part in both financial years. This will help give a more accurate representation of trends, as it will not be affected by the increase in sample size.

Looking at Figure 4, the total number of FTEs employed in technology transfer and commercialisation activities has increased from FY2003. A total of 665 FTEs were employed in FY2004 compared to 602 in FY2003 showing that on a like for like basis, employment has increased.

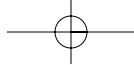
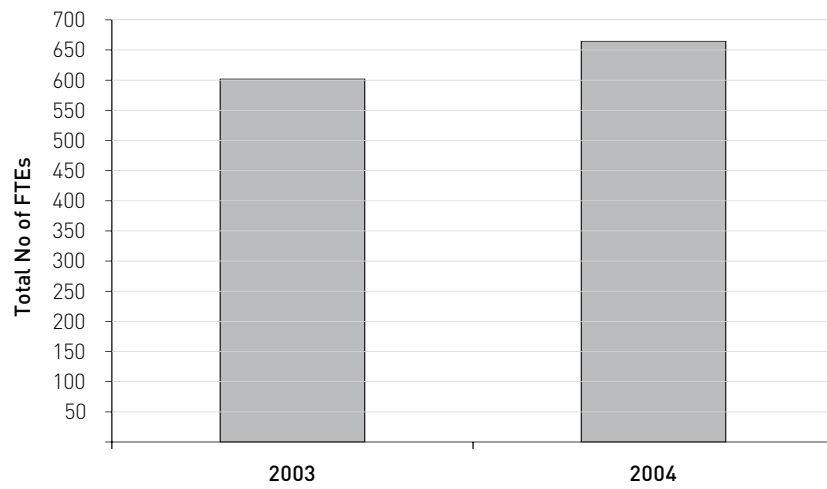
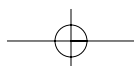
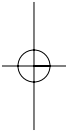
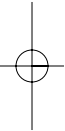


Figure 4: Total number of FTEs employed in commercialisation activities FY2003-2004 (matched sample)



The average number of FTEs employed per institution in commercialisation activities has remained at the same level (10 FTEs).



## 2 Invention Disclosures and Patents

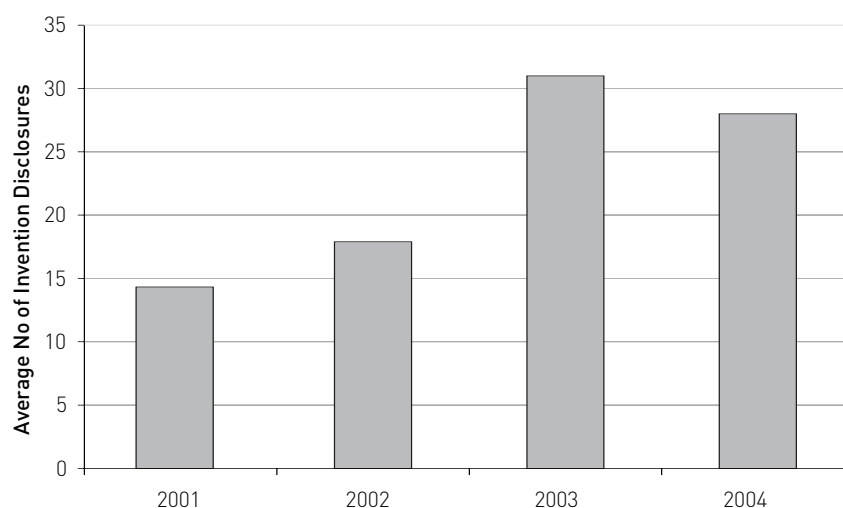
An Invention Disclosure is the document that describes a discovery or a development, names the contributors to that discovery, and provides many other key pieces of information needed to determine if an invention - a discovery that can be protected under patent law - has been made.

A patent gives an inventor the right for a limited period to stop others from making, using or selling the invention without the permission of the inventor. When a patent is granted, the invention becomes the property of the inventor, which - like any other form of property or business asset - can be bought, sold, rented or hired.

### 2.1 INVENTION DISCLOSURES

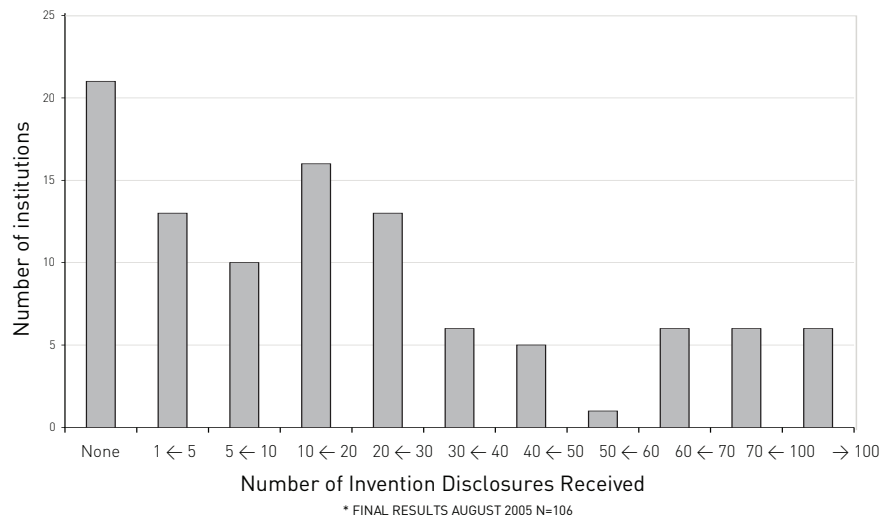
Invention disclosures have been increasing over the past few years. During FY2001, an average of 14 disclosures were made per institution, this increased to an average of 18 disclosures per institution during FY2002 and during FY2003, there was a significant increase with an average of 31 disclosures being made per institution. The average level has fallen marginally during FY2004 to 28 disclosures. This could be explained by the large increase in sample size (this will be looked at in the matched sample analysis).

**Figure 5: Average number of invention disclosures FY2001-2004**



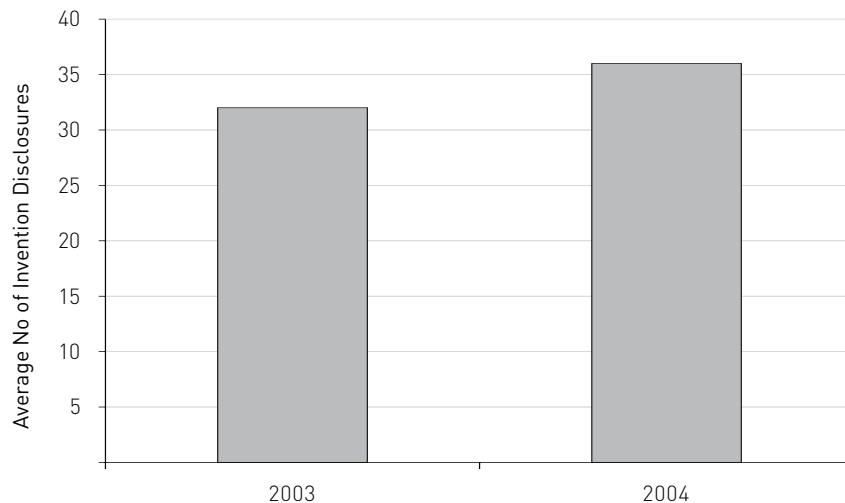
By the end of the 2004 financial year, 82 institutions<sup>3</sup> had reported 2,871 invention disclosures (see Figure 6). This represents a significant increase from FY2003 (2,157) but this is largely due to the increase in the total number of respondents. A fifth of all institutions reported no new invention disclosures while 17 per cent reported more than 60 new disclosures. The largest number of invention disclosures reported by a single institution was 171 - this figure is lower than the maximum seen from the previous financial year (192).

<sup>3</sup> Please note this figure relates to the confirmed number of disclosures and does not take into account the respondents who did not have any disclosures or left the answer blank.

