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**NATIONAL SURVEY OF RESEARCH COMMERCIALISATION 2010 AND 2011**

**KEY POINTS (72 institutions)**

**INTELLECTUAL PROPERTY ACTIVITY**

* The number of invention disclosures increased by 14% from 1,498 in 2009 to 1,705 in 2011.
* The number of patent and plant breeder rights filing decreased by 9% from 1,938 in 2009 to 1,758 in 2011.
* The total stock of patents and plant breeder’s rights increased by 6% from 10,422 in 2009 to 11,004 in 2011.
* The number of patents and plant breeder rights issued was 866 in 2009, 1, 046 in 2010 and 948 in 2011.

**Table 1: Number of patents and plant breeder rights issued by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| PFRA | 189 | 236 | 254 |
| Universities | 600 | 762 | 613 |
| MRIs | 77 | 48 | 81 |
| **Total** | **866** | **1046** | **948** |

**Figure 1: Number of patents and plant breeder rights issued by sector, 2009-2011**

**LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)**

* Adjusted LOA income was $337m in 2009, $162m in 2010 and $121m in 2011.
* The number of active LOAs increased from 1,838 in 2009 to 2,873 in 2011.
* The number of LOAs yielding income increased from 702 in 2009 to 789 in 2011. However, the number of active LOAs yielding income decreased from 802 in 2010 to 789 in 2011.

**Table 2: Number of LOAs yielding income by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| PFRA | 262 | 298 | 276 |
| Universities | 318 | 444 | 445 |
| MRIs | 122 | 60 | 68 |
| **Total** | **702** | **802** | **789** |

**Figure 2: Number of LOAs yielding income by sector, 2009-2011**

**START-UP COMPANY ACTIVITY**

* Capital raising for research commercialisation activities increased from $148m in 2009 to $165m in 2011.
* Operational start-up companies decreased from 216 in 2009 to 199 in 2011.
* New start-up company formation declined from 27 in 2009 to 17 in 2011.

**Table 3: Number of new start-up companies formed by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| PFRA | 2 | 1 | 2 |
| Universities | 24 | 15 | 14 |
| MRIs | 1 | 1 | 1 |
| Total | 27 | 17 | 17 |

**Figure 3: Number of new start-up companies formed by sector, 2009-2011**

**CONTRACTS, CONSULTANCIES AND DIRECT SALES**

* The total number of direct sales transactions declined from 14,803 in 2009 to 14,642 in 2011.
* The total number of research contracts and consultancies was 14,397 in 2009, 15,587 in 2010 and 15,570 in 2011.

**Table 4: Number of contracts and consultancy agreements entered into by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| **PFRA** | 3,718 | 3,112 | 3,022 |
| **Universities** | 10,171 | 11,911 | 11,990 |
| **MRIs** | 508 | 564 | 558 |
| **Total** | **14,397** | **15,587** | **15,570** |

**Figure 4: Number of contracts and consultancy agreements entered into by sector, 2009-2011**

**SKILLS DEVELOPMENT AND KNOWLEDGE EXCHANGE ACTIVITY**

* The number of institutions offering in-house/or external training deceased from 48 in 2009 to 42 in 2011.
* The number of in-house training participants increased from 3,887 in 2009 to 5,491 in 2011.
* The number of research postgraduates employed in start-up companies was 111 in 2009, 144 in 2010 and 139 in 2011.

**Table 5: Number of research postgraduates employed in start-up companies by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| **PFRA** | 40 | 37 | 39 |
| **Universities** | 59 | 78 | 65 |
| **MRIs** | 12 | 29 | 35 |
| **Total** | **111** | **144** | **139** |

**Figure 5: Number of research postgraduates employed in start-up companies by sector, 2009-2011**

**RESOURCES FOR RESEARCH COMMERCIALISATION**

* Net commercialisation costs, including marketing, legal, staff and non-staff costs increased from $121m in 2009 to $134m in 2011.
* The total number of commercialisation staff, which includes commercialisation legal, maketing and indusry engagement staff deceased from 706 in 2009, 672 in 2010 and 681 in 2011.

