# 4 Current utilisation of patents in Australia and comparable markets

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| Key points |
| * The Commission has reviewed evidence from Australia and overseas to identify any problems with accessing patented inventions. * A substantial number of inventions are patented in Australia each year. Most are granted to non-residents. The benefit the Australian community receives from new technologies is, therefore, likely to depend on the extent of their accessibility in Australia. * There are essentially three routes through which the community can access patented inventions — a patent owner manufactures the product itself, sells the patent to another party, or licenses it. * Survey data from Europe, Japan, and the United States suggest that, among organisations that own patents, around half of patents are used solely by their owner, roughly 40 per cent are unused, and only a small proportion (roughly 10 per cent) are licensed to others. * The low rate of licensing does not necessarily indicate that patent owners intend to deny access to their technologies. Survey evidence and comments from inquiry participants suggest the reverse — that patent owners do not license out as much as they would like. * Further research is required about the impediments faced by patent owners in licensing their inventions. Potential barriers discussed in the literature — such as difficulties in identifying licensing partners — would not be addressed by compulsory licensing. * Where ‘patent thickets’ occur, the private sector has mostly been able to address access issues through use of patent pools and clearinghouses. These can benefit the community as a whole, provided competition laws prevent patent owners from using them as vehicles to reduce competition. |
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A substantial number of inventions are patented in Australia and other industrialised economies each year. Hence, the benefit that the community receives from inventions is likely to significantly depend on how they can be exploited under the patents system, and the extent to which this is occurring. This chapter reviews the available literature and evidence in order to identify what, if any, problems generally exist with accessing patented inventions. The next chapter examines issues specific to accessing particular technologies, such as gene patents.

## Patenting of inventions

In Australia, the annual number of standard patents applied for and granted is somewhat volatile (figure 4.1). In the past decade, however, growth in (standard) patent applications and grants has been moderate. From 2001 to 2011, applications rose by about 12 per cent, while grants rose by about 30 per cent. Over the same period, Australia’s real GDP (in chain volume terms) increased by around 35 per cent (ABS 2012).

Figure 1 Patent applications and grants in Australia, 1995 to 2011**a**

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a Data are for standard patents only. The difference between standard and innovation patents is discussed in chapter 3.

*Source*: WIPO (2012b).

There are a number of possible explanations for the difference between patent applications and patent grants, including the threshold required for an innovation to be patented. Some innovations for which inventors have submitted a patent application would not meet the threshold and, hence, would not be granted a patent.

Over the past 15 years, annual patent grants in a number of other economies have also increased. For instance, in 1995, patent grants in Japan totalled approximately 110 000, and had risen to nearly 240 000 by 2011 (figure 4.2). Similarly, in the United States, the number of patents granted increased from just over 100 000 in 1995 to about 220 000 in 2011. China, in particular, has seen a significant rise in the number of patent grants, from approximately 3000 in 1995 to about 172 000 in 2011. A notable exception to rising patent grants has been the United Kingdom, where grants fell to a little over 7000 in 2011, down from over 9000 in 1995.

Figure 4.2 Patents granted in selected countries, 1995 to 2011

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*Source*: WIPO (2012b).

The majority of patents granted in Australia are to non-residents. For example, out of the total of 17 877 patents granted in 2011, 1267 of these were granted to residents. Nearly 7500 (42 per cent) of patents were granted to residents of the United States, with the next most significant foreign country being Japan, which received over 1600 patent grants (9 per cent) (table 4.1).

Besides being granted a patent in Australia, Australian residents may also be granted patents by overseas patent offices. In 2011, the total number of patents granted to Australian residents by overseas patent offices was 4895. This represents significant growth on earlier overseas grants to Australian residents. For example, in 1995, the number of patents granted to Australians by overseas patent offices totalled 1421 (WIPO 2012b), representing an increase of about 8 per cent per annum from 1995 to 2011.

Table 4.1 Nationality of parties granted Australian patents, 1995 to 2011

|  |  |  |
| --- | --- | --- |
| Nationality | 2011 | 1995–2011 average |
|  | % | % |
| Australia | 7 | 8 |
| Canada | 2 | 2 |
| France | 3 | 4 |
| Germany | 7 | 7 |
| Japan | 9 | 9 |
| Netherlands | 3 | 2 |
| Republic of Korea | 2 | 2 |
| Sweden | 2 | 3 |
| Switzerland | 5 | 4 |
| United Kingdom | 4 | 6 |
| United States | 42 | 43 |
| Other | 14 | 10 |
| Total | 100 | 100 |

*Source*: WIPO (2012b).

The World Intellectual Property Organisation collects information on the field of technology in which patent applications were made. Over the period from 1997 to 2011, the most significant field of technology in which patents were applied for in Australia was civil engineering, accounting for roughly 8 per cent of the total share of patent applications, followed by medical technology and pharmaceuticals (table 4.2).

Canada has a number of similarities with Australia, including being a net importer of technology. In 2011, about 7 per cent of Australian patents were granted to residents, and in Canada it was around 10 per cent (WIPO 2012e). There are also some similarities with Australia with respect to the technology fields in which patents are granted. For instance, civil engineering accounted for a similar proportion of patent applications in both countries.

By contrast, the United States is a much larger economy and it grants many more patents. The number of US patents granted to residents has been slightly exceeded by those granted to non-residents in recent years. However, US residents are also granted a large number of patents in other countries (WIPO 2012b). In common with Canada, the most important field of technology for US patent applications is computer technology. Unlike Australia and Canada, civil engineering does not feature as a prominent field of technology.

Table 4.2 Patent applications by field of technology, 1997 to 2011

Percentage share of total patent applicationsa

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Australia | |  | United States | |  | Canada | |
| *Field of technology* | *Share* |  | *Field of technology* | *Share* |  | *Field of technology* | *Share* |
| Civil engineering | 8 |  | Computer technology | 10 |  | Computer technology | 8 |
| Medical technology | 7 |  | Medical technology | 8 |  | Digital  communication | 7 |
| Pharmaceuticals | 6 |  | Pharmaceuticals | 6 |  | Civil engineering | 7 |
| Biotechnology | 5 |  | Electrical machinery,  apparatus, energy | 4 |  | Pharmaceuticals | 6 |
| Computer  technology | 5 |  | Organic fine chemistry | 4 |  | Telecommunications | 5 |
| Textile and paper  machines | 5 |  | Digital communication | 4 |  | Other special  machines | 5 |
| Other special  machines | 4 |  | Biotechnology | 4 |  | Transport | 4 |
| Handling | 4 |  | Measurement  (instruments) | 4 |  | Medical technology | 4 |
| Furniture, games | 4 |  | Telecommunications | 4 |  | Biotechnology | 4 |
| Measurement  (instruments) | 4 |  | Audio-visual  technology | 3 |  | Electrical machinery,  apparatus, energy | 4 |
| Other | 49 |  | Other | 48 |  | Other | 46 |

a Columns may not sum to 100 due to rounding.