**Figure 6: Invention disclosures received by respondents in FY2004**

### 2.1.1 Matched Sample Analysis

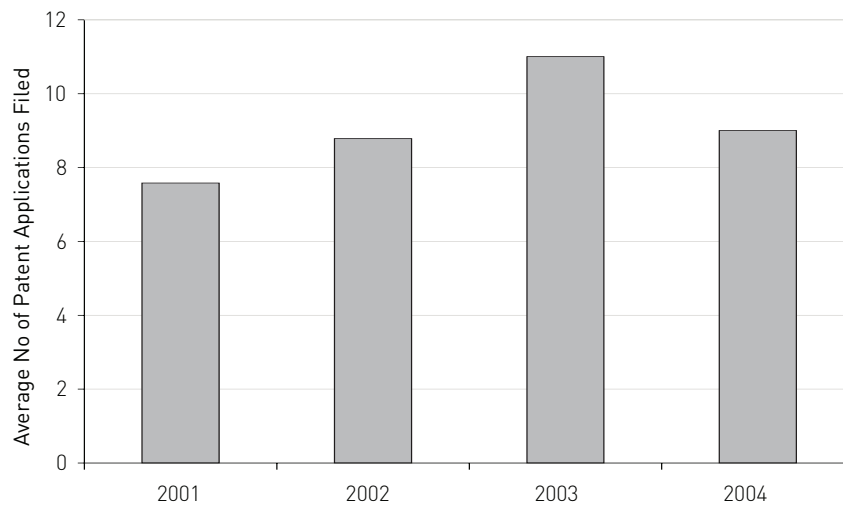
As we saw earlier, the average number of invention disclosures received per institution had fallen from the previous financial year. This could have been due to the larger sample size, however, when we look at the matched sample between FY2004 and FY2003, we can see that the average number of invention disclosures received has increased from 32 in FY2003 to 36 in FY2004.

**Figure 7: Average number of invention disclosures FY2003-2004 (matched sample)**

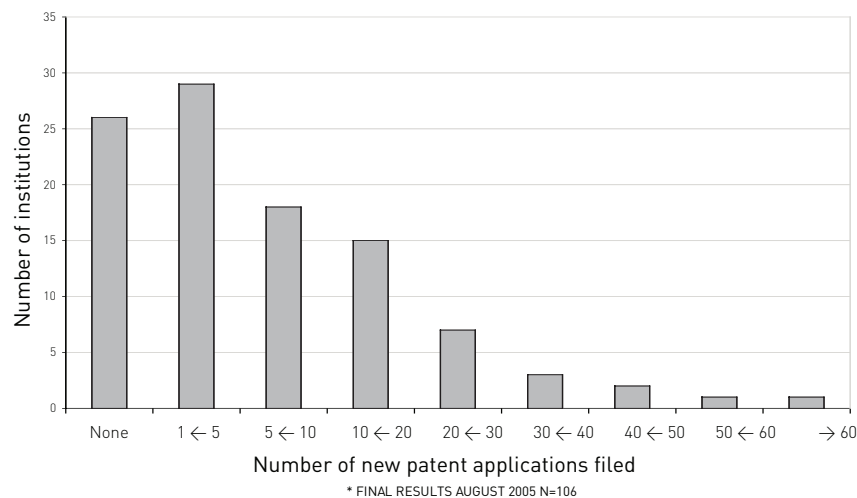
The total number of invention disclosures received has also increased for this group of institutions from 1,897 in FY2003 to 2,257 in FY2004.

## 2.2 NEW PATENT APPLICATIONS FILED

Given that the average number of new invention disclosures has fallen marginally over the last financial year, it is of little surprise that the average number of new patent applications has also marginally fallen per institution (see Figure 8). During the 2003 financial year, an average of 11 new patent applications were filed per institution compared to an average of nine during FY2004.

**Figure 8: Average number of new patent applications filed FY2001-2004**

885 new patent applications were filed during the 2004 financial year (see Figure 9) by the institutions taking part in the survey. 25 per cent of institutions filed no new applications while four per cent of institutions filed more than 40. The maximum number of new patent applications filed by a single institution during FY2004 was 70 – in line with FY2003 (72).

**Figure 9: Number of new patent applications filed FY2004**

### 2.2.1 Matched Sample Analysis

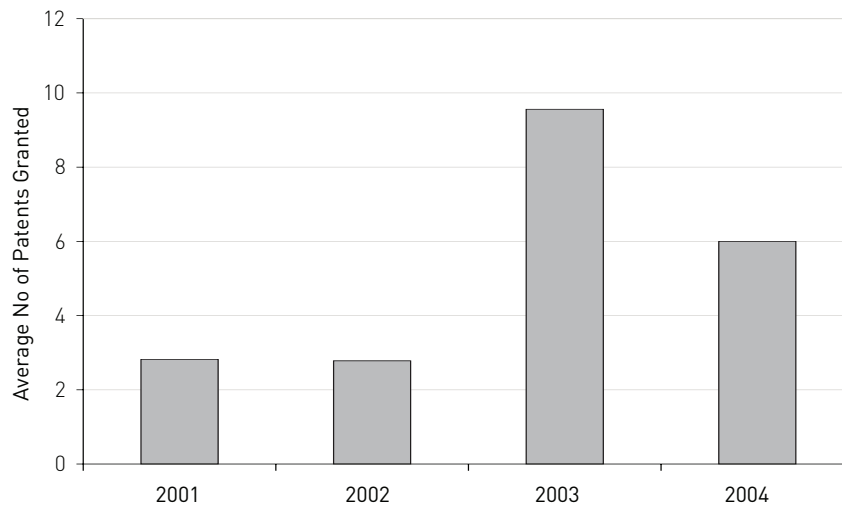
Even within the matched institutions between FY2003 and FY2004, the average number of patent applications filed per institution has fallen very slightly. In FY2003, an average of 12 patent applications were filed, this fell to 11 during FY2004.

The total number of patent applications filed fell marginally from 729 in FY2003 to 721 in FY2004.

## 2.3 PATENTS GRANTED

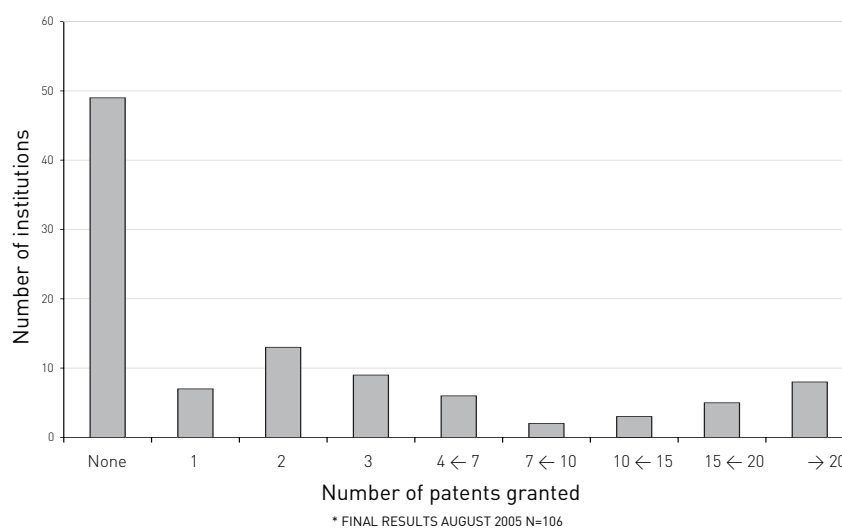
The number of patents granted during FY2004 has fallen from the previous financial year; however, this fall is largely accounted for by a fall in the number of patents being granted outside the UK and the US. During FY2003, an average of 10 new patents were granted per institution compared to an average of six during FY2004.

**Figure 10: Average number of new patents granted per institution FY2001-2004**



During the 2004 financial year, 569 patents were granted to a total of 51 UK institutions.<sup>4</sup> 46 per cent of institutions did not have any patents granted to them (see Figure 11) while 12 per cent of institutions had more than 20 patents granted to them. It should be noted that some institutions may assign patent applications prior to grant and not necessarily track the progress of such applications to determine if they subsequently proceed to grant.

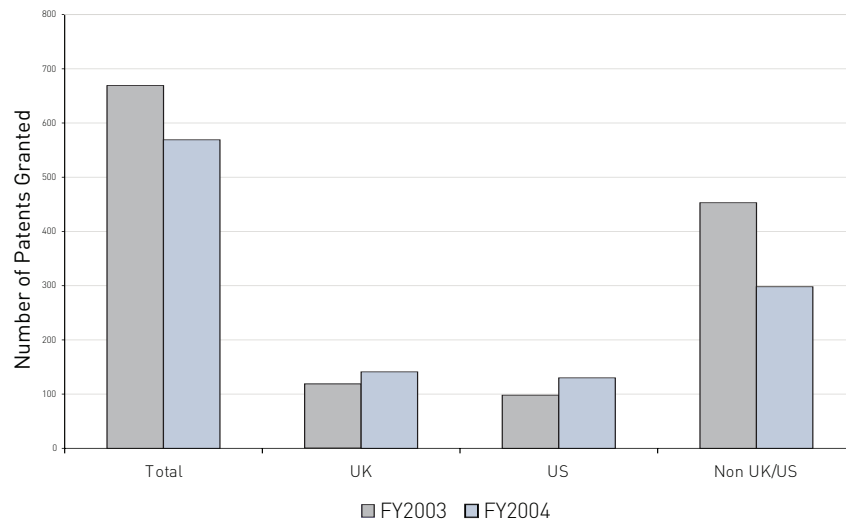
**Figure 11: Number of patents granted to UK institutions in FY2004**



Earlier, we had seen that the total number of patents granted to UK institutions had fallen from the previous financial year. This can be seen more closely in Figure 12. Looking at the chart below, we can see that although the total number of patents granted has fallen, this is largely due to a fall in patents being granted outside the UK/US and the number of patents being granted within the UK and US has actually risen.

