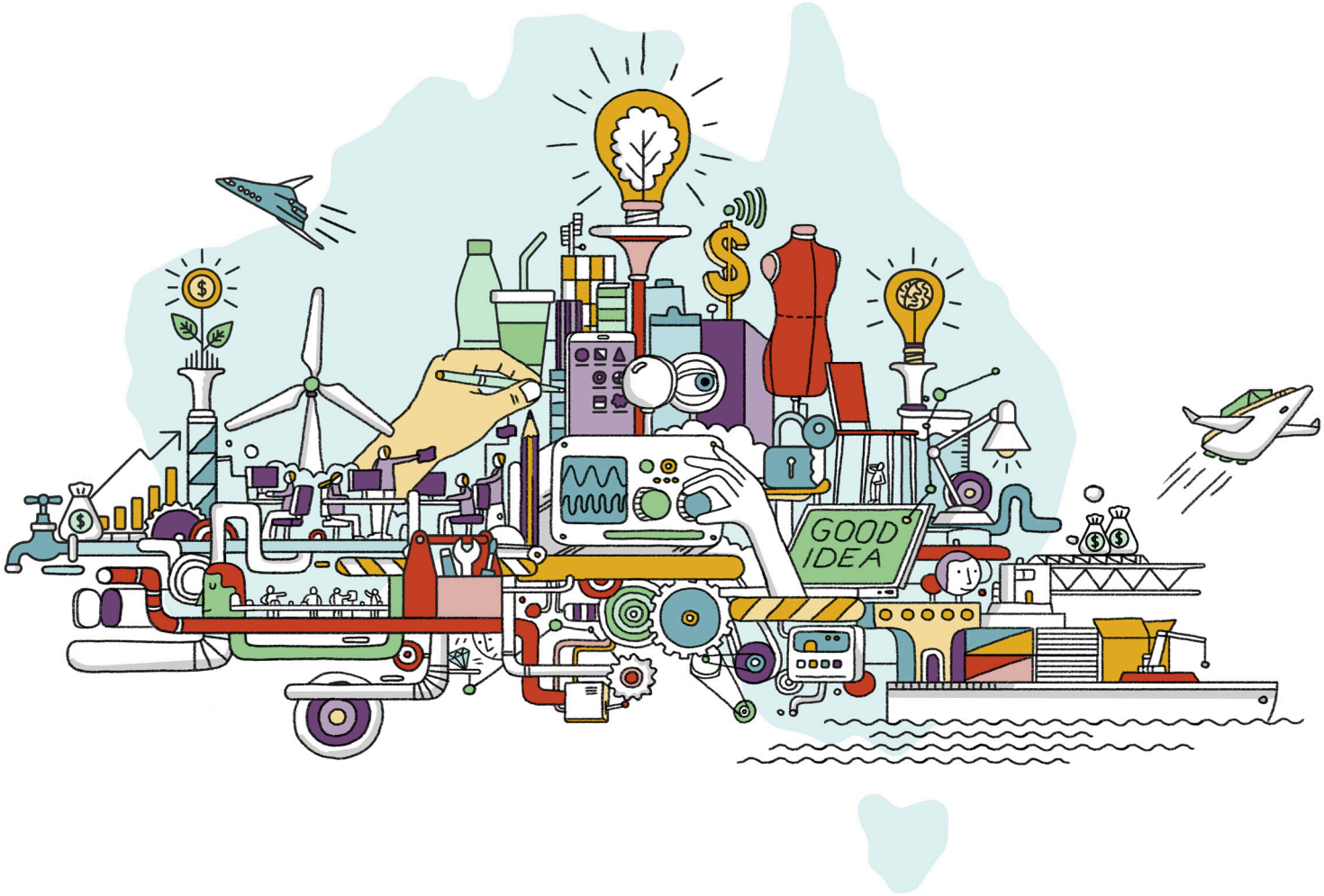
Valuing designs

Australian Government
IP Australia



The economic impact of design rights in Australia

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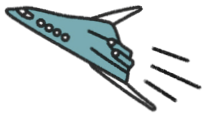


Executive summary

IP Australia commissioned the Centre for Transformative Innovation (CTI) at Swinburne University of Technology to assess the impact of past policy changes and whether Australia's design rights system is providing incentives for Australians to invest in design. This report summarises their findings.

Using financial records from 1.1 million Australian businesses between 2001–02 and 2016–17, and an in-depth annual survey of 50 000 Australian businesses, the study covers all active Australian businesses.

Businesses in design rights-intensive industries spend on average 50% more on research and development (R&D) than the average Australian business, are more labour intensive and are more active in global value chains, as they have high exports relative to their contribution to economic growth.