*Sources*: WIPO (2012d, 2012e, 2012f).

## Exploitation of patents by the innovator

After an organisation has created a new innovation, applied for a patent, and the patent has been granted to them, they would typically seek to commercially exploit the innovation. The party that has created the innovation might itself decide to be the sole manufacturer of the patented product, or a product that uses the patented good as an input, and market these accordingly. For example, the pharmaceutical company Merck & Co., Inc. has a patent on Zostavax, a vaccine for shingles (Merck & Co., Inc. 2012), a drug which the company also manufactures.

Where the patentee is solely responsible for commercialisation, they retain the exclusive rights to the innovation that are afforded by the patent, and seek to realise the full returns anticipated from the development of the product.

If an innovator fails to work a patent, however, and allows it to remain dormant, there are mechanisms available to ensure that the patented innovation reaches the public, where the public interest suggests such action might be warranted. Compulsory licensing is one of these mechanisms — the 1925 Hague revision of the Paris Convention incorporated compulsory licencing in order to address the absence of effective exploitation of a patent by a patentee (chapter 2; Gontijo 2005).

There are a number of reasons why a patent holder may decide not to ‘work’ a patent. For instance, some innovations protected by patents may simply offer limited opportunity for commercial development, and hence, patentees may not carry the innovation forward to the stage of commercialisation. This might occur if, for example, anticipated demand for a final product based on the innovation was so low as to make such a product unprofitable.

There is some empirical evidence that sheds light on the purposes for which companies and other organisations use their patents. A group of European researchers undertook a wide-ranging survey of the inventors of approximately 9000 inventions patented in Europe (Giuri et al. 2007). The patents included in the survey had been granted between 1993 and 1997, to inventors in France, Germany, Italy, the Netherlands, Spain, and the United Kingdom.

The researchers asked survey respondents how their patents were utilised — for example, whether they were used internally for commercial and industrial purposes, or were instead licensed-out to other parties, or used to ‘block’ competitors. The survey indicated that large companies used roughly half of their patents internally. Medium and small-sized companies used a greater fraction of their patents internally than large firms (figure 4.3).

Sleeping patents — those that were not commercially exploited by the owner, were not licensed, or were not used for blocking purposes (whether or not specifically sought for such purposes) — appeared to be correlated with the size of European companies. The study indicated that larger firms had a higher proportion of sleeping patents than smaller-sized companies. Blocking patents also appeared to be correlated with firm size, with larger companies exhibiting a greater use of blocking patents than medium-sized and smaller companies. Somewhat surprisingly, public and private research institutions, as well as universities, reported using blocking patents. This behaviour would appear, prima facie, to be inconsistent with the objective of creating and disseminating new knowledge.

According to Giuri et al. (2007), the reason why larger companies had a higher fraction of blocking and sleeping patents than smaller organisations may stem from their lower incremental costs of patenting. Larger companies are more likely to possess specialised divisions dealing with issues related to patents, making the additional costs of applying for a patent relatively low compared with smaller companies. As a result, larger companies may patent more ‘minor’ innovations which are unlikely to be commercially exploited, resulting in a greater proportion of unused patents than smaller companies.

Figure 4.3 Patent utilisation in PatVal-EU survey, by organisation type**a, b, c**

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a Small companies are defined as those with less than 100 employees. Medium-sized companies are those with 100–250 employees, while large companies are defined as having more than 250 employees. b Based on 7556 observations. c ‘Internal use’ comprises the categories of ‘internal use only’ and ‘licensing and use’, which are disaggregated in table 4.5.

*Source*: Giuri et al. (2007).

The results of the PatVal-EU survey on patent utilisation provide a point of comparison with a similar study undertaken for Japan and the United States by Sadao and Walsh (2009). These researchers analysed a sample of ‘triadic’ patents (those for which a patent was granted by the US patent office and applied for at both the Japanese and European patent offices) through a survey conducted in 2007 (the RIETI-Georgia Tech survey). The Japanese stream of the survey yielded information on roughly 3700 patents, while the US survey utilised a sample of just over 1900 patents.

It was found that just over 60 per cent of triadic patents in Japan and the United States were used commercially in some form (figure 4.4), whether that be for the patentee’s own products and processes, licensing, or use for a start-up by the inventor (note that these uses are not mutually exclusive). Similar to the PatVal‑EU survey, the most important mechanism for commercialisation was in‑house use (54 per cent in Japan and 50 per cent in the United States), although pure in‑house use (use of the patent internally by the patentee only) was less extensive.

Internal commercialisation by patentees was found to be higher for smaller companies than larger ones, both in Japan and the United States. In Japan, 55 per cent of large companies (defined as those employing 500 or more people) commercialised internally, increasing to over 60 per cent for small companies (employing 101 to 250 people), and to 70 per cent for very small companies (employing 100 or less people). Reflecting a similar pattern, in the United States, 50 per cent of large companies commercialised internally, increasing to approximately 65 per cent for small firms, before declining slightly to 60 per cent for very small firms. Again, these results are broadly comparable with those obtained in the PatVal-EU survey.

Figure 4.4 Commercialisation of inventions in RIETI-Georgia Tech survey

Per cent of patentsa

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a Use for new company relates to use for start-ups.

*Source*: Sadao and Walsh (2009).

Sadao and Walsh (2009) also surveyed companies about their failure to commercially develop a proportion of their patents. Overall, 38 per cent of triadic patents were not commercialised in both Japan and the United States. In Japan, 6 per cent of patents were used for strategic holding and were not commercialised — that is, they were used either to block competitors from patenting similar technology, or to prevent competitors from inventing around a patentee’s current technology. The remaining 32 per cent of triadic patents in Japan were non‑commercialised purely for non-strategic reasons (for example, because of delayed development of complementary products, or business downsizing). In the United States, 14 per cent of not commercialised triadic patents were used for strategic holding, while the remaining 24 per cent were not commercialised for non‑strategic reasons.