**Table 6: Total number of commercialisation staff by sector, 2009-2011**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2009** | **2010** | **2011** |
| **PFRA** | 198 | 185 | 191 |
| **Universities** | 460 | 448 | 448 |
| **MRIs** | 48 | 39 | 42 |
| **Total** | **706** | **672** | **681** |

**Figure 6: Total number of commercialisation staff by sector, 2009-2011**

**INTERNATIONAL COMPARISONS**

**INTELLECTUAL PROPERTY ACTIVITY**

**Number of Invention Disclosures per $US100m research expenditure**

* The number of invention disclosures per $US100m of research expenditure by Australian institutions has averaged at 27 since 2004 to 2011, lower than the US at 39; and Canada at 40. From 2004 to 2010, the number of invention disclosures per $US100m of research expenditure by UK institutions has averaged at 47.
* Australia and the US have remained relatively constant while Canada and the UK have followed an upward trend on the number of invention disclosures per $US100m of research expenditure in recent years.

**Table 7: Number of Invention Disclosures per $US100m research expenditure, 2004-2011**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Australia** | **Canada** | **US** | **UK** | **Europe (excl. UK)** |
| **2004** | 26.5 | 39.5 | 40.8 | 49.2 | 29.2 |
| **2005** | 26.8 | 41.1 | 41.1 | 53.1 | 28.6 |
| **2006** | 26.3 | 39.3 | 41.6 | 52.1 | 28.7 |
| **2007** | 25.5 | 43.6 | 40.6 | 48.1 | 27.8 |
| **2008** | 25.3 | 40.7 | 38.7 | 41.8 | 27.7 |
| **2009** | 25.6 | 39.4 | 37.6 | 40.8 | - |
| **2010** | 28.3 | 34.7 | 35.0 | 43.7 | 31.7 |
| **2011** | 28.8 | 41.6 | 35.8 | - | 28.4 |

*Note: (-) No data available*

**Figure 7: Number of Invention Disclosures per $US100m research expenditure, 2004-2011**

**Number of US Patents issued per $US100m research expenditure, 2004-2011**

* After a significant fall from 2004 to 2005, the number of US patents issued to Australian institutions per $US100m of research expenditure has remained relatively constant over the years.
* The numbers of US patents issued to Canadian and Europe (excluding UK) institutions per $US100m of research expenditure have slowly trended upward over recent years.
* The number of US patents issued to US institutions per $US100m of research expenditure has remained relatively steady over the recent years (i.e. 2010 and 2011) while the number of patents issued to UK institutions per $US100 of research expenditure has trended downward in the recent years (i.e. 2009 and 2010).

**Table 8: US Patents issued per $US100m research expenditure, 2004-2011**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Australia** | **Canada** | **US** | **UK** | **Europe (excl. UK)** |
| **2004** | 5.3 | 4.5 | 8.9 | 11.6 | - |
| **2005** | 2.3 | 4.1 | 7.7 | 8.9 | - |
| **2006** | 2.6 | 3.1 | 7.2 | 9.0 | 1.2 |
| **2007** | 1.7 | 3.9 | 7.4 | 7.8 | 1.5 |
| **2008** | 1.4 | 2.7 | 6.3 | 7.1 | 4.3 |
| **2009** | 1.5 | 2.5 | 6.3 | 8.6 | - |
| **2010** | 2.0 | 2.9 | 7.6 | 7.8 | 1.7 |
| **2011** | 2.0 | 4.1 | 7.7 | - | 3.5 |

*Note: (-) No data available*

**Figure 8: US Patents issued per $US100m research expenditure, 2004-2011**

**LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)**

* The number of LOAs executed per $US100m of research expenditure by Australia dropped from 10.6 in 2004 to 8.3 in 2011. With the exception of the UK, a similar downward trend is reported for Canada, US, and Europe over the same period.
* On the average, the number of LOAs executed per $US100m of research expenditure by Australia was 10 from 2004 to 2011.

