

2015

Submission on the ACIP Recommendation on the Innovation Patent System

by John Gibbs

A response to the invitation from IP Australia seeking feedback on the ACIP recommendation that the government should consider abolishing the innovation patent system.

26 September, 2015



Contents

Key Reasons Why the Innovation Patent System Should Not Be Abolished	3
<i>Submissions [001] to [009]</i>	
Summary of Problems with the ACIP Recommendation	4
<i>Submissions [010] to [018]</i>	
Supporting Data and Analysis	6
<i>Support material for each of submissions [001] to [018]</i>	
About the Author	22

Key Reasons Why the Innovation Patent System Should Not Be Abolished

- [001] Australian small to medium enterprises (SMEs) and individuals are the biggest users of the innovation patent system, accounting for 71% of all applications filed.
- [002] More than 56% of the Australian patents granted to Australian SMEs and individuals are innovation patents. Only 44% of patents granted to Australian SMEs and individuals are standard patents.
- [003] The main reasons why Australian SMEs and individuals prefer innovation patents are that they are significantly less expensive and many times faster than standard patents. The innovation patent system provides better service and better value for money than the standard patent system.
- [004] Standard patents cost 6 times as much as innovation patents (in government fees \$1,110 vs \$180), and they take 60 times longer to grant on average (1376 days vs 23 days).
- [005] Since 2010 there have been 33 reported Federal Court standard patent infringement decisions in Australia, and in 23 of those cases the patent owner was a foreign company. Over the same period there have been 16 reported innovation patent infringement decisions, and in 12 of those cases the patent owner was an Australian SME. Australian SMEs are clearly the major beneficiaries of innovation patent litigation, whereas foreign pharmaceutical companies are the major beneficiaries of standard patent litigation.
- [006] The Australian standard patent system is stacked against Australian applicants. In 2013, there were 26,656 standard applications by foreigners and 16,002 granted patents, a success rate of 60%, whereas there were 3,061 standard applications by Australian applicants but only 1,110 granted, a success rate of just 36%.
- [007] Australian applicants now file more US patent applications than Australian standard patent applications (3,695 vs 3,061 in 2013), presumably because US patent applications provide greater value for money.
- [008] Any change to Australian law which would result in higher costs to Australian applicants and slower service would be a very backward step.
- [009] Abolition of the innovation patent system would take away more than half of the patent rights currently received by Australian SMEs and individuals, while also taking away most of the legal remedies currently enforced by Australian SMEs.

Summary of Problems with the ACIP Recommendation

Remarkably, every single ground on which ACIP has relied to support its recommendation of abolishing the patent system is based on analysis errors or inappropriate assumptions.

The Intellectual Property Government Open Data (IPGOD) was published in September 2014 and IP Australia's Office of the Chief Economist has used this dataset to undertake a comprehensive analysis of the economic impact of the innovation patent system (IP Australia Economic Research Paper 05).

[010] **Reality:** As will be demonstrated below, the analysis of the economic impact of the innovation patent system is **far from comprehensive**, and **the key conclusions are either wrong or misleading**, being based on analysis errors and incorrect assumptions.

A key finding in this research paper is that Australian SMEs are less likely to use the patent system after filing an innovation patent than a company that has not previously filed an innovation patent.

[011] **Reality: Wrong.** Australian SMEs and individuals who have filed an innovation patent application are **eight times more likely to use the patent system again** than a business which has not previously filed an innovation patent application.

Only 23 SMEs have become moderate users of the innovation patent system.

[012] **Reality: Misleading.** This depends on a very peculiar definition of "moderate users of the innovation patent system". The petty patent system, which the innovation patent system replaced, achieved a maximum of around 600 applications per year. The innovation patent system is currently averaging around 1,600 applications per year of which more than 1,100 are by SMEs (including individuals), and is on track to reach 1,800 applications in 2015. Thus the innovation patent system is being **used by SMEs more than twice as much** as the system it replaced.

The average SME or private inventor files once and never again (74%)

[013] **Reality: Misleading.** The correct figure is 72.1% rather than 74%, but this compares with standard patent applications where 73.1% of SMEs or private inventors file once and never again. When the data is restricted to applications filed before 2001 (i.e. before the innovation patent system was introduced), 80.0% of SMEs or private inventors used to file once and never again. Accordingly, the introduction of the innovation patent system has **resulted in an increase** in the percentage of SMEs or private inventors making multiple use of the patent system.

does not receive any enforceable right (83%)

[014] **Reality: Misleading.** The statement is based on the incorrect assumption that innovation patent owners would voluntarily request examination if their patents were valuable. In fact, **no rational innovation patent owner would incur examination costs unless there was a compelling reason** to do so. The IP Australia website itself advises: "Unlike a standard patent, you only pay to

have an innovation patent examined when you need to stop others from copying your invention.”¹ Most patents never get infringed, so the owners never need to pay for examination. This is exactly how the system was designed to work.

lets their patent expire early because they see its value at less than the \$110-\$220 cost of renewal (78%)

[015] **Reality: Misleading.** While 76.3% of innovation patents expire early, 89% of standard patents expire early. In fact, most standard patent applications by Australian SMEs or individuals never get granted at all, with more than 50% expiring within 4 years. Patent applications are like venture capital investments. A lot bring little or no return, while a smaller number bring a large return.

While 94% of innovation patent applications are made by private inventors or SMEs and they incur 95% of the regulatory costs of the system, larger firms who are already well served by the standard patent system tend to reap a disproportionate share of the benefits.

[016] **Reality: Analysis Error.** This is an obvious error. The IP Australia economic research paper has calculated a figure for total “regulatory costs”, then assumed incorrectly that they are evenly distributed across all applicants. 5.55% of applications by Australian entities are filed by large organisations, so the assumption is they only pay 5.55% of the costs. The **assumption is demonstrably incorrect, and inconsistent with other assumptions made in the report.** The reality is that individual applicants spend much less per innovation patent on average than SMEs, who spend less than large companies.

The report estimates that the private value of innovation patents is of a similar magnitude to the regulatory costs incurred (in the low tens of millions of dollars per annum).

[017] **Reality: Analysis Error.** The estimates are based on some assumptions which are clearly incorrect, some data errors, and some assumptions which are doubtful at best. For the reasons given later in this submission, a more appropriate estimate of the annual cost to applicants is \$2.4 million (including government fees), while a more appropriate estimate of the range of annual value to applicants is between \$37 million and \$900 million. Thus the **private value is between 15 and 375 times higher** than the private costs.