<sup>4</sup> Please note these figures relate to the number of confirmed patents. Therefore it does not take account of the respondents who left the answer blank.

**Figure 12: Total number of patents granted to UK institutions by country FY2003-2004**

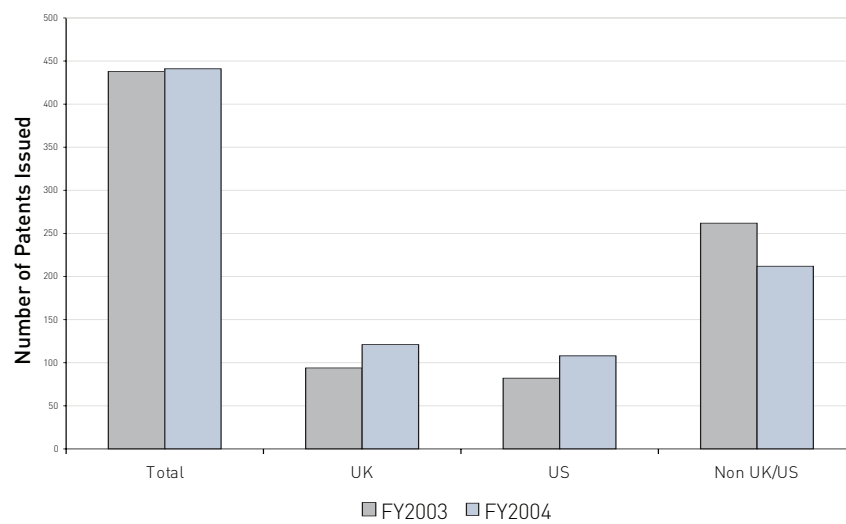


**2.3.1 Matched Sample Analysis**

Within the matched sample, the total number of patents granted has marginally increased from FY2003 (438) to FY2004 (441) with the average number of patents granted per institution remaining at seven between the two financial years.

Looking at Figure 13, we can see the total number of patents granted within the UK, the US and outside the UK/US follows the results of the whole sample.

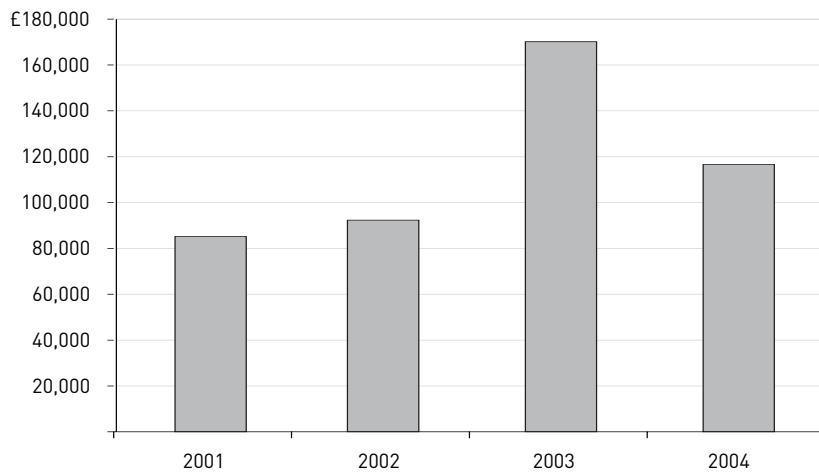
**Figure 13: Total number of patents granted to UK institutions by country FY2003-2004 (matched sample)**



## 2.4 INTELLECTUAL PROPERTY (IP) PROTECTION EXPENDITURE

IP protection expenditure includes costs incurred in patenting, external legal fees and specialist IP consultancy advice. From Figure 14, we can see that the average amount spent by institutions on protection has fallen from £170,151 in FY2003 to £116,569 in FY2004.

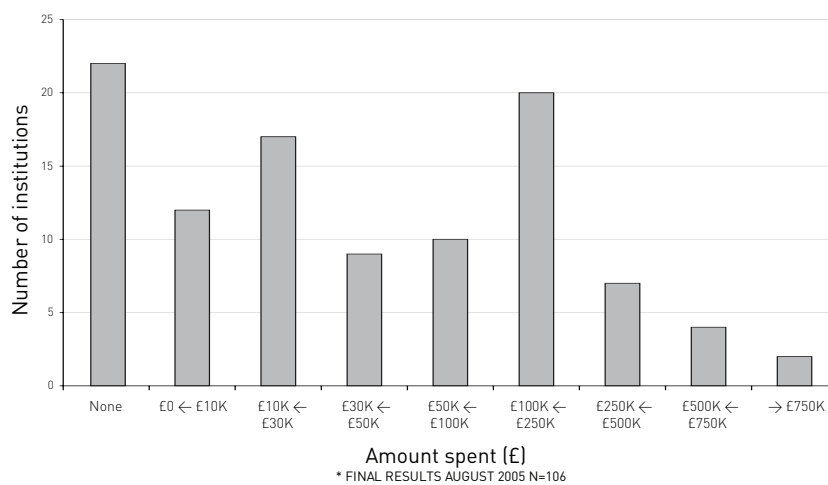
**Figure 14: Average amount spent on IP protection per institution FY2001-2004**



It is worth noting that for FY2004, the standard deviation was very large (£220K) and this would indicate that the median would be more representative of the sample than the mean. However, the median had a value of £30,000 during FY2004 compared to £51,768 during the 2003 financial year, also indicating that the amount spent per institution had fallen significantly.

A total of £12 million was spent on IP protection during the 2004 financial year compared to £12.6 million during FY2003. 21 per cent of institutions did not spend anything on protection whereas 6 per cent spend more than £500K indicating that a small proportion of institutions incurred large costs to maintain and develop their portfolio of patents.

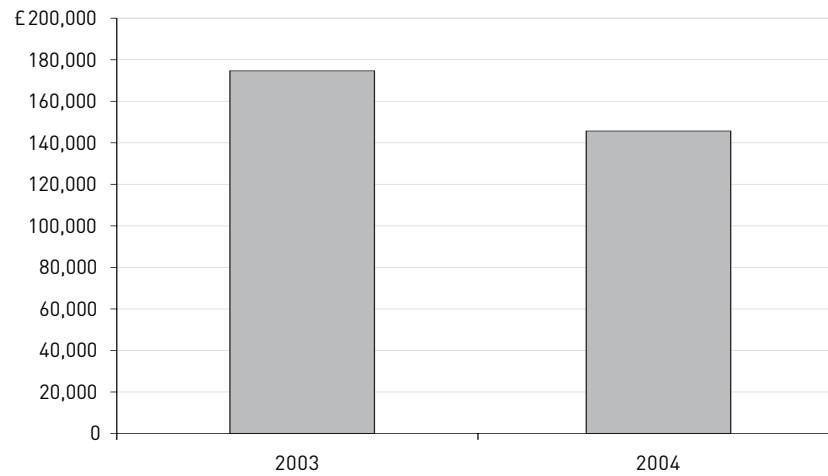
**Figure 15: Expenditure on IP Protection FY2004**



### 2.4.1 Matched Sample Analysis

A similar trend can be seen with IP protection expenditure within the matched sample. The average amount spent on protection has fallen from £174,668 in FY2003 to £145,664 in FY2004 indicating that overall, the levels spent on IP protection has fallen. Within the matched sample, institutions spent £11 million on IP protection during F2003 compared to £9.2 million during FY2004.

**Figure 16: Average amount spent on IP protection per institution FY2001-2004 (matched sample)**

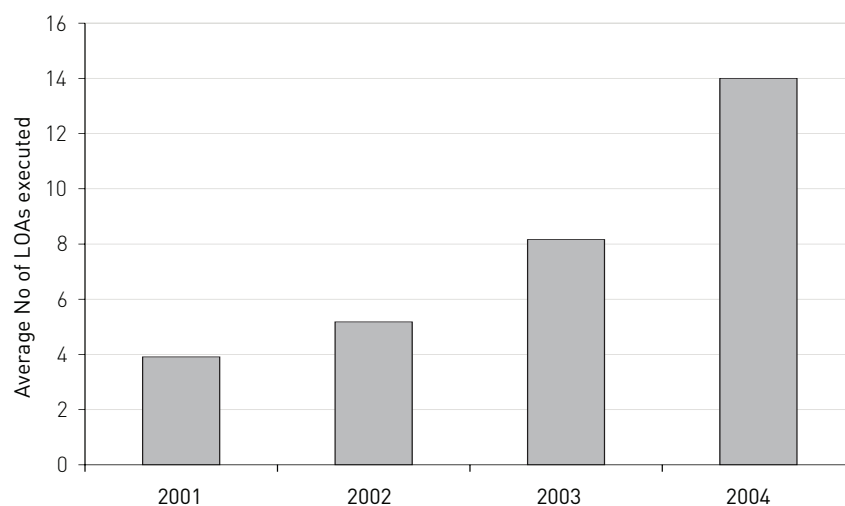


## 3 Licensing Activities

### 3.1 NUMBER OF LOAS EXECUTED

The average number of LOAs (licences, options and assignments) executed by institutions is rising. Looking at Figure 17, we can see that there has been a continual increase over the past four years. During the 2004 financial year, an average of 14 LOAs were executed by institutions. This compared to an average of eight during FY2003, five during FY2002 and four during FY2001.