**Table 9: Number of LOAs Executed per $US100m research expenditure, 2004-2011**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Australia** | **Canada** | **US** | **UK** | **Europe (excl. UK)** |
| **2004** | 10.6 | 16.5 | 11.6 | 34.1 | 14.0 |
| **2005** | 11.6 | 16.4 | 11.7 | 41.5 | 15.8 |
| **2006** | 12.5 | 11.9 | 10.9 | 45.7 | 12.8 |
| **2007** | 11.8 | 16.0 | 10.5 | 42.4 | 9.0 |
| **2008** | 9.2 | 14.1 | 9.9 | 48.9 | 9.1 |
| **2009** | 9.0 | 14.2 | 9.9 | 50.2 | - |
| **2010** | 8.5 | 10.8 | 9.1 | 52.6 | 9.5 |
| **2011** | 8.3 | 13.2 | 9.9 | - | 10.6 |

*Note: (-) No data available*

**Figure 9: Number of LOAs Executed per $US100m research expenditure, 2004-2011**

**START-UP COMPANY ACTIVITY**

* Australian start-up companies formed per $US100m of research expenditure have gradually declined from 0.9 in 2004 to 0.3 in 2011. Overall, Australia has remained relatively constant on the rate of start-up company formation over recent years.
* The US has maintained a stable rate of start-up company formation per $US 100m of research expenditure at a rate of around 1.1 over the years.
* Canada and the UK have demonstrated an upward trend on the rate of start-up company formation per $US100m of research expenditure over recent years while Europe (excluding UK) was in the opposite direction.

**Table 10: Number of start-up companies formed per $US100m research expenditure, 2004-2011**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Australia** | **Canada** | **US** | **UK** | **Europe  (excl. UK)** |
| **2004** | 0.9 | 1.4 | 1.1 | 2.4 | 1.5 |
| **2005** | 1.0 | 1.0 | 1.2 | 2.9 | 1.8 |
| **2006** | 0.9 | 0.8 | 1.2 | 3.1 | 3.1 |
| **2007** | 0.8 | 1.1 | 1.1 | 2.9 | 2.3 |
| **2008** | 0.3 | 0.9 | 1.1 | 2.1 | 1.9 |
| **2009** | 0.5 | 1.0 | 1.1 | 2.6 | - |
| **2010** | 0.3 | 1.0 | 1.1 | 2.8 | 3.9 |
| **2011** | 0.3 | 1.6 | 1.1 | - | 3.2 |

*Note: (-) No data available*

**Figure 10: Number of start-up companies formed per $US100m research expenditure, 2004-2011**

**TIME SERIES DATA 2000-2011 (59 institutions)**

**INTELLECTUAL PROPERTY ACTIVITY**

* The number of invention disclosures has increased by 173%, from 544 in 2000 to 1,489 in 2011. Overall, there was a steady increase in invention disclosures across all institution types with the highest share of contribution from universities.
* The total number of new patent and plant breeder right applications filed in Australia and the US has increased by 13%, from 587 in 2000 to 664 in 2011.
* The number of patents and plan breeder rights issued worldwide has increased by 74%, from 524 in 2000 to 914 in 2011.

**Table 11: Number of invention disclosures by sector, 2000-2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Universities** | **PFRAs** | **MRIs** | **TOTAL** |
| **2000** | 441 | 62 | 41 | **544** |
| **2001** | 560 | 59 | 97 | **716** |
| **2002** | 519 | 77 | 111 | **707** |
| **2003** | 652 | 65 | 93 | **810** |
| **2004** | 786 | 35 | 135 | **956** |
| **2005** | 707 | 119 | 100 | **926** |
| **2006** | 842 | 130 | 109 | **1081** |
| **2007** | 977 | 103 | 116 | **1196** |
| **2008** | 1129 | 77 | 94 | **1300** |
| **2009** | 1169 | 106 | 134 | **1409** |
| **2010** | 1289 | 114 | 100 | **1503** |
| **2011** | 1249 | 123 | 117 | **1489** |

**Figure 11:**  **Number of invention disclosures by sector, 2000-2011**

**LICENCES, OPTIONS AND ASSIGNMENTS (LOAs)**

* The number of LOAs executed per annum has increased by 16%, from 414 in 2000 to 481 in 2011. The university sector recovered after sharp drops in 2008 and 2009, to a record high of 338 LOAs executed in 2010. While PFRAs remained stable, the MRI experienced a 47% decline in 2011 compared to 2009.
* The number of LOAs yielding income per annum has increased by 57% from 489 in 2000 to 766 in 2011.
* Adjusted LOA income in constant 2011prices has dropped by 35% from $146m in 2000 to $95m in 2011.