ACIP agrees with the finding in the report that the private gains from innovation patents are likely to be offset by the uncertainty costs to consumers and producers.

[018] **Reality: Unsupported.** No attempt has been made to enumerate or quantify the uncertainty costs or to identify whether they are more or less than the uncertainty costs for standard patents.

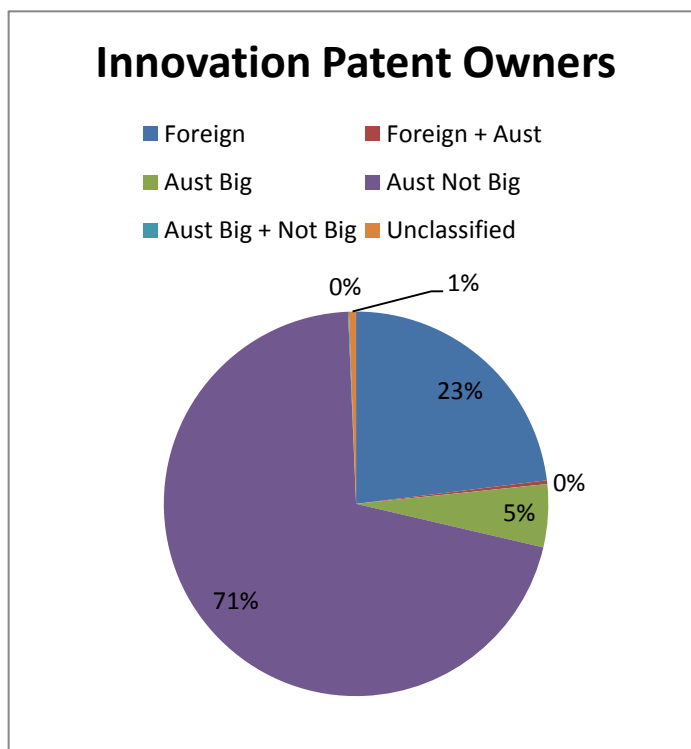
¹ <http://www.ipaustralia.gov.au/get-the-right-ip/patents/types-of-patents/innovation-patent/>

Supporting Data and Analysis

The following supporting data and analysis deals provide support for each of the numbered statements made above.

[001] Australian small to medium enterprises (SMEs) and individuals are the biggest users of the innovation patent system, accounting for 71% of all applications filed.

Data file ipgod10104172015.csv contains 16,509 entries with a patent_type of INNOVATION (although the table is missing all data before 2003). Of these, 3805 are shown as being owned by a foreign owner, 51 by an Australian and a foreign owner jointly, 12,555 by an Australian owner, and 98 unclassified. Of the 12,555 shown as being owned solely by an Australian owner, 872 are shown as owned by a big entity, and 12 by a big entity jointly with another entity, leaving 11,671 owned by an SME or individual. Thus at least $11671/16509 = 70.7\%$ of innovation patent applications appear to be owned by SMEs and individuals, but the actual figure may be higher after allowing for unclassified and ambiguous data.



[002] More than 56% of the Australian patents granted to Australian SMEs and individuals are innovation patents. Only 44% of patents granted to Australian SMEs and individuals are standard patents.

While Australian SMEs and individuals file more applications for standard patents than for innovation patents, the majority of standard patent applications by Australian applicants are unsuccessful. The following table shows the number of patents in each category actually granted for each of the past 5 calendar years.

	2010	2011	2012	2013	2014	Total	Percentage
Innovation	917	988	1006	1016	769	4696	56.2
Standard	702	785	769	683	722	3661	43.8

[003] The main reasons why Australian SMEs and individuals prefer innovation patents are that they are significantly less expensive and many times faster than standard patents.

This was one of the findings of the Australian Innovation Patent Survey, as encapsulated in the report prepared for IP Australia by Verve Economics entitled “The Economic Value of the Australian Innovation Patent”, dated 24 March 2013. Page 41 contains the finding, “The main reasons inventors preferred innovation patents over standard patents were the faster grant time and the lower cost of innovation patents.”

[004] Standard patents cost 6 times as much as innovation patents (in government fees \$1,110 vs \$180), and they take 60 times longer to grant on average (1376 days vs 23 days).

Current standard patent fees are \$370 on application (using eServices), \$490 on requesting examination, and \$250 on acceptance, giving a total of \$1,110. Current innovation patent fees are \$180 on application (using eServices).

Data file ipgod10705252015.csv contains data for filing date and sealing date for innovation patents and standard patents. The median difference between sealing date and filing date for entries identified as innovation patents with both dates recorded is 23 days. The median difference between sealing date and filing date for entries identified as standard patents with both dates recorded is 1376 days. $1376/23 = 59.8$. The median has been used in these calculations rather than the mean because when a divisional application has been filed, the parent application’s filing date has been entered as the filing date in at least some cases, which would lead to a considerable overestimation of the time between filing and sealing.

[005] Since 2010 there have been 33 reported Federal Court standard patent infringement decisions in Australia, and in 23 of those cases the patent owner was a foreign company. Over the same period there have been 16 reported innovation patent infringement decisions, and in 12 of those cases the patent owner was an Australian SME. Australian SMEs are clearly the major beneficiaries of innovation patent litigation, whereas foreign pharmaceutical companies are the major beneficiaries of standard patent litigation.

The data for this statement was obtained by a manual review of all Australian Federal Court decisions at first instance published since 1 January 2010 in patent infringement cases. The full data is given in the table below.

Patent Type	Foreign	Large	SME	Total
Innovation	2	2	12	16
Innovation+ Standard	0	1	1	2
Standard	23	2	8	33

[006] The Australian standard patent system is stacked against Australian applicants. In 2013, there were 26,656 standard applications by foreigners and 16,002 granted patents, a success rate

of 60%, whereas there were 3,061 standard applications by Australian applicants but only 1,110 granted, a success rate of just 36%.

This data is taken directly from the Australian Intellectual Property Report 2015, published on IP Australia's website.²

[007] Australian applicants now file more US patent applications than Australian standard patent applications (3,695 vs 3,061 in 2013), presumably because US patent applications provide greater value for money.

This data is taken directly from the Australian Intellectual Property Report 2015, published on IP Australia's website.

[008] Any change to Australian law which would result in higher costs to Australian applicants and slower service would be a very backward step.