**Figure 17: Average number of LOAs executed per institution FY2001-2004**

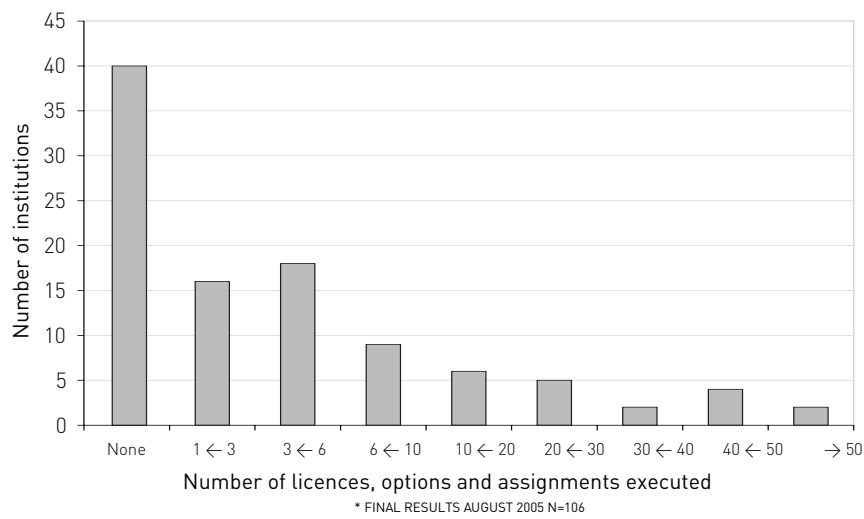


The figures illustrated below exclude licence agreements related to software and biological materials. 63 institutions executed 1,406 LOAs during the 2004 financial year.<sup>5</sup> 38 per cent of institutions did not execute any LOAs while 6 per cent executed more than 40.

It is worth noting that the maximum number of LOAs executed by an individual institution was 653 and therefore, a median value of two may be more representative of the whole sample. The median value from the 2003 financial year was four indicating that on average, perhaps, there has been a fall in the average number of LOAs executed per institution.

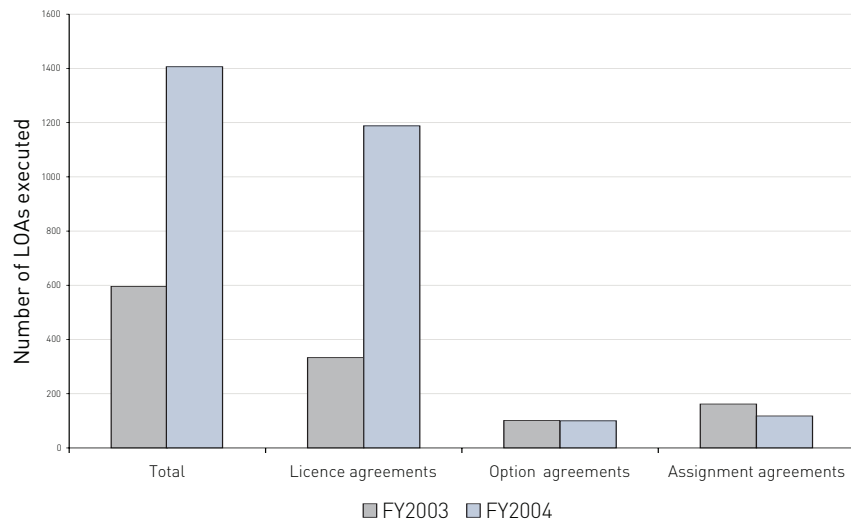
<sup>5</sup> Please note these figures relate to the number of confirmed agreements. Therefore it does not take account of the respondents who left the answer blank.

**Figure 18: Total number of licences, options and assignments executed in FY 2004**



The proportion of agreements differs by the type of agreement. The majority of all agreements executed were licence agreements (see Figure 19). 1,188 licence agreements, 100 option agreements and 118 assignment agreements were executed.

**Figure 19: Total number of LOAs executed by type FY2003-20**



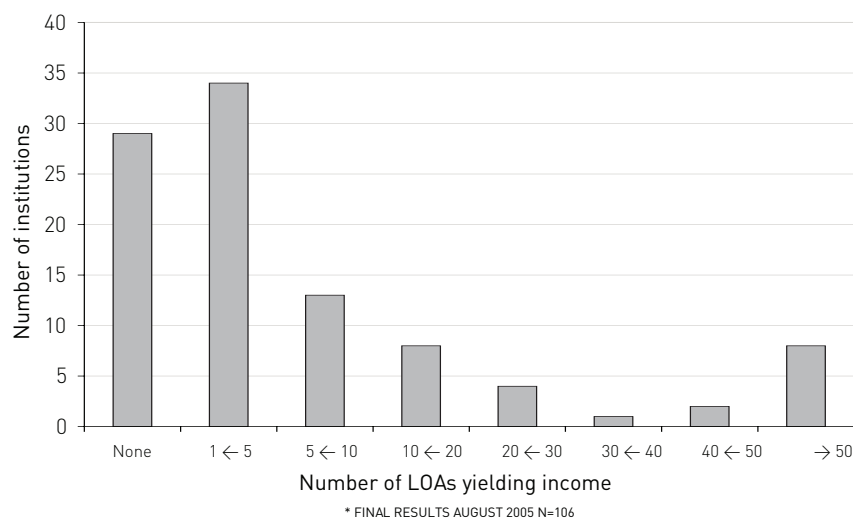
**3.1.1 Matched Sample Analysis**

The total number of LOAs executed within the matched sample has also increased from the previous financial year (from 506 in FY2003 to 1,251 in FY2004). This is also true for the average number of LOAs executed per institution – from eight in FY2003 to 20 in FY2004.

### 3.2 LICENSING INCOME

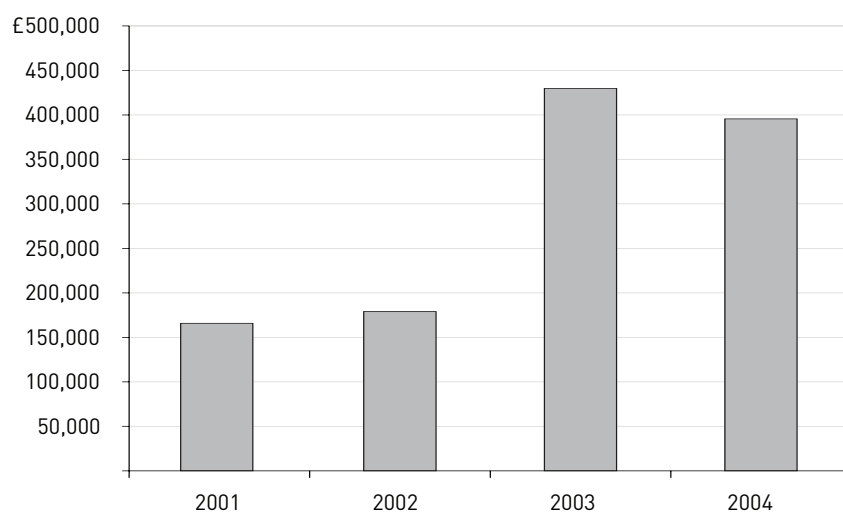
During the 2004 financial year, 66 per cent of the respondents had existing LOAs that yielded income (Chart 20). In total, 72 institutions had 2,148 LOAs that yielded income during FY2004.

**Figure 20: Number of LOAs yielding income in FY 2004**



The average amount of income received by institutions from LOAs has fallen marginally. During FY2004, an average of £395K was received by each institution, slightly lower than the previous financial year (FY2003: £430K) – see Figure 21.