One of the main conclusions that may be drawn from the PatVal-EU and RIETI‑Georgia Tech surveys of patent use is that roughly half of all patents are used internally for commercial purposes by the owner (without licensing) across organisation types and across countries. In addition, there appears to be a negative correlation between internal commercialisation and company size, with smaller companies commercially exploiting more of their patents internally than larger companies.

These studies also indicate that a significant share of patents are not commercially exploited. For instance, in the PatVal-EU survey, across all organisation types, more than 35 per cent of patents were either used for blocking competitors or remained unexploited for other purposes. The share of unutilised patents was positively correlated with company size. Similarly, the results of the RIETI-Georgia Tech survey indicated that nearly 40 per cent of patents in Japan and the United States were not commercialised.

However, the extent to which general conclusions can be drawn from two overseas studies of patent use is somewhat limited. While possibly indicative of certain aspects of patent utilisation, greater empirical evidence, especially with regard to Australia, is necessary to draw definitive conclusions.

## Patent sale

Like other property rights, patents can be bought and sold. Sale of a patent is often referred to as an assignment, as distinct from licensing (Mendes nd).

Aggregate data and other information on patent assignments are generally quite limited, in part due to the commercially sensitive nature of such transactions. Nevertheless, some information on assignments can be gleaned from national patent offices. For example, the US Patent and Trademark Office (USPTO) maintains a searchable database with patent assignment information dating back to August 1980. Users can search for assignment information by, for example, patent number, assignor name, or assignee name (USPTO 2012b).

A study of patent assignments in the United States was undertaken by Serrano (2010), using data sourced from the USPTO’s assignment database. Serrano collected information on US utility patents (as opposed to, for example, design and plant patents) granted between 1 January 1983 and 31 December 2001, and analysed the extent to which these patents were traded. The data demonstrated that, across various types of organisations, the transfer of ownership of patents was generally limited. Even the most active traders of patents — private inventors and small corporations — on average sold a little over 10 per cent of their patents. Large companies and government agencies traded an even smaller fraction of their patents (table 4.3).

Table 4.3 US utility patents traded and untraded**a, b**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Traded | Not traded | Total | Per cent traded |
| Individually owned and  unassignedc | 28 044 | 276 043 | 304 087 | 9 |
| Individually owned by private  inventors | 2 185 | 15 469 | 17 654 | 12 |
| Small corporations | 54 533 | 399 150 | 453 683 | 12 |
| Medium corporations | 53 359 | 513 722 | 567 081 | 9 |
| Large corporations | 31 540 | 534 042 | 565 582 | 6 |
| Government agencies | 809 | 24 574 | 25 383 | 3 |

a Data refer to US utility patents granted between 1 January 1983 and 31 December 2001.  b Small corporations refer to those granted no more than five patents in a given year. Large corporations refer to corporations with more than 100 patents granted in a given year. Medium corporations constitute the remainder.  c Refers to patents still owned by their original inventors at the time of patenting, and for which the inventors have not yet granted rights to the invention to a legal entity.

*Source*: Serrano (2010).

IP Australia provided the Commission with data on patent assignments in Australia from its AusPat system. As registering an assignment with IP Australia is optional, the resulting data do not constitute a complete record of patent assignments in Australia. The data consist of assignments made by patent applicants under s. 113 of the *Patents Act 1990* (Cwlth); assignments made by a patentee under s. 187 of the Patents Act, and r. 19.1 of the Patents Regulations (Cwlth); and requests for assignments.

In 2002, IP Australia changed its recording system for patent assignments. Prior to this time, data were recorded as assignments by applicants or assignments by patentees. Under the newer system data are recorded as requests for assignment (IP Australia pers. comm., 19 October 2012). Hence, there is a gradual reduction in assignments by applicants and assignments by patentees recorded over time, and an increase in requests for assignment (table 4.4).

Drawing definitive conclusions from these data presents challenges, given the voluntary registration of assignments. While fluctuations in the number of registered assignments may reflect underlying changes in patents bought and sold, it may also simply be a reflection of changes in the propensity for those entering into agreements to register them. This makes it difficult to discern the presence of trends in the data, and to determine why assignment figures vary from year to year.

Table 4.4 Patent assignments and requests for assignments in Australia recorded by IP Australia**a**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Assignments by  applicantsb | Assignments by  patenteesc | Requests for assignment | Total |
| 2000 | 1 226 | 1 984 | .. | 3 210 |
| 2001 | 1 390 | 1 983 | .. | 3 373 |
| 2002 | 1 522 | 2 105 | 38 | 3 665 |
| 2003 | 1 101 | 2 322 | 689 | 4 112 |
| 2004 | 608 | 2 156 | 1 204 | 3 968 |
| 2005 | 219 | 1 679 | 1 714 | 3 612 |
| 2006 | 72 | 1 855 | 3 232 | 5 159 |
| 2007 | 16 | 1 427 | 4 143 | 5 586 |
| 2008 | 13 | 1 321 | 2 905 | 4 239 |
| 2009 | 4 | 997 | 3 054 | 4 055 |
| 2010 | 2 | 1 105 | 2 763 | 3 870 |
| 2011 | .. | 677 | 3 107 | 3 784 |
| 2012 | .. | 596 | 2 958 | 3 554 |
| Total | 6 173 | 20 207 | 25 807 | 52 187 |

a These data under report patent assignments in Australia since registration of assignments with IP Australia is optional. b Assignments by applicants refer to those made under s. 113 of the Patents Act. c Assignments by patentees refer to assignments made under s. 187 of the Patents Act, and r. 19.1 of the Patents Regulations (Cwlth). **..** Not applicable.

*Source*: IP Australia (unpublished).

## Licensing of patents

A patent holder may license exploitation rights to another party. The patent holder who provides the licence is referred to as the licensor, while the firm or individual acquiring the exploitation rights is referred to as the licensee. A patent licence normally constitutes a legal arrangement, and thus will have associated conditions that the licensee must adhere to in exploiting the patented innovation (Mendes nd). However, it is not necessarily the case that all licence agreements are formally documented. For example, with respect to the medical biotechnology sector, the Centre for Law and Genetics observed that:

… patent licences are tacitly agreed on a frequent basis, so that there is no written agreement as such on the terms comprising the agreement. (sub. 3, p. 7)

The Walter and Eliza Hall Institute of Medical Research (sub. 13) noted that, rather than have a standalone licence after an invention is fully developed, biomedical research organisations often build licensing provisions into agreements with their development partners.