Australia is not one of the most popular destinations for filing patent applications. The following table compares Australia with each of the 9 most popular countries for filing patent applications³ (Europe, which was one of the top 10, has been disregarded for this analysis because it is a region rather than a country and there is some ambiguity about how to treat European validation fees). Estimated costs including government fees and fees charged by attorneys in each of the countries converted to Australian dollars have been compared with each country's GDP in billions of US dollars⁴ and each country's population in millions⁵ to give two different estimates as to the "value for money" of patent applications in each country.

Country	Est Cost	GDP \$B	Cost/\$B GDP	Pop (M)	Cost/M Pop
China	6000	10360	0.579151	1364	4.398827
US	8000	17419	0.459269	318	25.15723
Japan	12000	4601	2.608129	127	94.48819
Korea	6000	1410	4.255319	50	120
Germany	7000	3852	1.817238	80	87.5
Russia	8000	1860	4.301075	143	55.94406
India	2000	2066	0.968054	1295	1.544402
Canada	4000	1786	2.239642	35	114.2857
Brazil	5000	2346	2.131287	206	24.27184
Australia	7000	1453	4.817619	23	304.3478

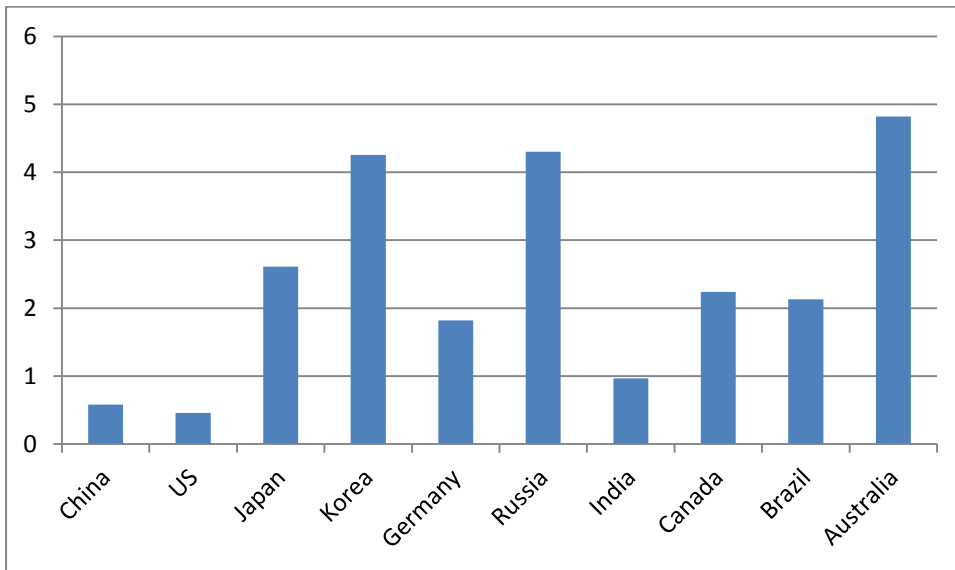
² http://www.ipaustralia.gov.au/about-us/what-we-do/reports/ip_report_2015/

³ According to WIPO IP Facts and Figures 2014

⁴ World Bank GDP figures 2014

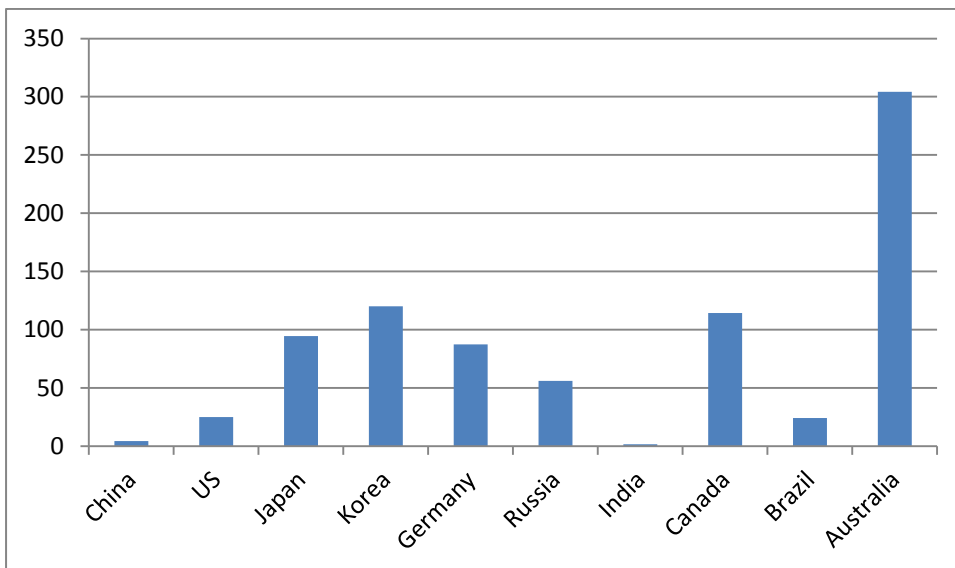
⁵ World Bank Population figures 2014

Typical Patent Cost Relative to Total Country GDP



The above chart shows that it is more expensive to obtain a patent in Australia relative to the country's GDP than it is to obtain a patent in any of the other countries under consideration, and in particular it is more than ten times as expensive to obtain an Australian patent relative to GDP than a US patent.

Typical Patent Cost Relative to Total Country Population



The above chart shows that an Australian patent is many times more expensive than the other countries, when considered in terms of cost per head of population.

[009] Abolition of the innovation patent system would take away more than half of the patent rights currently received by Australian SMEs and individuals, while also taking away most of the legal remedies currently enforced by Australian SMEs.

This conclusion follows from the data already cited.

[010] The analysis of the economic impact of the innovation patent system in the IP Australia Economics Research Paper 05 is far from comprehensive.

There are a number of known unreliabilities in the IP Government Open Data, and it is not clear to what extent the rest of the data can be regarded as reliable. Known unreliabilities include:

- Table 101 is missing data before 2003
- A majority of the relevant names are missing from Table 102, replaced by NON-ENTITY designations
- A number of large entities have not been correctly identified. For example, at least some of the applications by The Commonwealth of Australia, Curtin University of Technology, St Vincent's Hospital Sydney Limited and BHP Billiton Worsley Alumina Pty Ltd have not been identified as being owned by large entities.
- Most Innovation patents which have been revoked have the incorrect status Ceased, but some seem to have the incorrect status Expired.
- There is no data identifying provisional patent applicants, so we cannot conduct meaningful analysis of provisional patent application data.
- There is no data identifying inventors, so we cannot analyse the extent to which inventors have been involved in multiple applications.
- Some of the data is ambiguous. For example, 98 of the innovation patent entries are missing data to indicate whether they are owned by Australian or foreign owners.