**Figure 21: Average amount of income received from LOAs**



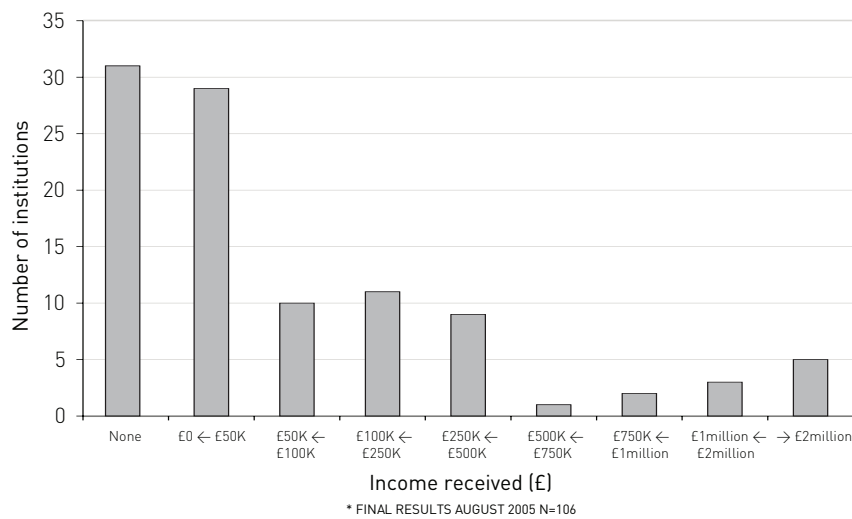
However, this is likely to be due to the large increase in the sample size as we will see slightly further on.

The total licensing income received <sup>6</sup> by 71 respondents in the 2004 financial year was £40.344 million. Of this, £24.3 million was from Higher Education Institutions (HEI) with £16 million coming from research institutions. This has increased from FY2003 where the total licensing income received from HEIs was £18.8 million.

Given that there is a significantly large standard deviation, a median value of £22K might be a more accurate measure of the data given that the majority of institutions did not earn such large amounts. 29 per cent of the respondents did not earn any licensing income and 27 per cent earned up to £50K. Eight per cent of respondents earned more than £1million.

<sup>6</sup> Including all option, up-front, annual, periodic, milestone fees and running royalties.

**Figure 22: Total amount of licence income received by institution**

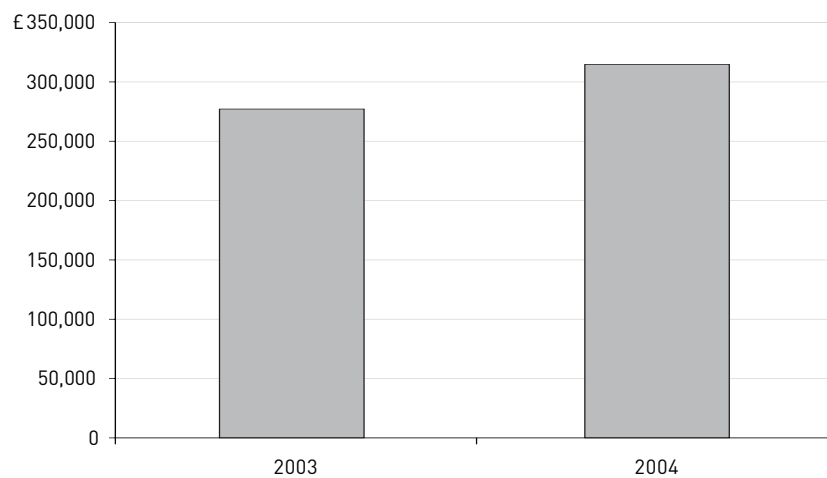


**3.2.1 Matched Sample Analysis**

As with the whole sample, the number of LOAs yielding income has increased for institutions within the matched sample. During FY2003, 506 LOAs yielded income at an average of eight per institution compared to 1,490 in FY2004 at an average of 24 per institution.

In contrast to the whole sample, the matched sample has seen an increase in the average amount of licence income received per institution. During FY2003, an average of £277K was received per institution compared to £315K in FY2004. Although not every institution received such large amounts, it does indicate that there is an increasing trend.

**Figure 23: Average amount of licensing income received FY2003-2004**

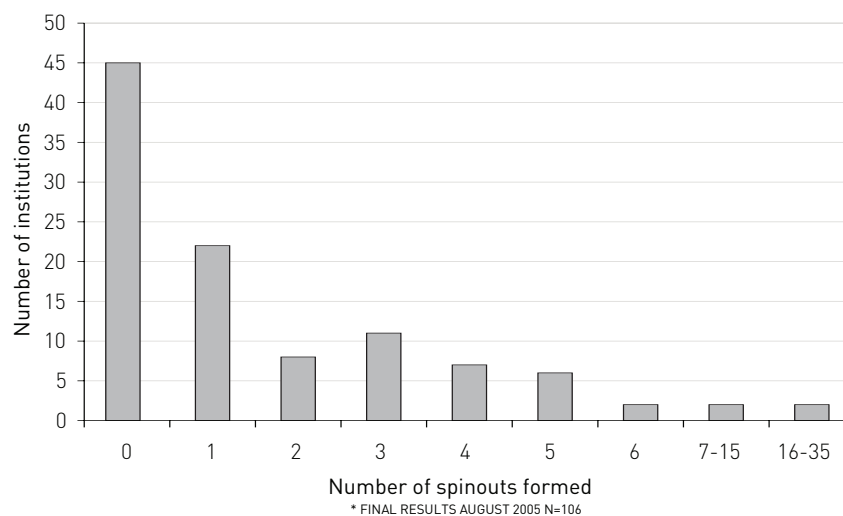


## 4 Spinout Company Activity

### 4.1 NUMBER OF SPINOUT COMPANIES ESTABLISHED

60 institutions created 229 spinout companies (based upon IP and people within the institution) during the 2004 financial year (see Figure 24). 43 per cent of the respondents did not form any spinout companies while 45 per cent formed between one and four spinout companies. Only four per cent formed more than seven spinout companies.

Figure 24: Number of spinouts formed in FY 2004



Amongst all the respondents, two spinout companies were formed on average per institution. This average increases to four when excluding institutions that did not form any spinout companies.

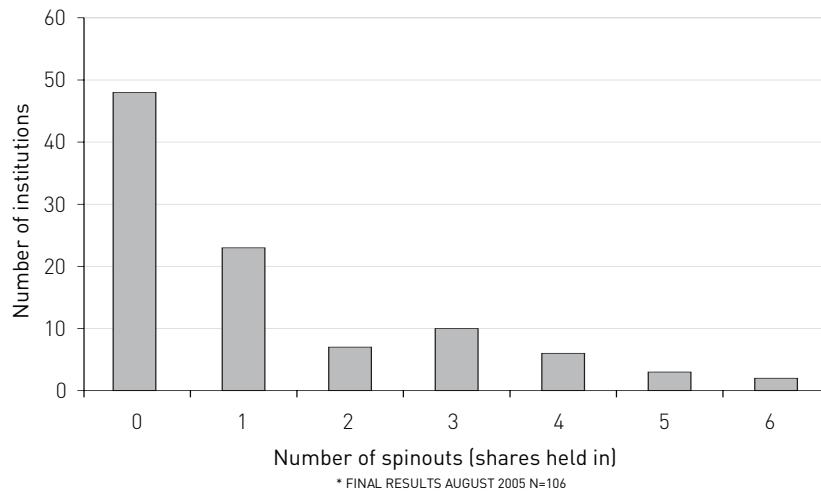
#### 4.1.1 Matched Sample Analysis

The total number of spinout companies formed during the 2004 financial year has increased from the previous year. 189 companies were formed during FY2004 compared to 130 during FY2003. The average number of spinout companies formed per institution has also increased from two in FY2003 to three in FY2004.

#### 4.2 NUMBER OF SPINOUT COMPANIES (SHARES HELD IN)

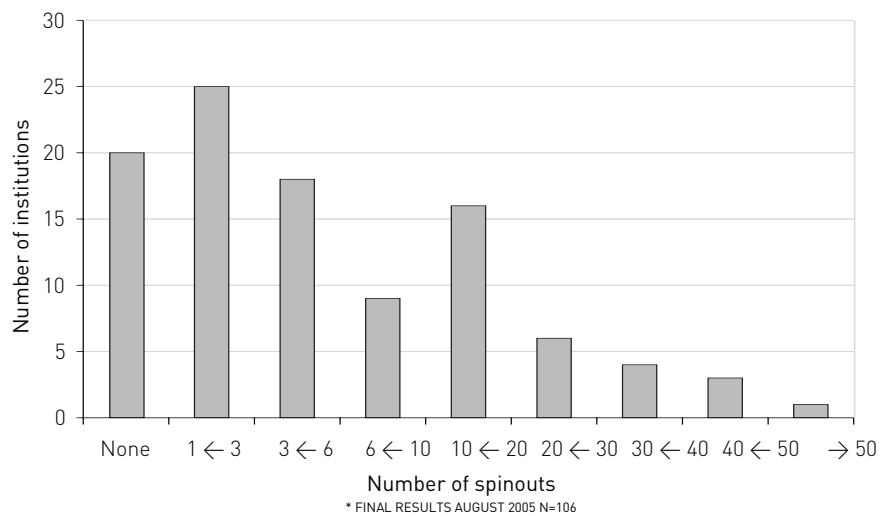
Of the spinout companies formed during the 2004 financial year, 118 (52 per cent) are part or fully owned by the institutions that formed them. 43 per cent hold shares in between one and four of the spinout companies formed during the year (Figure 25). The average number of spinout companies (formed in FY 2004) that institutions hold shares in is one.