### Exclusive, non-exclusive and sole licences

Parties may choose to enter into an exclusive licence, which gives the licensee (and persons authorised by the licensee) the ability to exploit the innovation covered by the patent, and excludes the patent holder from doing the same (IP Australia 2012n). Exclusive licences may be limited to particular territories, specified periods of time, or certain specified uses, enabling the patent holder to exploit the patent in other cases (ALRC 2004). An exclusive licence is more likely to raise concerns about accessing an invention than a non-exclusive licence, but no more so than the original patent right itself.

Alternatively, a patent holder might decide to enter into in a sole licence with a licensee. In contrast to an exclusive licence, a sole licence allows for both the patent holder and the licensee to commercially exploit a patented innovation. It also prohibits a patent holder from licensing the patent rights to any other party (ALRC 2004).

A non-exclusive licence gives the patentee greater freedom than an exclusive or sole licence, because the patentee retains the right to exploit the invention and to license it to other parties.

### Why license?

There are many reasons why organisations might engage in licensing agreements. An organisation that licenses out patented technology to another organisation may, for instance, be motivated by:

* a desire to earn revenue from royalty and other payments
* a limited capacity or desire to manufacture the patented product in commercial quantities
* the ability to establish and take advantage of business networks in foreign jurisdictions
* preventing or settling patent litigation, especially where cross-licensing may be involved (ALRC 2004)
* a need to establish collaborative research networks, including through cross‑licensing
* a desire to spread the risk associated with commercialisation (Institute of Patent and Trade Mark Attorneys and the Australian Federation of Intellectual Property Attorneys, sub. 18).

Reasons for licensing have also been put forward in the economic literature, and these mainly deal with strategic interactions among firms (for example, Gallini 1984; and Rockett 1990). Shepard (1987) argued that licensing could expand the industry‑wide demand for a patented product by inducing quality competition between licensees. Nevertheless, licensing is not always an appropriate strategy for a firm from a profit-maximising perspective, nor is licensing necessarily always feasible.

As noted above, licensing out technology carries with it the risk of creating competitors in the product market, which can erode the market share of the patentee firm. To avoid this risk, firms may decline to license out their technology. Transaction and negotiating costs may also prevent the signing of licensing agreements, if prohibitively large (Arora and Fosfuri 2003).

Furthermore, patent holders may be reluctant to license their innovations if it requires disclosure of commercially sensitive information to third parties, or if they have concerns about the ability of potential licensees to successfully exploit the innovation in question (DeBoos and Wilson nd).

Some empirical information on why organisations engage in licensing agreements has been published by researchers at the OECD, following a survey conducted in 2007 (Zuniga and Guellec 2009). This survey obtained information on licensing out activity from a total of 612 European companies and a total of 1640 Japanese companies. A range of companies of different sizes were surveyed.

For both European and Japanese companies, it was found that the primary motivation to license was to earn revenue (cited by 60 per cent and 52 per cent of companies surveyed respectively), followed by a desire to enter into cross-licensing deals (cited by 18 per cent of companies in each region). In a similar vein, for Australia, Scott Bouvier observed:

In my experience, patent holders will generally license their inventions to third parties that offer sufficient commercial incentive to do so. The potential to generate revenue or maximise adoptions tend to drive the Australian patent licensing system and ensures that licenses are made available to market. (sub. 2, p. 2)

Zuniga and Guellec (2009) also found that in Europe preventing others from infringing patents was a significant reason for licensing out, cited by 14 per cent of those surveyed. In Japan, however, the next most significant reason for licensing out was to establish patented technology as a de facto standard, and to outsource manufacturing, each of these motivations being cited by 11 per cent of surveyed firms.

### Content of licences

There is little information on the content of licences. This reflects the commercial nature of the contracts made between organisations, which often include commercially sensitive information. As researchers at the OECD observed:

Little is known on licensing transactions from a quantitative perspective: their volume, the profile of companies involved, the sectors where they are more prevalent, the motives for the firms involved, their economic effects … Anecdotal evidence is available for all these questions, but no statistics. (Zuniga and Guellec 2009, p. 6)

Inquiry participants generally held the view that there is a wide degree of variability in licence arrangements. For example, the Centre for Law and Genetics noted that:

Our survey and interview evidence indicates that there are many different types of agreements, tailored to meet the requirements of the parties transacting and the technology involved. Thus a patent licence agreement (in this industry at least) may contain a myriad of terms … While there have been attempts to draft standard licensing agreements for the licensing of genetic inventions, their success has been limited … (sub. 3, p. 7)

Similarly, DeBoos and Wilson (nd, p. 1) observed that:

There are very few standard licensing transactions. A lot will depend on the commercial context and the agreement used to transfer the rights should be tailored to accomplish the commercial objectives.

They listed a number of areas where licensing agreements can vary, including:

* the bundle of IP rights being licensed
* the type of activities permitted under the agreement
* whether sub-licensing is permitted
* possible field of use or territorial limits
* the approach to be taken to improvements and infringement issues
* the nature of any obligations to be placed on the licensee
* rewards for the licensor
* the obligations of confidentiality
* dispute resolution mechanisms
* duration of the licence, and termination rights
* obligations post-termination of the licence.

The Advisory Council on Intellectual Property (sub. 35) also noted the potential for licensing contracts to differ widely. The Walter and Eliza Hall Institute of Medical Research (sub. 13) listed the matters that are often included in biomedical licensing agreements, and the scope for them to differ between agreements (box 4.1).