Most names of patent owners are missing from the data set

australian_appl_no	patent_type	name
2008100462	Innovation	Kawam Pty. Ltd.
2008100462	Innovation	KK Consolidated Pty. Ltd.
2008100463	Innovation	NON-ENTITY 22290
2008100464	Innovation	NON-ENTITY 65392
2008100465	Innovation	Julian Sammut Constructions Pty Ltd
2008100467	Innovation	NON-ENTITY 71658
2008100468	Innovation	NON-ENTITY 89668
2008100469	Innovation	Aristocrat Technologies; Inc.
2008100470	Innovation	NON-ENTITY 82477

A comprehensive analysis of the impact of the innovation patent system would have addressed at least the following questions:

- What are the different types of benefits of the innovation patent system, and how can they be measured?
- What are the different types of costs of the innovation patent system, and how can they be measured?
- How do the costs and benefits of the innovation patent system compare with those of the standard patent system?
- How do the costs and benefits of the innovation patent system compare with those of similar second-tier patent systems in other countries?

Instead, Economics Research Paper 05 has focused on a very narrow range of issues which do not provide a comprehensive overview of the economic impact of patents:

- The relationship between innovation patent applications and R&D tax claims. (This is likely to have little relevance because the majority of innovation patent applicants are individuals, and only companies are eligible for R&D tax claims.)
- The relationship between innovation patents and firm survival. (Again of little relevance because the majority of innovation patent applicants are individuals, not firms.)
- The volume of applications, proportion of repeat filings, certifications and renewals. (This data is fairly meaningless without comparing it to something else. The data for standard patent applications would be an obvious comparison point.)
- The private value of innovation patents compared with the “regulatory burden”. (But the calculations use extremely speculative assumptions, and the results are meaningless without comparing them with something else, standard patents being the obvious choice.)

[011] Australian SMEs and individuals who have filed an innovation patent application are eight times more likely to use the patent system again than a business which has not previously filed an innovation patent application.

There were 2.1 million businesses trading in Australia in June 2014⁶. Some 74,037 Australian entities have ever applied for a patent, according to table MIIPA-102⁷. Thus the percentage of Australian businesses which have ever applied for a patent is not more than 3.5%. The data in table MIIPA-102 reveals that the proportion of Australian SMEs and individuals who have filed an innovation patent application and at least one more innovation or standard patent application is 27.9%. Thus Australian SMEs and individuals who have filed an innovation patent application are eight times more likely to use the patent system again than a business which has not previously filed an innovation patent application.

[012] The innovation patent system is being used by SMEs more than twice as much as the system it replaced.

The data for this is provided by Figures 1 and 2 from IP Australia Economics Report 05, reproduced on the next page. The petty patent system which was in force prior to 2001 had total annual filings typically around 400 per year, with the highest number being around 600 per year. This is the total number, not being broken down into filings by foreign applicants, large companies, SMEs and individuals.

Innovation patent filings have in the past 4 years averaged over 1600 (and based on filings so far in 2015 they are heading back to around 1800 in 2015). Figure 2 shows that the number of filings by Australian applicants is over 1,200 per year, of which over 1,100 are by SMEs and individuals. Thus SMEs and individuals are using the innovation patent system more than twice as frequently as they were using the petty patent system.

⁶ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8165.0>

⁷ <https://data.gov.au/dataset/intellectual-property-government-open-data-2015>

Figure 1: Second-tier patent applications, 1979-2014

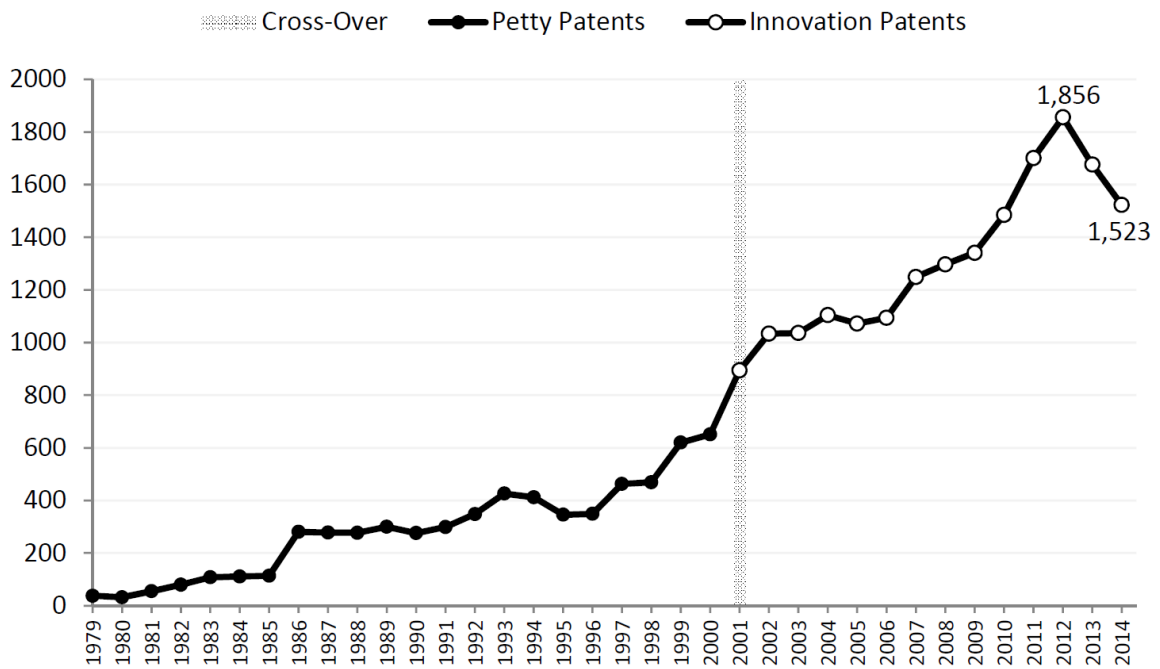
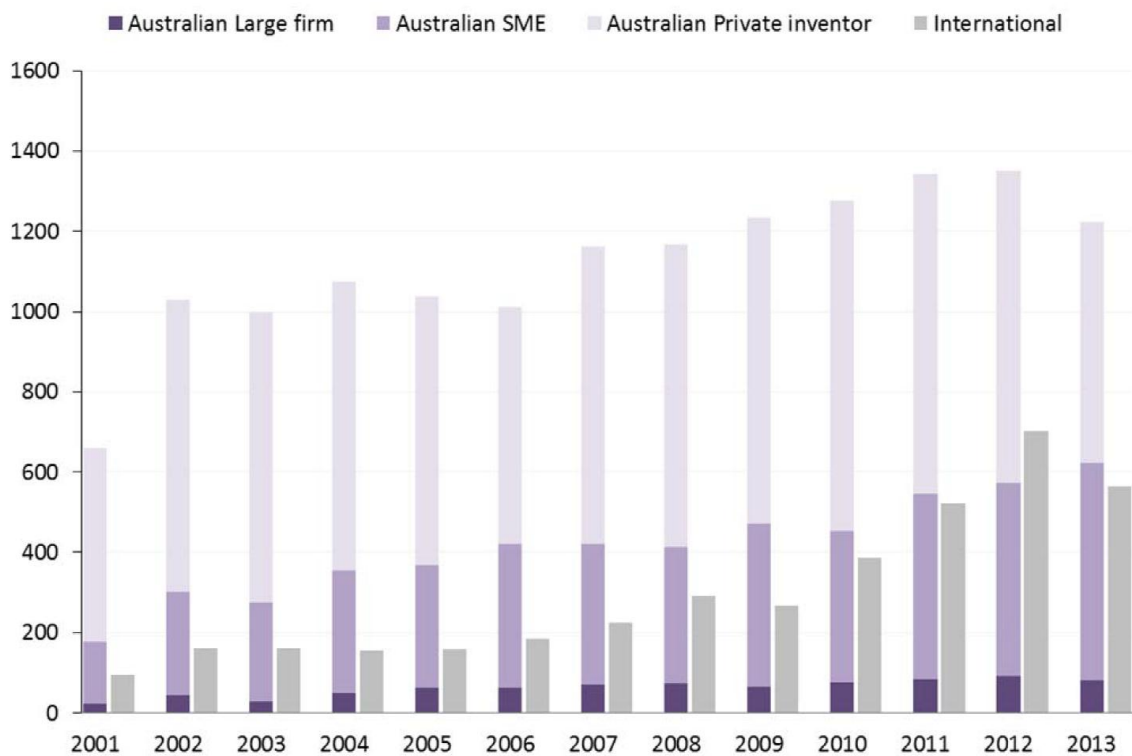