**Figure 25: Number of spinouts formed in FY 2004 in which the institution held shares**



850 existing spinout companies have shares held in them by the institutions that created them (Figure 26). 19 per cent of institutions hold no shares in any of the existing spinout companies with 41 per cent holding shares in between one and six spinout companies.

**Figure 26: Number of existing spinouts in which institutions held shares at end of FY 2004**

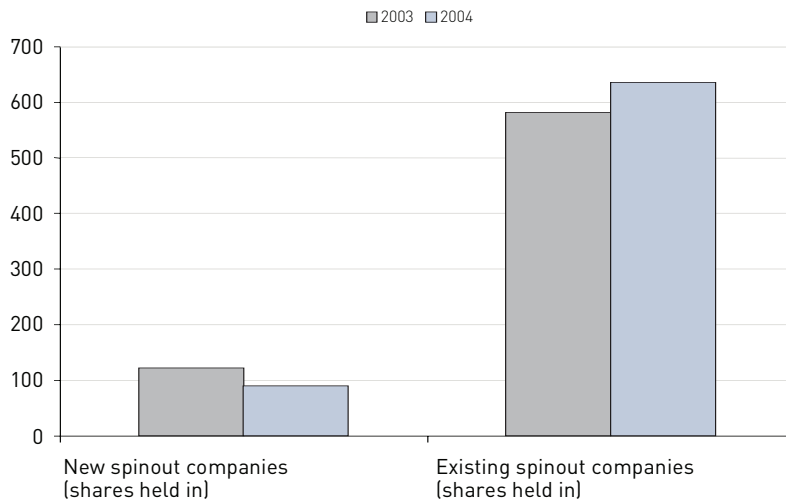


### 4.2.1 Matched Sample Analysis

Of the 189 spinout companies established by institutions in the matched sample, 89 have shares held in them (47 per cent) by the institution that created them. This is a much smaller proportion than in FY2003 where 93 per cent of spinout companies set up had shares held in them by the institution that created them. This could have been due to Schedule 22 being a major barrier to creating economic wealth from university research.

A greater number of existing spinout companies have shares held in them by founding institutions during FY2004 compared to FY2003. 635 existing spinout companies have shares held in them compared to 581 in FY2003.

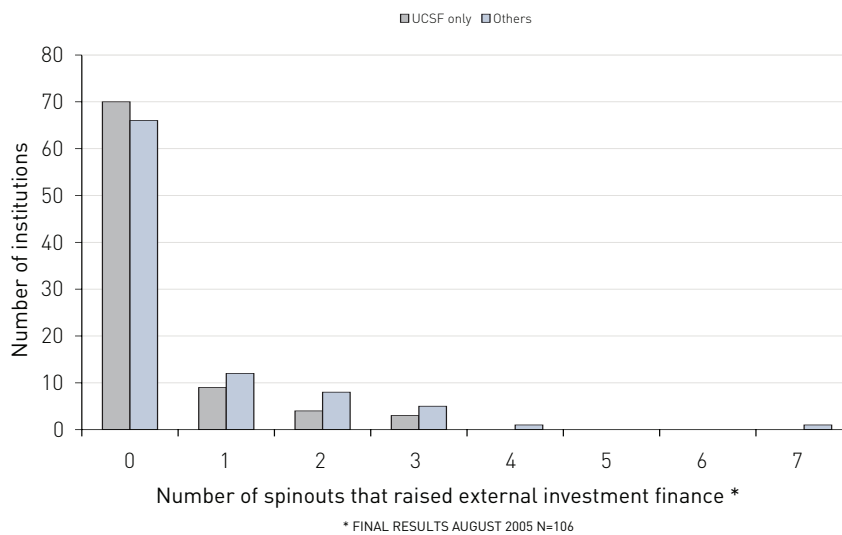
**Figure 27: Shares held in spinout companies**



### 4.3 NUMBER OF SPINOUT COMPANIES THAT RAISED EXTERNAL INVESTMENT FUNDING

Under half (35 per cent) of the total spinout companies formed in the FY2004 were raised with external investment funding. In total, 61 institutions did not form any new spinout companies using external investment funding. Looking at Figure 28, we can see that of the spinout companies formed with external investment funding, a greater proportion were formed from non-UCSF (University Challenge Seed Fund) funding.

**Figure 28: Number of spinouts formed in FY2004 that raised external investment finance**



In total, 26 spinout companies were formed with investment raised from UCSF and 54 from other sources of external investment. The maximum number of spinout companies formed with UCSF funding by an individual institution was three and the maximum from other external investment sources was seven.

#### **4.3.1 Matched Sample Analysis**

The trend here appears to follow that for the whole sample. Under half (33 per cent) of the total spinout companies formed in the 2004 financial year were raised with external investment funding compared to 65 per cent in FY2003. In total, 63 spinout companies were formed with external investment funding in FY2004 compared to 84 in FY2003.

## 5 UK / US Comparison

The Association of University Technology Managers (AUTM) also runs a similar survey that assesses the performance of technology licensing and transfer for US Universities, US Hospitals & Research Institutes, Canadian Institutions and Technology Investment Firms.

To this end we thought it would be interesting to compare results of UK universities from the UK survey to the results of US universities from the AUTM Licensing Survey. Both surveys collect results from the 2004 financial year.

We took three key figures from the surveys, namely research income,<sup>7</sup> licensing income and number of spinout companies and used these figures to produce comparable data.

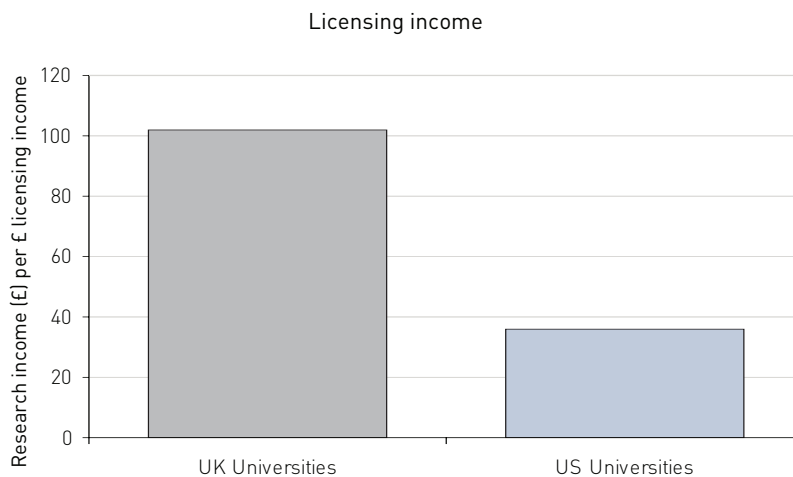
### LICENSING INCOME

US universities are creating more licensing income relative to their research income than UK universities. For every pound of licensing income made by US universities, they have around £36 of research income. However, for every pound of licensing income made by UK universities, they have around £102 of research income. This can be seen in more detail in Chart 29 overleaf.

### SPINOUT COMPANIES

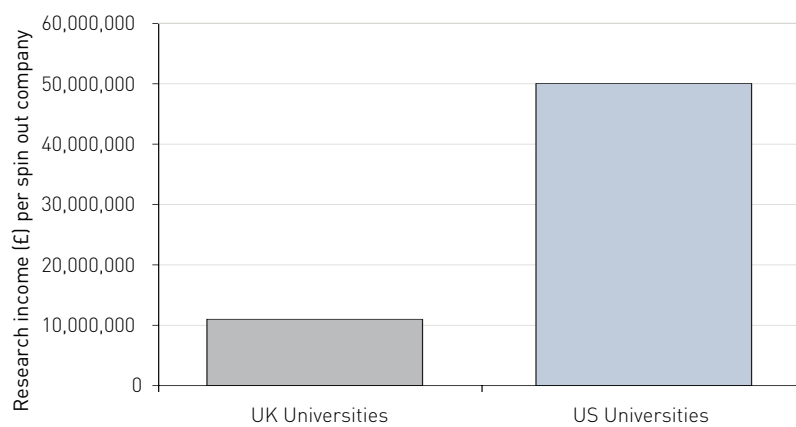
Conversely, UK universities are creating more spinout companies relative to their research income than US Universities. For every spinout company produced by UK universities, they have around £11 million (\$19 million) of research income. However, for every spinout company created by US universities, they have around £50 million (\$87 million). This can be seen in more detail in Chart 29 overleaf.