**Table 12: Number of LOAs executed by sector, 2000-2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Universities** | **PFRAs** | **MRIs** | **TOTAL** |
| **2000** | 234 | 168 | 12 | 414 |
| **2001** | 179 | 166 | 38 | 383 |
| **2002** | 223 | 195 | 27 | 445 |
| **2003** | 249 | 158 | 26 | 433 |
| **2004** | 292 | 68 | 21 | 381 |
| **2005** | 267 | 94 | 93 | 453 |
| **2006** | 301 | 105 | 109 | 515 |
| **2007** | 314 | 99 | 136 | 549 |
| **2008** | 239 | 124 | 109 | 472 |
| **2009** | 261 | 114 | 116 | 491 |
| **2010** | 338 | 117 | 50 | 505 |
| **2011** | 296 | 123 | 62 | 481 |

**Figure 12: Number of LOAs executed by sector, 2000-2011**

**START-UP COMPANY ACTIVITY**

* Start-up company formation has fallen by 68% from 47 in 2000 to 15 in 2011. The highest start-up company formation was recorded in 2001 at 61 start-up companies formed.
* The number of start-up companies operational with institutional equity increased from 69 in 2000 to 163 in 2007. However, the number has been steadily dropping since 2008.
* The value of equity holdings for university sector has remained relatively consistent since 2008 with an average of $108m at 2011 prices. The large increases were from PFRAs, mainly from CSIRO in 2008 and 2009 but were not repeated in 2010 and 2011 and reported only $29m in 2011. The MRIs recorded their lowest level of equity holding at just $1m in 2010 and 2011.

**Table 13: Value of equity holdings in constant 2011 prices ($m) by sector, 2000-2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Universities** | **PFRAs** | **MRIs** | **TOTAL** |
| **2000** | 110 | 46 | 24 | 180 |
| **2001** | 133 | 44 | 5 | 182 |
| **2002** | 122 | 27 | 6 | 156 |
| **2003** | 179 | 24 | 6 | 210 |
| **2004** | 215 | 14 | 17 | 247 |
| **2005** | 167 | 19 | 11 | 197 |
| **2006** | 154 | 43 | 21 | 217 |
| **2007** | 142 | 59 | 18 | 218 |
| **2008** | 106 | 75 | 10 | 191 |
| **2009** | 114 | 88 | 36 | 238 |
| **2010** | 110 | 37 | 1 | 148 |
| **2011** | 103 | 29 | 1 | 133 |

**Figure 13: Value of equity holdings in constant 2011 prices ($m) by sector, 2000-2011**

**COMMERCIALISATION STAFF**

* Over the period 2000 to 2011, the total level of dedicated commercialisation staff has increased by 61%. The level grew rapid from 191 FTE in 2000 to 296 FTE in 2003 and has remained retatively stable to 2011 at 307 FTE.

**Table 14: Number of dedicated commercialisation staff in FTE by sector, 2000-2011**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Universities** | **PFRAs** | **MRIs** | **TOTAL** |
| **2000** | 89 | 97 | 5 | **191** |
| **2001** | 113 | 109 | 9 | **231** |
| **2002** | 133 | 137 | 11 | **281** |
| **2003** | 113 | 168 | 15 | **296** |
| **2004** | 125 | 143 | 14 | **282** |
| **2005** | 124 | 153 | 18 | **295** |
| **2006** | 128 | 151 | 20 | **299** |
| **2007** | 148 | 121 | 21 | **289** |
| **2008** | 163 | 129 | 17 | **309** |
| **2009** | 160 | 131 | 18 | **309** |
| **2010** | 167 | 124 | 14 | **305** |
| **2011** | 165 | 126 | 16 | **307** |

**Figure 14: Number of dedicated commercialisation staff by sector, 2000-2011**

*Source: National Survey of Research Commercialisation, 2010-2011*