Figure 2: Innovation patent applications by applicant type



[013] More SMEs and individuals stop using the patent system after filing a standard patent application than do after filing an innovation patent application, and the introduction of the

innovation patent system has resulted in an increase in the percentage of SMEs or private inventors making multiple use of the patent system.

This information can be extracted directly from Table 102 (data file ipgod10204172015.csv). According to the data in that table, the number of Australian SMEs and individuals who have filed one or more standard patent applications is 29,068. Out of these, 7,822 (26.9%) have filed at least one more standard application or innovation patent application. Thus 73.1% of SMEs and individuals who have filed one standard patent application have never used the patent system again.

The number of Australian SMEs and individuals who have filed one or more innovation patent applications is 10,329. Of these, 2,880 (27.9%) have filed at least one more standard or innovation patent applications. Thus 72.1% of SMEs and individuals who have filed one standard patent application have never used the patent system again.

When the data is limited to the period before 2001, when innovation patents became available, the proportion of Australian SMEs and individuals who had filed one standard patent application but had never used the patent system again was 80.0%.

[014] The IP Australia Economic Research Paper 05 concept of “enforceable rights” is misguided.

Research Paper 05 says the following at page 21: “If applicants value the enforceable patent over the uncertainty provided by an uncertified patent, then applicants would be expected to certify their applications.” This reveals a material misunderstanding of the consequences of certification.

The reality is that a rational patent applicant will always avoid costs where possible, or delay incurring them for as long as possible. This is very obvious with standard patent applications, where applicants can choose to pay the examination fee at the same time as filing, but they almost always choose to wait until after the Commissioner issues a Direction to Request Examination. Deferring or avoiding expense is almost always more important than the limited degree of certainty added by examination. The only common circumstance in which an applicant would seek early examination is if there is an infringement which the applicant wishes to stop as soon as possible.

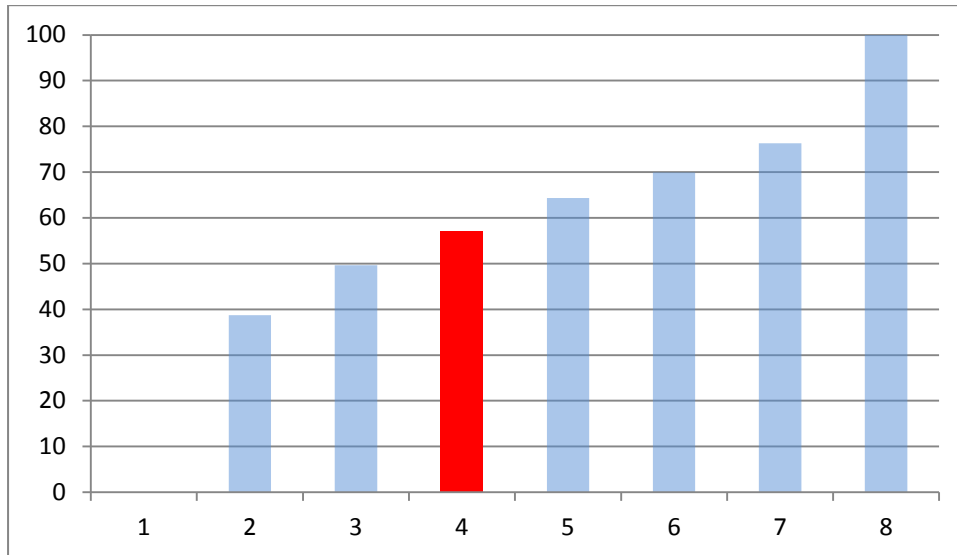
It is difficult to tell from the IP Government Open Data how many innovation patents are revoked after examination, because most of the revoked patents appear to have been given the incorrect status of “CEASED”, or possibly “EXPIRED”, or maybe even “LAPSED”. However, it would appear that around 25% of innovation patents fail to pass examination, while 75% proceed to certification. The examination process really does not weed out very many invalid patents, so the amount of “certainty” provided by certification is not very considerable.