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| --- |
| Box 4.1 Biomedical licensing agreements |
| The Walter and Eliza Hall Institute of Medical Research submitted information on the various types of provisions often included in licensing agreements in the biomedical sector. While certain matters must be enunciated in licensing contracts, their specific form and the emphases on different elements of the contract will inevitably differ from agreement to agreement.  In any licensing agreement, key concepts will be defined, such as the intellectual property (IP) included, the term of the agreement, geographical territory covered, related parties to the agreement, and the type of licensing arrangement entered into (that is, exclusive, non‑exclusive, or sole). Common considerations regarding payments include (but are not limited to):   * upfront payments for access to background IP * royalties, which, for example, may be fixed, increasing, decreasing, or milestone or threshold based * provisions for royalty stacking in the event that access to other IP is required for commercialisation * definition of returns in the event there is a combination product requiring IP from other parties.   A licensee will typically be required to ensure that the sale of products occurs on proper commercial terms, and that quantities are available as free samples, or for the purposes of donation.  Confidentiality provisions are standard. Academic licensors often require retained rights to the IP they license out to other parties, subject to confidentiality clauses. Commercial endeavour and performance obligations may also be part of a licence. These obligations seek to ensure that the IP covered by the agreement is commercially exploited, rather than remaining dormant.  Safeguards and procedures also exist to deal with issues that may arise, such as non‑performance, conflict resolution, and termination of licences. For instance, if a licensee fails to honour its performance obligations and rectify alleged underperformance, a licensor may elect to limit the territory, or field of an agreement. The licensor may also convert an exclusive licence to a non-exclusive licence, or exclude foundation IP or improved IP from the agreement in light of alleged underperformance. |
| (continued next page) |
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| Box 4.1 (continued) |
| Parties typically agree in advance on the procedures for addressing conflict, and failing internal resolution, a third party (or parties) may be appointed. A common example of an external party performing this role is the Licensing Executives Society. Criteria for termination of a licensing agreement are often related to financial solvency of the parties involved, and their adherence to the terms of the agreement. |
| *Source*: WEHI (sub. 13).). |
|  |
|  |

### Prevalence of licensing

As mentioned, information on the prevalence of voluntary licensing is limited. The PatVal‑EU and RIETI-Georgia Tech surveys noted earlier suggest that the extent of licensing is relatively low, at least among surveyed European, Japanese and US patent holders. For example, the PatVal-EU survey found that, across all organisations, less than 15 per cent of patents were licensed in some form (table 4.5). In comparison, about half of all patents were used solely by their owner and nearly 40 per cent were unused. Possible reasons for the low rate of licensing, and the implications it might have for public policy, are discussed later in this chapter.

Table 4.5 Patent use in PatVal-EU survey, by organisation type**a**

Per cent

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Internal use only | Licensing only | Cross licensing | Licensing and use | Blocking competitors | Sleeping patents | Total |
| Large companiesb | 50 | 3 | 3 | 3 | 22 | 19 | 100 |
| Medium sized  companiesb | 66 | 5 | 1 | 4 | 14 | 10 | 100 |
| Small companiesb | 56 | 15 | 4 | 7 | 10 | 9 | 100 |
| Private research  institutions | 17 | 35 | 0 | 6 | 19 | 23 | 100 |
| Public research  institutions | 22 | 23 | 4 | 6 | 11 | 34 | 100 |
| Universities | 26 | 23 | 5 | 5 | 14 | 28 | 100 |
| Other government  institutions | 42 | 17 | 0 | 8 | 8 | 25 | 100 |
| Other | 34 | 17 | 4 | 9 | 13 | 23 | 100 |
| All organisations | 51 | 6 | 3 | 4 | 19 | 18 | 100 |

a Data are based on a sample of 7556 patents granted by the European Patent Office with priority dates between 1993 and 1997. Countries included in the survey were: Germany, France, the UK, Italy, the Netherlands and Spain. The survey was carried out in 2003 and 2004. b Small companies defined as those with less than 100 employees. Medium companies defined as those with 100–250 employees. Large companies are defined as having more than 250 employees.

*Source*: Giuri et al. (2007).

#### Patent licensing records in Australia

IP Australia possesses a patent register, and a number of voluntary patent licensing agreements have been registered on it over time. Some aggregated information on patent licences is available from this source.[[1]](#footnote-1)

It is important to keep in mind, however, that there was no obligation on parties to register a licence with IP Australia. Hence, its database does not represent a complete record of all voluntary patent licences in Australia (as discussed earlier), and so the actual aggregate characteristics and distribution of licences across industries may differ significantly from the data reported here.

From 1989 to 2012, the number of voluntary licences recorded on IP Australia’s register totalled 1091 (table 4.6), although the number was quite variable from year to year. For example, 145 licences were registered in 2011, preceded by 62 in 2010. For the purposes of comparison, a total of almost 18 000 patents were granted in 2011 alone, far exceeding the number of licences recorded with IP Australia over a much longer time horizon. It is difficult to determine whether this is because the extent of licensing in Australia is limited, or a low proportion of licensing agreements were registered with IP Australia.

The data suggest that licensing is not concentrated in a few industries. The technology group with the largest number of licences between 1989 and 2011 was civil engineering, building, and mining, followed by organic fine chemicals.

Table 4.6 Voluntary patent licences recorded by IP Australiaa

|  |  |  |
| --- | --- | --- |
| Technology group | Total number of licences, 1989–2012 | Percentage share of registered licences |
| Agricultural and food machinery | 31 | 3 |
| Agriculture, food | 13 | 1 |
| Analysis, measurement, control | 77 | 7 |
| Audiovisual | 6 | 1 |
| Basic chemical processing, petrol | 21 | 2 |
| Biotechnology | 23 | 2 |
| Civil engineering, building, mining | 163 | 15 |
| Consumer goods and equipment | 72 | 7 |
| Electrical devices and engineering | 33 | 3 |
| Engines, pumps, turbines | 17 | 2 |
| Environment, pollution | 13 | 1 |
| General processes | 42 | 4 |
| Handling, printing | 80 | 7 |
| Information technology | 23 | 2 |
| Macromolecular chemistry, polymers | 7 | 1 |
| Material processing | 23 | 2 |
| Materials, metallurgy | 15 | 1 |
| Mechanical elements | 23 | 2 |
| Mechanical tools | 7 | 1 |
| Medical engineering | 60 | 5 |
| Not yet classified | 1 | 0 |
| Optics | 13 | 1 |
| Organic fine chemicals | 133 | 12 |
| Pharmaceuticals, cosmetics | 87 | 8 |
| Semiconductors | 2 | 0 |
| Space technology, weapons | 12 | 1 |
| Surfaces, coatings | 9 | 1 |
| Telecommunications | 18 | 2 |
| Thermal techniques | 46 | 4 |
| Transport | 21 | 2 |
| Total | 1 091 | 100 |

a Data do not include all voluntary licence agreements in Australia. The extent of underreporting is unknown.

*Source*: IP Australia (unpublished).

#### Licensing of medical biotechnology in Australia

A study by researchers at the Centre for Law and Genetics at the University of Tasmania sheds some light on licensing behaviour in the Australian medical biotechnology industry (Nicol and Nielsen 2003).