**Figure 29: UK/US Comparisons**



<sup>7</sup> The UK figures were not taken from the survey and instead came direct from UNICO.

## Spin out companies



|                                     | Research income per £/\$ licensing income |                 |
|-------------------------------------|---|-----------------|
|                                     | UK Sterling                               | US Dollars      |
| UK Universities                     | £101.92                                   | \$101.92        |
| US Universities                     | £35.94                                    | \$35.94         |
| Research income per spinout company |   |                 |
| UK Universities                     | £10,980,897.78                            | \$19,189,009.06 |
| US Universities                     | £50,033,374.52                            | \$87,440,360.93 |

# Appendix A

## Methodology

The UNICO University Commercialisation Survey was sent to 188 higher education institutions at the end of April 2005. It was sent to both members and non-members of UNICO. The survey was sent out by post but returns were accepted by post, fax and electronically. Had respondents not returned their completed survey by a fixed date, they were chased by telephone.

Respondents were asked to give data for the reporting period August 2003 to July 2004.

Fieldwork was closed on 1st July 2005. This included replies from 106 institutions and gives a response rate of 56%. It is worth noting that the number of participants has increased by 31 from last year. The 2004 sample contained 47 of the top 50 research organisations in terms of research income. A list of participants that have agreed to be listed can be found in Appendix B.

We do recognise that there may be some slight inconsistency in the population sampled between the FY2003 and FY2004 surveys. In order to ensure trends observed are valid, analysis has also been carried out between a matched sample between FY2004 and FY2003. UNICO is working with the universities to increase response rates year on year and will be looking at measures to ensure better comparability in years to come.

# Appendix B

## Participants FY2004- \* indicates participation in FY2003

### Universities

Anglia Polytechnic University  
 Aston University  
 Bolton Institute of Higher Education  
 Bournemouth University\*  
 Brunel University\*  
 Canterbury Christ Church University College  
 Cardiff University\*  
 City University  
 Coventry University\*  
 Cranfield University\*  
 Cumbria Institute of the Arts  
 Glasgow Caledonian University\*  
 Glasgow University\*  
 Heriot-Watt University\*  
 Imperial College of Science, Technology & Medicine\*  
 Institute of Education  
 Keele University\*  
 Kings College London\*  
 Kingston University  
 Lancaster University\*  
 Leeds Metropolitan University\*  
 Liverpool John Moores University  
 London School of Hygiene & Tropical Medicine  
 London South Bank University  
 Loughborough University  
 Middlesex University\*  
 Napier University\*  
 Newcastle University\*  
 Newman College of Higher Education  
 North-East Wales Institute of Higher Education  
 Norwich School of Art and Design  
 Queen Mary University of London\*  
 Royal College of Art  
 Royal College of Nursing  
 Royal Scottish Academy of Music and Drama  
 School of Pharmacy  
 Scottish Agricultural College  
 Sheffield Hallam University\*  
 St George's Hospital Medical School\*  
 Staffordshire University  
 The Nottingham Trent University\*  
 The University of Birmingham\*  
 The University of Edinburgh\*  
 The University of Hull\*  
 The University of Liverpool\*  
 The University of Manchester\*  
 The University of Nottingham\*

The University of Plymouth  
 The University of Reading\*  
 The University of Salford  
 The University of Wales, Aberystwyth  
 University College of North Wales, Bangor  
 University College Worcester  
 University College, London\*  
 University of Abertay Dundee  
 University of Bath\*  
 University of Brighton  
 University of Bristol  
 University of Cambridge\*  
 University of Derby\*  
 University of Dundee  
 University of Durham\*  
 University of East Anglia\*  
 University of East London  
 University of Essex\*  
 University of Glamorgan\*  
 University of Kent\*  
 University of Leeds\*  
 University of Leicester\*  
 University of Lincoln  
 University of Luton\*  
 University of Northumbria at Newcastle  
 University of Oxford\*  
 University of Paisley\*  
 University of Portsmouth\*  
 University of Southampton\*  
 University of St Andrews\*  
 University of Stirling\*  
 University of Strathclyde  
 University of Sunderland\*  
 University of Surrey\*  
 University of Sussex\*  
 University of Teesside\*  
 University of Wales Institute, Cardiff  
 University of Wales, Newport\*  
 University of Warwick\*  
 University of Wolverhampton\*  
 University of York  
 York St John College

### Other organisations

Cancer Research UK  
 DSTL (Defence Science and Technology Laboratory)  
 Porton Down\*  
 MRC (Medical Research Council) Technology\*  
 Natural Environment Research Council\*

# Appendix C

## Questionnaire

Name of Institution: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Details: \_\_\_\_\_

Reporting Period:                      From: 1 August 2003                      To: 31 July 2004

|     |  |                       |
|-----|--|-----------------------|
| 1.  | In which year did your University establish its technology transfer activity?  |                       |
| 2.  | What was the total number of Full Time Equivalents that were employed in your technology transfer and commercialization activities at the end of the reporting year?                               |                       |
| 3.  | How many new invention disclosures were received by your technology transfer office?   |                       |
| 4.  | How many new, priority patent applications were filed by your institution?   |                       |
| 5.  | How many patents were granted/issued to your institution?  | UK:<br>US:<br>Other:  |
| 6.  | How much did your institution spend in protecting its IP on patent costs, external legal fees, and specialist IP consultancy advice in the reporting year? Please indicate if this is an estimate. | £                     |
| 7.  | How many (a) Licence Agreements (b) Option Agreements (c) Assignment Agreements did your institution execute? (Please exclude software and biological material end -user licences under £1,000.)   | (a)<br>(b)<br>(c)     |
| 8.  | How many out of all your institution's existing Licence/Option/Assignment Agreements yielded income to your institution?   |                       |
| 9.  | What was the total amount of Licence income received by your institution? (Please include option, up-front, milestone fees and running royalties.)   |                       |
| 10. | How many new spin-out companies did your institution set up? These are companies based upon IP and people in your institution?   |                       |
| 11. | Of the number in Question 10, how many does your institution hold shares in?   |                       |
| 12. | Of the number in Question 10, how many raised external investment finance?   | UCSF only:<br>Others: |
| 13. | In how many existing spin-out companies did your institution still hold shares at the end of the reporting period?   |                       |

# Appendix D

## Responses

Q1. In which year did your University establish its technology transfer activity?

|      | All institutions |        |
|------|------------------|--------|
|      | Count            | Col %  |
| 1970 | 2                | 1.90%  |
| 1971 | 1                | 0.90%  |
| 1973 | 1                | 0.90%  |
| 1980 | 3                | 2.80%  |
| 1982 | 2                | 1.90%  |
| 1984 | 4                | 3.80%  |
| 1985 | 2                | 1.90%  |
| 1986 | 2                | 1.90%  |
| 1987 | 3                | 2.80%  |
| 1988 | 2                | 1.90%  |
| 1989 | 5                | 4.70%  |
| 1990 | 5                | 4.70%  |
| 1991 | 2                | 1.90%  |
| 1992 | 2                | 1.90%  |
| 1993 | 4                | 3.80%  |
| 1994 | 6                | 5.70%  |
| 1995 | 3                | 2.80%  |
| 1996 | 3                | 2.80%  |
| 1997 | 6                | 5.70%  |
| 1998 | 6                | 5.70%  |
| 1999 | 4                | 3.80%  |
| 2000 | 13               | 12.30% |
| 2001 | 8                | 7.50%  |
| 2002 | 6                | 5.70%  |
| 2004 | 5                | 4.70%  |

Q2. What was the total number of Full Time Equivalents that were employed in your technology transfer and commercialisation activities at the end of the reporting year?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 3                | 2.80%  |
| 1 ← 4   | 37               | 34.90% |
| 4 ← 7   | 17               | 16.00% |
| 7 ← 10  | 9                | 8.50%  |
| 10 ← 15 | 10               | 9.40%  |
| 15 ← 20 | 10               | 9.40%  |
| 20 ← 30 | 11               | 10.40% |
| → 30    | 4                | 3.80%  |

Q3. How many new invention disclosures were received by your technology transfer office?

|          | All institutions |        |
|----------|------------------|--------|
|          | Count            | Col %  |
| None     | 21               | 19.80% |
| 1 ← 5    | 13               | 12.30% |
| 5 ← 10   | 10               | 9.40%  |
| 10 ← 20  | 16               | 15.10% |
| 20 ← 30  | 13               | 12.30% |
| 30 ← 40  | 6                | 5.70%  |
| 40 ← 50  | 5                | 4.70%  |
| 50 ← 60  | 1                | 0.90%  |
| 60 ← 70  | 6                | 5.70%  |
| 70 ← 100 | 6                | 5.70%  |
| → 100    | 6                | 5.70%  |