Just as is the case for standard patents, where there is no clearly identifiable difference in value between patent applications where the applicant requests examination as early as possible and applications where the applicant delays examination for as long as possible, there is no clearly identifiable difference in value between an innovation patent on which examination is requested at the earliest available date and an innovation patent on which examination is deferred.

[015] While 76.3% of innovation patents expire early, 89% of standard patents expire early. Most standard patent applications by Australian SMEs or individuals never get granted at all, with more than 50% expiring within 4 years. Patent applications are like venture capital investments. A lot bring little or no return, while a smaller number bring a large return.

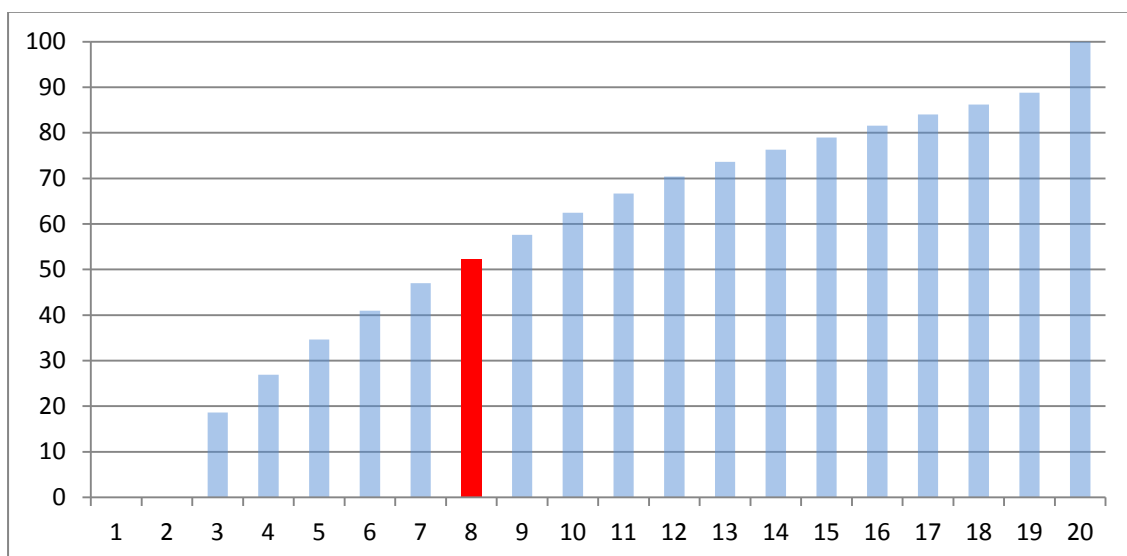
The following chart shows that half of all innovation patent applications expire within 4 years, and only 23.7% proceed to full term.

Actual Term in Years of Innovation Patents Due to Expire by End of 2014



The following chart shows that half of all standard patent applications expire within 8 years, and only 11% proceed to full term.⁸

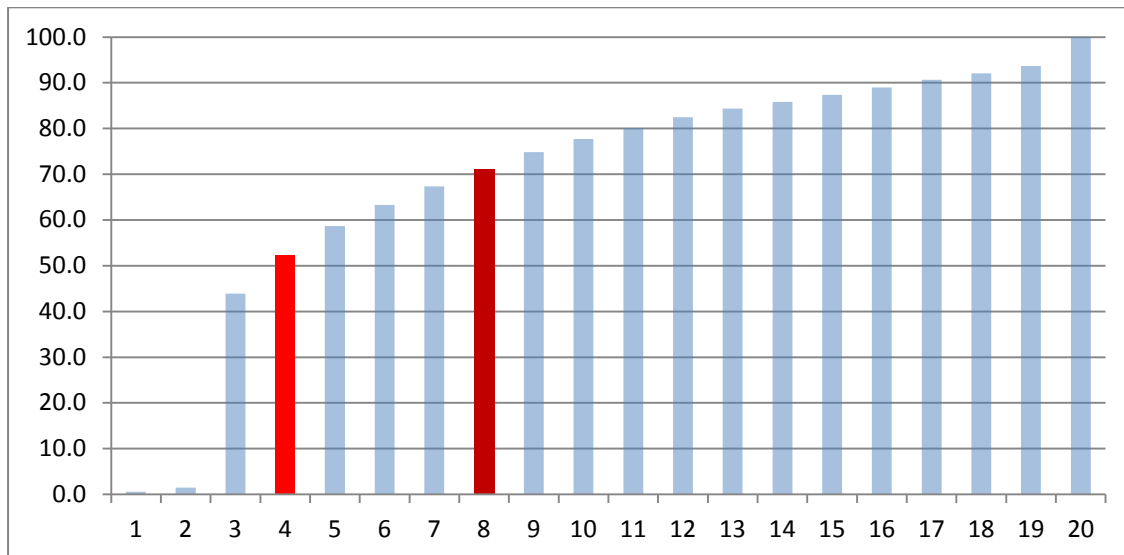
Actual Term in Years of Standard Patents Due to Expire by End of 2014



⁸ Standard patents with terms extended beyond 20 years have been treated as having terms of 20 years.

However, the average term of an Australian standard patent application is much lower for Australian SMEs and individuals than it is for foreign applicants. The following chart shows that 50% of standard applications by Australian SMEs and individuals expire within 4 years and 70% expire within 8 years, with only 6.4% making it to full term.

Actual Term in Years of Standard Patents, Owned by Australian SMEs and Individuals, Due to Expire by End of 2014



Thus it is entirely out of context to say that there is a very high rate of early expiry of innovation patents, given that there is an equally high rate of early expiry of standard patents owned by Australian SMEs and individuals.

[016] Economic Research Paper 05 has made an obvious error in concluding that innovation patents impose a regulatory cost on Australian SMEs and private inventors of nearly 95% of the regulatory cost of the system.

The process followed in the calculations has been:

- Calculate that large Australian entities file 5.55% of the Australian-originating applications, with SMEs and individuals filing the rest.
- Create an estimate for the regulatory cost
- Assume that the regulatory costs are incurred in the same proportions as number of filings
- Apportion 5.55% of the regulatory costs to large entities and 94.45% to the rest
- Look at resulting figures and discover that 94.45% of the costs are borne by Australian SMEs and individuals

This is an obvious error, confusing an assumption with a conclusion. The assumption is conspicuously incorrect because it is inconsistent with the data appearing in other parts of Research Paper 05. For example, in section 3.3 at page 21, the paper says that large firms certify 44% of their innovation patents, whereas SMEs certify 24% and individuals certify 11%. This means large firms spend a lot

more per patent on examination than do individuals, yet in Table 6 on page 29 the paper apportions just 5.55% of the examination costs to large firms.