Of the organisations surveyed, only 52 per cent of research institutions, and just under 40 per cent of companies reported that they licensed out their IP. Of those organisations that did license out, many had only a small number of licences (table 4.7).

Table 4.7 Licensing out by the Australian medical biotechnology industry, 2003a

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number of out‑licences | Research institutions | | Companies | |
| No. | Per cent of research institutions | No. | Per cent of companies |
| 0 | 8 | 35 | 24 | 49 |
| 1 | 3 | 13 | 3 | 6 |
| 2–4 | 3 | 13 | 9 | 18 |
| 5–9 | 2 | 9 | 1 | 2 |
| 10–19 | 0 | 0 | 0 | 0 |
| 20–49 | 1 | 4 | 1 | 2 |
| More than 50 | 1 | 4 | 0 | 0 |
| Number not specified | 2 | 9 | 5 | 10 |
| No answer | 3 | 13 | 6 | 12 |

a Based on a survey by Nicole and Nielsen (2003).

*Source*: Nicol and Nielsen (2003).

Although some respondents seeking to acquire technology preferred to do so by assignment, others preferred to license in technology due to risk and uncertainty, which can make valuation of the technology for the purposes of assignment difficult. Indeed, royalty payments associated with patent licences have often been justified as a means of risk-sharing between patentees and licensees (Bousquet et al. 1998).

A subsequent study of Australian licensing behaviour in this industry was undertaken in 2007 by Nicol (2010). A total of 59 individuals from the industry were surveyed, with survey respondents holding positions within the organisations they worked for such as chief executive officer, director, patent expert, and chief scientific officer. A significant proportion of respondents (34 per cent), reported that they did not license in technology at all. Nicol (2010) concluded that assignment, rather than licensing, may be the preferred mechanism for accessing technology. The most common justification given by survey respondents for limited licensing was an ability to invent around patents.

Nicol (2010) also reported survey data on the degree of licensing out. Respondents indicated that licensing out was generally not a widespread activity. This could possibly indicate that many of the innovations protected by patents were at too early a stage of development to license out.

### Why is there a low rate of licensing?

Several studies have considered whether the number of voluntary licensing agreements entered into by organisations holding patents, and those seeking to utilise them, could be increased. This is often seen as a desirable objective on the grounds that it would lead to a more widespread utilisation of technology, and hence, result in a greater diffusion of innovations.

As noted above, the PatVal-EU survey found a low rate of licensing of patents. The RIETI-Georgia Tech survey identified a similar situation for Japanese and US companies. A low rate of licensing however, does not necessarily indicate that patent owners regularly deny access to patented technologies on reasonable terms. Patent owners have an incentive to maximise the benefit they receive from their inventions. That goal is unlikely to be best served by refusing to license a patent.

The available evidence indicates that refusal to license patents on reasonable terms is not a major barrier to accessing patented innovations. Scott Bouvier submitted:

… I see the issue of patent holders refusing to license their inventions as an uncommon and exceptional issue in the Australian context.

The more familiar patent licensing issues my clients require assistance with tend to involve contentious negotiations of license terms or disputes that arise after a license has been granted. (sub. 2, p. 1)

Similarly, the Centre for Law and Genetics submitted with respect to the medical biotechnology industry:

Both survey data and interview data indicated that refusals to license patents are not a pervasive issue for participants in this industry (in both contexts of out-licensing and in-licensing). (sub. 3, p. 6)

It appears that a more significant concern is that patent owners are not able to license as often as they would like to. In this regard, the Institute of Patent and Trade Mark Attorneys and the Australian Federation of Intellectual Property Attorneys noted:

… there would be far more patentees who are unsuccessful in seeking a licensee in Australia than there would be patentees entering into licensing arrangements. One of the major obstacles for patentees is to find a licensee who is both willing and capable of bringing an invention to market. This is not a problem with the patent system but rather due to the fact that not every patentable idea will be commercially valuable. (sub. 18, p. 5)

The RIETI-Georgia Tech survey measured the gap between a patent owner’s willingness to license and actual licensing activity. It was found that, in 2007, 40 per cent of Japanese organisations were willing to license their technology, but only 21 per cent actually did so. Around 30 per cent of US organisations reported a willingness to license, but only 14 per cent did so (Sadao and Walsh 2009).

Similarly, survey data analysed by Zuniga and Guellec (2009) showed that in 2007, 24 per cent of European firms holding patents were willing to license them, but could not, while the corresponding share for Japanese firms was 53 per cent. A quarter of European firms cited difficulty in finding partners as their main reason for not licensing out, and 18 per cent of Japanese companies regarded this as an important barrier. Other reasons cited included the complexity and cost of drafting and negotiating contracts, lack of readiness of the innovation covered by the patent, and disagreements over pricing.

Further research is required on the impediments that patent owners face in licensing their inventions. This is beyond the scope of the inquiry. Potential barriers discussed in the literature include difficulties in identifying licensing partners; the cost and complexity of drafting and negotiating licence contracts; an invention not being a viable commercial proposition, and concerns about reputational damage if the licensee implements an invention poorly or discloses commercially sensitive information. Compulsory licensing is not a solution to these problems.

## Patent thickets, pools and clearinghouses

While patents provide a means to foster innovation by conferring exclusive rights for an innovation on a patent owner, they may also create difficulties accessing those innovations. Where the users of patented innovations have to negotiate multiple licences in order to gain access to technology, they may face a multitude of overlapping patent rights, referred to as a ‘patent thicket’. Patent pools and clearinghouses have emerged internationally as potential mechanisms to obviate thickets. However, competition laws are necessary to ensure that pools are not used to stifle competition. A number of other mechanisms that are used to access patented innovations, such as voluntary licences of right, are discussed in chapter 9.

### Patent ‘thickets’

It is not unusual for complex products like mobile phones to use multiple patented inventions, many of which have to be used under licence (chapter 5). The more licences a firm has to negotiate with patent holders, the more costly developing their own product may become. Firms also need to be more aware of patents and ensure they do not inadvertently infringe them, leading to higher search costs (Aoki and Schiff 2008).

This can lead to the potential problem of ‘patent thickets’. Shapiro (2001) defined a patent thicket as an overlapping set of patent rights requiring those seeking to commercialise new technology to first obtain numerous licences from multiple patentees. The patents required to produce a good can be numerous and the cost of negotiating with all patentees raises the eventual price for both producers and consumers.