Q4. How many new, priority patent applications were filed by your institution?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 26               | 24.50% |
| 1 ← 5   | 29               | 27.40% |
| 5 ← 10  | 18               | 17.00% |
| 10 ← 20 | 15               | 14.20% |
| 20 ← 30 | 7                | 6.60%  |
| 30 ← 40 | 3                | 2.80%  |
| 40 ← 50 | 2                | 1.90%  |
| 50 ← 60 | 1                | 0.90%  |
| → 60    | 1                | 0.90%  |

Q5. How many patents were granted/issued to your institution?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 49               | 46.20% |
| 1       | 7                | 6.60%  |
| 2       | 13               | 12.30% |
| 3       | 9                | 8.50%  |
| 4 ← 7   | 6                | 5.70%  |
| 7 ← 10  | 2                | 1.90%  |
| 10 ← 15 | 3                | 2.80%  |
| 15 ← 20 | 5                | 4.70%  |
| → 20    | 8                | 7.50%  |

|         | All institutions |        |
|---------|------------------|--------|
|         | Count UK         | Col %  |
| None    | 56               | 52.80% |
| 1       | 15               | 14.20% |
| 2       | 8                | 7.50%  |
| 3       | 4                | 3.80%  |
| 4 ← 7   | 12               | 11.30% |
| 15 ← 20 | 1                | 0.90%  |
| → 20    | 1                | 0.90%  |

|         | All institutions |        |
|---------|------------------|--------|
|         | Count US         | Col %  |
| None    | 64               | 60.40% |
| 1       | 13               | 12.30% |
| 2       | 4                | 3.80%  |
| 3       | 4                | 3.80%  |
| 4 ← 7   | 7                | 6.60%  |
| 10 ← 15 | 4                | 3.80%  |
| → 20    | 1                | 0.90%  |

|         | All institutions |        |
|---------|------------------|--------|
|         | Count Other      | Col %  |
| None    | 66               | 62.30% |
| 1       | 9                | 8.50%  |
| 2       | 3                | 2.80%  |
| 3       | 5                | 4.70%  |
| 4 ← 7   | 2                | 1.90%  |
| 7 ← 10  | 5                | 4.70%  |
| 10 ← 15 | 3                | 2.80%  |
| 15 ← 20 | 1                | 0.90%  |
| → 20    | 3                | 2.80%  |

Q6. How much did your institution spend in protecting its IP on patent costs, external legal fees, and specialist IP consultancy advice in the reporting year?

|               | All institutions |        |
|---------------|------------------|--------|
|               | Count Other      | Col %  |
| None          | 22               | 20.80% |
| £0 ← £10K     | 12               | 11.30% |
| £10K ← £30K   | 17               | 16.00% |
| £30K ← £50K   | 9                | 8.50%  |
| £50K ← £100K  | 10               | 9.40%  |
| £100K ← £250K | 20               | 18.90% |
| £250K ← £500K | 7                | 6.60%  |
| £500K ← £750K | 4                | 3.80%  |
| → £750K       | 2                | 1.90%  |

Q7. How many (a) Licence Agreements (b) Option Agreements (c) Assignment Agreements did your institution execute?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 40               | 37.70% |
| 1 ← 3   | 16               | 15.10% |
| 3 ← 6   | 18               | 17.00% |
| 6 ← 10  | 9                | 8.50%  |
| 10 ← 20 | 6                | 5.70%  |
| 20 ← 30 | 5                | 4.70%  |
| 30 ← 40 | 2                | 1.90%  |
| 40 ← 50 | 4                | 3.80%  |
| → 50    | 2                | 1.90%  |

|         | All institutions               |        |
|---------|--------------------------------|--------|
|         | Count<br>Licence<br>Agreements | Col %  |
| None    | 45                             | 42.50% |
| 1 ← 3   | 20                             | 18.90% |
| 3 ← 6   | 12                             | 11.30% |
| 6 ← 10  | 6                              | 5.70%  |
| 10 ← 20 | 6                              | 5.70%  |
| 20 ← 30 | 8                              | 7.50%  |
| 30 ← 40 | 2                              | 1.90%  |
| → 50    | 1                              | 0.90%  |

|         | All institutions              |        |
|---------|-------------------------------|--------|
|         | Count<br>Option<br>Agreements | Col %  |
| None    | 71                            | 67.00% |
| 1 ← 3   | 22                            | 20.80% |
| 3 ← 6   | 4                             | 3.80%  |
| 6 ← 10  | 3                             | 2.80%  |
| 20 ← 30 | 1                             | 0.90%  |

|         | All institutions                   |        |
|---------|------------------------------------|--------|
|         | Count<br>Assignments<br>Agreements | Col %  |
| None    | 72                                 | 67.90% |
| 1 ← 3   | 20                                 | 18.90% |
| 3 ← 6   | 4                                  | 3.80%  |
| 6 ← 10  | 1                                  | 0.90%  |
| 10 ← 20 | 3                                  | 2.80%  |
| 20 ← 30 | 1                                  | 0.90%  |

Q8. How many out of all your institution's existing Licence/Option/Assignment Agreements yielded income to your institution?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 29               | 27.40% |
| 1 ← 5   | 34               | 32.10% |
| 5 ← 10  | 13               | 12.30% |
| 10 ← 20 | 8                | 7.50%  |
| 20 ← 30 | 4                | 3.80%  |
| 30 ← 40 | 1                | 0.90%  |
| 40 ← 50 | 2                | 1.90%  |
| → 50    | 8                | 7.50%  |

Q9. What was the total amount of Licence income received by your institution?

|                       | All institutions |        |
|-----------------------|------------------|--------|
|                       | Count Other      | Col %  |
| None                  | 31               | 29.20% |
| £0 ← £50K             | 29               | 27.40% |
| £50K ← £100K          | 10               | 9.40%  |
| £100K ← £250K         | 11               | 10.40% |
| £250K ← £500K         | 9                | 8.50%  |
| £500K ← £750K         | 1                | 0.90%  |
| £750K ← £1million     | 2                | 1.90%  |
| £1million ← £2million | 3                | 2.80%  |
| → £2million           | 5                | 4.70%  |

Q10. How many new spinout companies did your institution set up?

|    | All institutions |        |
|----|------------------|--------|
|    | Count            | Col %  |
| 0  | 45               | 42.50% |
| 1  | 22               | 20.80% |
| 2  | 8                | 7.50%  |
| 3  | 11               | 10.40% |
| 4  | 7                | 6.60%  |
| 5  | 6                | 5.70%  |
| 6  | 2                | 1.90%  |
| 13 | 1                | 0.90%  |
| 14 | 1                | 0.90%  |
| 26 | 1                | 0.90%  |
| 35 | 1                | 0.90%  |

Q11. Of the number in Question 10, how many does your institution hold shares in?

|   | All institutions |        |
|---|------------------|--------|
|   | Count            | Col %  |
| 0 | 48               | 45.30% |
| 1 | 23               | 21.70% |
| 2 | 7                | 6.60%  |
| 3 | 10               | 9.40%  |
| 4 | 6                | 5.70%  |
| 5 | 3                | 2.80%  |
| 6 | 2                | 1.90%  |

Q12. Of the number in Question 10, how many raised external investment finance?

|   | All institutions |        |
|---|------------------|--------|
|   | Count UCSF Only  | Col %  |
| 0 | 70               | 66.00% |
| 1 | 9                | 8.50%  |
| 2 | 4                | 3.80%  |
| 3 | 3                | 2.80%  |

|   | All institutions |        |
|---|------------------|--------|
|   | Count Others     | Col %  |
| 0 | 66               | 62.30% |
| 1 | 12               | 11.30% |
| 2 | 8                | 7.50%  |
| 3 | 5                | 4.70%  |
| 4 | 1                | 0.90%  |
| 7 | 1                | 0.90%  |

Q13. In how many existing spinout companies did your institution still hold shares at the end of the reporting period?

|         | All institutions |        |
|---------|------------------|--------|
|         | Count            | Col %  |
| None    | 20               | 18.90% |
| 1 ← 3   | 25               | 23.60% |
| 3 ← 6   | 18               | 17.00% |
| 6 ← 10  | 9                | 8.50%  |
| 10 ← 20 | 16               | 15.10% |
| 20 ← 30 | 6                | 5.70%  |
| 30 ← 40 | 4                | 3.80%  |
| 40 ← 50 | 3                | 2.80%  |
| → 50    | 1                | 0.90%  |