Similarly the paper says at pages 21 to 22 that large firms renew their innovation patents more than SMEs and individuals. This means large firms spend more per patent on renewals, yet in Table 6 on page 29 the paper apportions just 5.55% of the renewal costs to large firms.

A larger source of error is the paper's hidden assumption that the same proportion of large firms self-file their innovation patent applications as individuals. The IP Government Open Data does not cover this issue, so it is necessary to do further research to discover the appropriate apportionment.

As a random sampling, I manually examined the first 300 innovation patent applications filed during 2015. I discovered that, of these, 78 (26.0%) were filed by foreign applicants, 20 (6.7%) were filed by large Australian applicants (0% self-filed), 96 (32.0%) were filed by Australian SMEs (40.6% self-filed), and 106 (35.3%) were filed by individuals (71.7% self-filed). In other words, all of the large Australian applicants paid a patent attorney to file their applications, whereas hardly any of the individual applicants did so.

The precise allocation of costs between large firms, SMEs and individuals is of no particular importance, but the reality is that the benefits gained by innovation patent applicants are roughly in proportion to the expenses they incur, and there is no evidence to suggest that individuals and SMEs are subsidising the expenses of large firms.

[017] The IP Australia Economic Research Paper 05 estimates are based on some assumptions which are clearly incorrect, some data errors, and some assumptions which are doubtful at best. A more appropriate estimate of the annual cost to applicants is \$2.4 million (including government fees), while a more appropriate estimate of the range of annual value to applicants is between \$37 million and \$900 million. Thus the private value is between 1 and 3 orders of magnitude higher than the private costs.

More than half of the Appendix to the Research Paper is devoted to an attempt to explain why the private value of the innovation patent system is vastly less than the amount indicated by the Verve Economics survey, using the data from the Verve Economics survey as the only input. The actual figure is in reality of little importance, as there is no objective standard to say what is a good figure and what is a bad figure. A far more relevant investigation would have been to compare the private value of Australian standard patents issued to SMEs and individuals with the private value of innovation patents issued to them. However, the paper did not consider this at all.

Research Paper 05 overestimates the annual cost of the innovation patent system in a number of ways. These include:

- It uses an overestimate of the number of applications filed each year. At page 87, Table 41, it shows 2054 as the number of applications filed in 2012 and 1788 as the number filed in 2013. The actual numbers according to the Australian Intellectual Property Report 2015 published on the IP Australia website and as reflected in Figure 1 of the Research Paper are 1,856 for 2012 and 1676 for 2013.

- It assumes that the minimum time spent by a self-filing applicant in preparing and filing an innovation patent application is 2250 minutes or 37.5 hours and the maximum time spent by a self-filing applicant in filing an innovation patent is 2250 minutes or 37.5 hours. In reality, the time spent by different applicants varies widely, and most self-filing applicants spend considerably less time than this.
- It assumes without explicitly stating it that the “regulatory cost” of every innovation patent application must include an allowance for preparing a patent specification from scratch. Time spent preparing a patent specification is not a proper “regulatory cost”, just as time spent inventing the invention is not a regulatory cost. The applicant can choose to prepare a short cheap patent specification or a long expensive one; the decision is a personal choice, and not one imposed by any government regulation. Even if it was a proper “regulatory cost”, it would not be appropriate to assume that the entire cost of preparing a patent specification should be allocated to every innovation patent. A single specification is often used in multiple applications in different countries. The IP Government Open Data is not sufficiently complete to allow full analysis, but in the sample of 300 innovation patents which I manually compiled, 14.5% of the applications by Australian applicants claimed priority from a provisional application and 14.5% were divisional applications.

The figures given in Research Paper 05 for annual costs to applicants excluding government fees were:

	Large Firm	SME	Private Inventor	Total
Filing costs	\$ 561,000	\$ 3,180,000	\$ 6,359,000	\$ 10,100,000
Renewal Costs	\$ 15,000	\$ 85,000	\$ 169,000	\$ 269,000
Examination Costs	\$ 24,000	\$ 135,000	\$ 271,000	\$ 430,000
Opposition Costs	\$ 20,000	\$ 114,000	\$ 228,000	\$ 362,000
Total	\$ 620,000	\$ 3,514,000	\$ 7,027,000	\$ 11,161,000

According to my calculations, a more accurate estimation of annual costs to applicants excluding government fees and specification preparation costs is:

	Large Firm	SME	Private Inventor	Total
Filing costs	\$ 109,890	\$ 405,647	\$ 469,873	\$ 985,410
Renewal Costs	\$ 51,000	\$ 141,944	\$ 113,680	\$ 306,624
Examination Costs	\$ 60,338	\$ 161,837	\$ 114,080	\$ 336,255
Opposition Costs	\$ 20,000	\$ 20,000	\$ -	\$ 20,000
Total	\$ 241,228	\$ 729,428	\$ 697,633	\$ 1,668,289

In my view, government fees (\$746,000 as estimated by the Research Paper) should be included in this calculation, bringing the total to \$2,414,289. Even if specification costs were included, the total would not in my opinion exceed \$5 million, which is less than half of the \$11,159,000 (\$11,905,000 including government fees) estimated by the Research Paper.

Research Paper 05 underestimates the annual value to patentees of the innovation patent system in a number of ways, when compared with the actual responses of respondents to the Verve Economics survey. These include:

- Assuming that there was a response bias because respondents with more valuable patents may be more engaged with the patent system and correcting for this by assuming that all respondents who indicated a value of more than \$1 million actually valued their patents at exactly \$1 million.
- Dividing the calculated values by between 2.59 and 3.59 based on a “patent premium” theory which posits that an invention has an underlying value and a patent adds an extra value to the invention.
- Dividing the calculated values by a further factor of around 3 on the assumption that sealed patents which are not yet certified have zero patent value-add and the only patents which add value to the underlying invention are the certified ones.
- To calculate a lower bound estimate, assuming that none of the 6500 people who did not respond to the survey or did not receive a survey had a patent which was worth more than \$1 million, and making a range of arbitrary additional downward adjustments, the precise nature of which is unclear.