The market power inherent in each patent owner’s right can lead to those holders extracting a high licence fee in exchange for use of the patent. If each of the multiple patent owners chooses to extract a high price, the required licence fees could limit the profit potential for the product or, in the extreme, make the product commercially unviable. In economics, Cournot labelled this as the ‘complements problem’ (Shapiro 2001). In the field of licensing, this phenomenon is often referred to as the ‘royalty stacking’ problem (Browning and Mulhern 2009). Related to this is the ‘tragedy of the anti-commons’, which refers to a situation whereby a resource is underutilised because of a failure of the owners of IP to coordinate access to required technology (box 4.2).

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| Box 4.2 The tragedy of the anti-commons |
| To demonstrate the concept of the tragedy of the anti-commons, suppose that there are two complementary technologies, A and B, required to produce another technology, C, and that the producers of C must pay royalties to the owners of the patents for access to their technologies. If the required royalty for use of technology A were to be increased, the costs of producing technology C would rise, leading to a decrease in the quantity of technology C produced. One effect of this would be to reduce the royalties received by the owner of the patent for technology B. Hence, the decision to raise the royalty rate on technology A imposes a cost on the owner of technology B and fails to maximise joint royalty revenues for the owners of technologies A and B. As a result, the production, and hence, utilisation, of technology C is less than optimal.  If, instead, royalties were set by patent holders A and B in conjunction, the imposition of bilateral costs through reduced use of technology could be avoided. The royalty per unit of C produced would be lower than if either patent holder A or B independently determined royalty rates, but joint royalty revenues would be greater. Accordingly, the price of technology C would be lowered, thus benefitting its consumers. |
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| Box 4.2 (continued) |
| The greater the number of technologies required as inputs for production, the more severe the problem of obtaining required access may become, thus exacerbating the tragedy of the anti-commons. Although cooperation between patent holders to avoid the tragedy of the anti-commons might be desirable in the case of complementary technologies, cooperative determination of royalties for substitutable technologies is likely to undermine competition and reduce access to technology. |
| *Sources*: Aoki and Schiff (2008); Buchanan and Yoon (2000). |
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Some indication of the potential importance of patent thickets is given by the RIETI-Georgia Tech survey. For both the Japanese and US organisations surveyed, only around 20 per cent of patents could be used on a standalone basis. Most commonly, a bundle of two to five patents was found to be required for commercialisation of an innovation protected by a patent in both Japan (where about 44 per cent of patents required such a bundle) and the United States (where approximately 47 per cent of patents required such a bundle for commercialisation). Furthermore, in both countries, about 30 per cent of patented innovations required access to between 6 and 50 further patents for commercialisation (Sadao and Walsh 2009).

Another potential problem with multiple patents is that of patent ‘hold-up’. Hold-up can occur when one firm has invested considerably to develop a specific product and bring it to market, only to find out at a late stage of development, or once the product has launched, that another firm owns intellectual property rights over aspects of the product. In such a situation, the resultant negotiations can cause lengthy delays and higher costs for the firm seeking the licence (Browning and Mulhern 2009). This can undermine competition, with consumers facing fewer choices and higher prices.

### Patent pools

A number of private licensing access mechanisms have arisen to obviate potential problems that may result from multiple patents. Cross licensing is one such mechanism. A cross-licensing agreement between two firms gives the firms the right to access each other’s patents.

Patent pools are another cooperative mechanism used by firms to enable greater access to patented technologies and other products. A patent pool essentially constitutes a package licence for a number of patents. Patent pools are agreements between two or more patent owners to license one or more of their patents to one another, or to bundle patents and license them as a package to third parties who are willing to pay the royalties. Licensees may also include the patent holders themselves. The pool may be administered by one or more of the members of the pool, acting on behalf of all of the other members, or alternatively, it might be administered by a management organisation (Aoki and Schiff 2008).

Potential benefits associated with patent pools include:

* lowering the search and transaction costs of licensing by providing a one-stop shop for businesses to obtain the necessary licences required to develop a particular technology, therefore overcoming problems caused by ‘blocking’ and ‘stacking’ licences
* reducing or eliminating the need for litigation over patent rights
* facilitating risk sharing among members associated with research and development
* allowing for free sharing of information related to patented technology among members and licensees, where members have incentives to avoid overlapping efforts in areas of innovative effort, especially in the field of biotechnology (Clarke et al. 2000).

Aoki and Schiff (2008) argued that patent pools could enhance efficiency, provided that the patents within the pool cover complementary technologies and products, and hence, facilitate greater access to innovations. However, if the patents in the pool provide intellectual property rights for technology and products that are substitutes, there is potential for members of the patent pool to use it as an instrument for collusion, to the detriment of those seeking access to patented innovations.

Enforcement of competition law and selectivity in admitting patentees to the patent pool can help to allay such concerns. It would generally be undesirable, however, for competition law to hinder attempts by patentees possessing complementary and potentially blocking patents to coordinate practices, such as by engaging in cross licensing, package licensing, or to form patent pools (Shapiro 2001). Patent pools may also be susceptible to problems with maintaining membership stability. Not all members of the pool may necessarily have the same objectives, which can make ongoing management of the pool difficult. For instance, some members of the pool might be research-only organisations, whereas other members are likely to be profit-maximising companies. The disparate motivations for the patenting activity may lead to the possibility of ‘free riding’ and membership instability (Aoki and Schiff 2008).

An additional concern raised in relation to patent pools is that they could potentially shield invalid patents. Those expecting their patents to be invalidated in court may have an incentive to settle by creating a patent pool. In turn, this may result in patent users and the public being forced to pay royalties on technology that would have become part of the public domain if the patents were actually litigated in court (Clarke et al. 2000).

Furthermore, Telstra Corporation Limited observed:

Whilst patent pools sometimes address the patent thicket situation, patent pools do not always provide a solution. Participation in patent pools is voluntary and therefore dependent on industry co-operation. (sub. 8, p. 4)

Patent pools are best suited to situations where complementary patents must be combined to produce a new product or innovation, and where there are common technological standards or the essential patents are easy to identify, as in information technology industries. Some overseas examples of established patent pools include the Medicines Patent Pool (box 4.3) and MPEG-2 (box 4.4). No patent pools are recorded on the ACCC authorisation and notifications registers.

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| Box 4.3 The Medicines Patent Pool |
| In 2006, Knowledge Ecology International and Doctors Without Borders put forward a proposal for a patent pool to UNITAID, which would focus on promoting access to HIV/AIDS medicines. Subsequently, the Medicines Patent Pool was established in December 2009, and works by negotiating voluntary licences with patentees, then non‑exclusively licensing these to third parties so that they may create generic versions of drugs for use in developing countries. Royalties from the sale of generics are then paid to patent holders.  In 2010, the Medicines Patent Pool obtained its first licence when the US National Institute of Health provided royalty-free licensing on patents of darunavir (a drug used to treat HIV infection) to the Pool. The scope of the licence encompassed all low- and middle-income countries defined by the World Bank.  The Medicines Patent Pool’s first licensing agreement with a pharmaceutical company occurred in 2011, when it entered into an agreement with Gilead Sciences for HIV and Hepatitis B medicines. The terms of the licensing agreement preserve the ability of companies to supply generic versions of the drugs covered under the agreement in the event of the issuance of compulsory licences by national governments. |
| *Sources*: Cox (2012); Doctors Without Borders (2010); Medicines Patent Pool (2011). |
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| Box 4.4 The MPEG-2 patent pool |
| MPEG-2 is a digital video compression standard utilised in products such as DVDs. In 1990, a process to set a standard was initiated, and a working group was established in 1993 to develop a framework for licensing. Alternatives to a patent pool, including a clearinghouse were initially considered by the working group, before it finally settled on the former. The MPEG LA corporation was founded to deal with the licensing of MPEG-2 patents. It stated that:  In the 1990s, the MPEG-2 standard … faced a patent thicket. The single biggest challenge to MPEG-2 adoption was access to essential patents. Many MPEG-2 patents owned by many parties made it virtually impossible for most users to negotiate the number of licenses necessary to use the standard (MPEG LA 2009).  Forming the patent pool for MPEG-2 however, was not without difficulty. Encouraging companies to join the pool was complicated by the different incentives among members of the pool. For instance, Sony is a licensor and a licensee of MPEG-2 patents, and uses patents primarily as a means to protect its IP. By contrast, Columbia University was mainly focused on maximising its royalties. The heterogeneous incentives of those involved led to debate about the appropriate licensing rate to be charged to licensees.  The licensing rate set by the pool also led to some problems among both licensees and licensors. For instance, some licensees already had licensing agreements with MPEG LA member firms, and sought reductions in the royalties payments required for the pool. Instead of altering the MPEG standard licensing terms, MPEG LA advised licensees to seek concessions with the firms with whom their initial licensing agreements had been concluded. The MPEG LA licence itself makes a commitment to not raise royalty rates, except in extreme conditions. Lerner and Tirole (2007) argued that this affects the ability of the pool to attract new licensors. This is because the formula used to distribute royalties gives each licensor a pro rata share of licensing revenues, based on the number of essential patents it owns, while the rate charged to licensees remains constant. |
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Patent pools have also been suggested by various organisations as useful mechanisms to deal with the specific problem of access and use of patented genes, diagnostic methods, technologies and tools that are used in genetics and biotechnology. Sung (2002) argued that genetic information represents an industry standard analogous to those in the electronics and telecommunications sector and that increasing patent protection in the sector should make cooperative market‑based technology transfer strategies through patent pools attractive to members of biotechnology industry, if not inevitable.

#### Patent commons

A patent commons is a vehicle through which patent holders allow their patents to be used without charge, possibly only for a limited range of purposes (Taubman 2010). This often includes the transfer of ownership rights to the commons.

There are several patent commons in operation internationally. A prominent example is the Eco-Patent Commons, established in January 2008 by IBM, Nokia, Pitney Bowes and Sony in conjunction with the World Business Council for Sustainable Development. It allows companies and individuals to pledge patents that either directly or indirectly confer environmental benefits. In this case, ownership rights over the patented technologies remain with the pledging parties, instead of being transferred to the commons. Potential technology users have no need to specifically request a licence, since any patent pledged to the Commons is automatically licensed royalty-free as long as the patent is used in a product or process that yields an environmental benefit (Hall and Helmers 2011). Since it was launched, about one hundred patents have been pledged by thirteen companies (WBCSD nd).

Hall and Helmers (2011) investigated the motives of firms contributing patents to this particular commons. They found that while patents pledged to the commons were generally climate change related, many were directed towards mitigating environmental damage from manufacturing processes rather than being specifically directed towards mitigating climate change. They also concluded that the technologies pledged to the commons tended to be derivative of earlier technologies, and hence, involved innovations that were not drastic in nature, and perhaps not very valuable to the firms donating them. Rimmer (2011, p. 326) has commented of the Eco-Patent Commons:

It is questionable whether the Eco-Patent Commons is truly a ‘commons’ as it is traditionally understood. It could be argued that the information technology companies are co-opting the concept of the ‘commons’ for the purposes of public relations.

A number of other critiques of the Eco-Patent Commons are noted by Rimmer (2011), which suggest that the veracity of such a commons is at least open to question.

### IP clearinghouses

As an alternative to patent pools, IP clearinghouses may be another means by which firms can facilitate the use of patented innovations (although clearinghouses can apply to other forms of intellectual property more generally). Clearinghouses can have broad objectives, such as providing databases and other informational repository tools, and can facilitate licensing and assignment of patents. Clearinghouses can assist those seeking access to patented technology by helping to reduce search costs and saving time. Besides providing informational services, clearinghouses can also handle administrative matters, such as the collection of royalties on behalf of patentees, and the monitoring of patent use by licensees (Aoki and Schiff 2008). These functions might help to reduce transaction and monitoring costs, and in doing so, facilitate licensing.

An example relevant to patents is the Espacenet online *information* clearinghouse administered by the European Patent Office (Van Overwalle et al. 2007). This service provides a range of information on patents from a repository which includes over 70 million patent documents from around the world, accessible via a searchable database. Espacenet can provide information, for example, on the legal status of patents, allowing a user to determine whether a patent is in force, and in which countries it is in force, as well as enabling a user to view documents cited by or citing the document they are viewing (EPO 2011). These types of services could help curb inadvertent patent infringement and prompt greater trade in technology. IP Australia maintains a searchable patent database (AusPat) which, among other functions, can help reduce the extent of duplication of activity, and save time and money for prospective patent applicants.

1. From 30 January 2012, IP Australia’s patent register is no longer a legal securities register, and the details of security interests may be recorded with the Personal Properties Securities Register (PPSR). The PPSR is operated by the Insolvency and Trustee Service Australia, which was unable to provide the Commission with data similar to that provided by IP Australia. [↑](#footnote-ref-1)