By virtue of these discounts, Research Paper 05 has managed to come up with a total annual valuation of the innovation patent system which is many times less than what is in my opinion the actual private value indicated by the Verve Economics survey data.

The idea of applying the patent premium discount is a novelty, given that none of the other three patent valuation projects to which Research Paper 05 refers considered it appropriate to apply such a discount. The patent premium concept comes from a paper by Arora et al which discusses a model for analysing the effect of patenting on R&D. The model suggests that a firm which engages in R&D might choose to protect any inventions using patents, or it might choose to rely on secrecy and first mover advantage (or “lead-time”) to obtain a return from the invention. The conditional patent premium is the proportional increment to the value of the invention realised by applying for a patent rather than choosing to rely on these other modes of protection. Based on a survey of US firms with 10 or more employees conducted in 1994, Arora et al calculated conditional patent premiums for different industries, ranging from 1.38 for Food, kindred and tobacco products to 1.62 for medical instruments.

The use of the conditional patent premium in the context of the Verve Economics survey data is an error because, apart from a very small percentage, all of the respondents’ patents had already been published. This means there was no longer any “secrecy” alternative form of protection for them to fall back on.

Moreover, the calculations applied by Research Paper 05 assume that a number of adjustments must be made to the value of highly valued patents because there are a large number of low-valued patents. Because of the venture-capital-like nature of patents, we should expect a distribution in which a small number have a high value and a large number have a small value. The appropriate way of adjusting is to assign a low value to the large number. It is not appropriate to assume that the

owners of patents with high value have overestimated, unless there is some specific evidence for that fact.

The value adjustments made by Research Paper 05 are couched in complex terminology, but they can be expressed in much simpler terms:

In order to get the “value-add” figures from the values actually specified by respondents to the Verve Economics survey, multiply by a factor of 0.0826 (low estimate) or by a factor of 0.1299 (high estimate).

In other words, Research Paper 05 assumes that between 87% and 92% of the value of the patents estimated by respondents to the survey is attributable to the underlying invention, and between 8% and 13% of the value is attributable to the patents themselves. As a simple thought experiment, this seems to be to be an illegitimate proposition. While someone might be prepared to pay for unpatented technology if there is confidential know-how or something else of value, once the technology has been encapsulated in a published patent specification and is therefore no longer confidential, there does not seem to be anything of value left to pay for other than the protection offered by the patent itself.

My own estimate for the minimum possible annual private value to patent owners of the innovation patent system using the Verve Economics survey data is given in the following table. In reaching this estimates, I have assumed that there are no patents with a value of more than \$10 million, and that every single patent for which a survey response was not received (including the 4,000 patents for which surveys were not sent) had a value of zero. In my opinion these are ludicrous assumptions, and they must result in a valuation which is well below the actual value:

Minimum Possible Annual Private Value of 1200 innovation patent applications						
	\$0+	\$1,000+	\$10,000+	\$100,000+	\$1M+	Total
Distribution Min	14	37	143	171	122	487
Ave Val	316	3,160	31,600	316,000	3,160,000	
Tot Val	4424	116920	4518800	54036000	385520000	444196144
All innov pats ever filed at survey date						14442
Ave Val, assuming every one not covered by a survey response worthless						30757
Num/year						1200
Val/year						36908695

This calculation gives a minimum possible annual valuation of \$37 million.

My conservative estimate for the maximum annual private value of the innovation patent system, given in the table below, assumes that a small number of innovation patents are worth more than \$10 million, as predicted by the Verve Economics report, that every one of the 7,442 innovation patents which had a status of lapsed/ceased/surrendered/revoked had a zero value, and that the

remaining 6,513 patents for which survey responses were not received had on average a value of half the average value of the 487 patents for which survey values were given.

Conservative Maximum Value of 1200 innovation patent applications

	\$0+	\$1,000+	\$10,000+	\$100,000+	\$1M+	\$10M+	\$100M+	Total
Distribution Max	14	37	143	171	110	10	2	487
Ave Val	316	3,160	31,600	316,000	3.16M	31.6M	316M	
Tot Val	4424	116920	4.5M	54M	347M	316M	632M	1354276144
Ave val of survey respondents' patents								2780855
Ave val on non-respondents' patents								1390427
Total val of 6533 non-respondents' patents								9083661241
Total val of 14,442 patents = respondents val + non-respondents val								10437937385
Ave val per patent								722749
Num/year								1200
Val/year								867298495

This calculation gives a maximum annual valuation of \$900 million.

However, as indicated previously, the actual figures are of little importance, as there is no objective standard to say what is a good figure and what is a bad figure. Calculations of this type are only of any use if they are done in comparison to something else. The obvious candidate for comparison would have been Australian standard patent applications.

[018] No attempt has been made to enumerate or quantify the uncertainty costs or to identify whether they are more or less than the uncertainty costs for standard patents.

The innovation patent system differs in a number of ways from the standard patent system, including:

- Innovation patents get published almost as soon they get granted, and typically within 6 to 8 weeks of their application date; standard patent applications remain secret until 18 months after their priority date. Thus members of the public can have certainty about what the innovation patent claims in a short period of time, whereas an uncertainty period of 18 months applies for standard patent applications.⁹
- An owner of an innovation patent is prohibited by s129A from threatening infringement proceedings until the patent has been certified; there is no such prohibition for standard patent applicants.
- A standard patent application takes, in the median case, 1376 days or 3 years 9 months from filing to grant, or 4 years 9 months including the 12 month priority period (given that nearly all standard patents claim priority from a provisional application or an earlier application in a

⁹ I am disregarding for present purposes the minority of cases (14.5% in my sample) in which innovation patent applications claim priority from provisional applications.

convention country). The maximum pendency of a standard patent application before grant can exceed 10 years. 60% of innovation patents last less than 5 years, and none last more than 8 years.

In the circumstances, there does not seem to be any significant uncertainty caused to members of the public by innovation patents that would not be caused by standard patent applications.

About the Author

I have been a registered patent attorney since 1990, and I was a partner in the firm Phillips Ormonde Fitzpatrick from 1992 until 2006, when I ceased practising as a patent attorney. Since 2006 I have been a part-time IT consultant to the firm, and my duties have included data analysis.

I am a lecturer in the Monash University postgraduate program in the subjects of Intellectual Property Law and Protecting Commercial Innovation.

My submissions reflect my own opinions; they do not necessarily reflect the opinions of Phillips Ormonde Fitzpatrick or of Monash University.