There are 45 design rights-intensive industries in Australia. The majority of them – 31 of the 45 – are in manufacturing and nine are in wholesale trade.

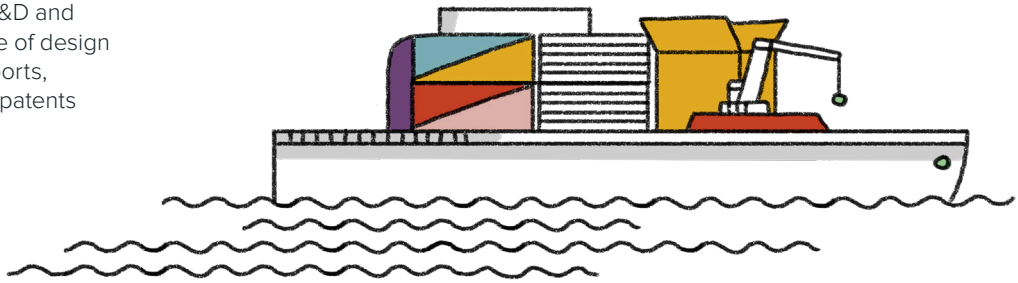
These businesses tend to carry out the design in Australia and contract others to manufacture or assemble the final products.

In these intensive industries, holding a registered or certified design right leads businesses to have higher productivity (sales per employee, minus materials and equipment). This effect is greater when businesses have their design rights examined and certified. Among all Australian businesses, having design rights is a forward indicator of more R&D and more exports. In turn, a business's use of design rights is predicted by its R&D and exports, and is coupled with the ownership of patents and trade marks.

These results suggest that the value of design rights stems from their use as part of a broader competitive strategy to manage the intangible aspects of products – a strategy highly relevant for globally active businesses.

Using an annual survey of 50 000 businesses, the study found that design innovators spend more on R&D, are more global in their strategy, and compete by innovating products and processes. They rely on all forms of IP protection, including lead time advantage, trade secrets and registered IP rights.

The CTI team assessed whether past policy changes around design rights contributed to a framework that supports entrepreneurship and economic growth. They found no conclusive evidence that major changes made by the *Designs Act 2003* affected either demand for design rights or productivity in Australian businesses. Key changes in 2004 included a reduction in the term of protection for designs from 16 to 10 years, and the loss of unregistered protection (under copyright) for two-dimensional designs. The study found that neither change affected productivity or the level of design rights use, including in the textile, clothing and footwear industry, which is said to have depended on unregistered protection for designs. The introduction in 2011 of a faster, more streamlined court for resolving design disputes also had no clear impact.



Introduction

Thousands of pieces of intellectual property (IP) underpin how your smartphone works, the way it looks, and the reputation behind its brand. When you bought the phone, most of the money you paid went to companies that control the intangible (non-physical) aspects of that phone, including the technology on which it runs, its branding and its design (WIPO, 2017). In the global economy, success in many industries depends on controlling the intangible aspects of products.

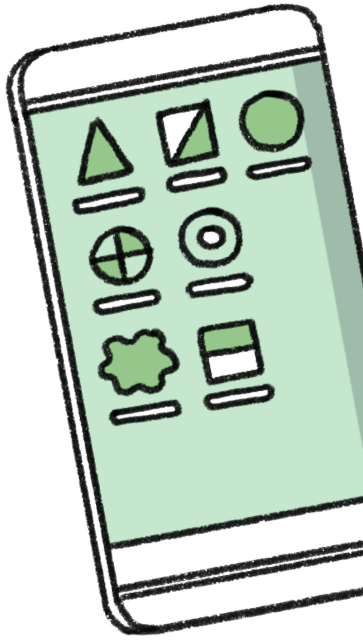
The visual appearance of products can be registered for design rights, a type of IP right that gives creators exclusive control over their designs. When Apple was famously awarded $1 billion in compensation from Samsung for IP infringement, three of the six infringed IP rights were design rights.[1] As a tool for incentivising innovation, design rights are part of the framework supporting entrepreneurship and economic growth. However, in Australia the total number of applications for design rights filed by Australian residents has not grown over time, while the number of applications per employee has been steadily decreasing.

IP Australia commissioned the Centre for Transformative Innovation (CTI) at Swinburne University of Technology to study the economic effects of past design policy changes and assess whether Australia's design rights system is providing incentives for Australian businesses to invest in design. This report summarises key findings from that study. The full CTI report is published as part of IP Australia's Economics Research Paper Series.

This report is the third in a series of four reports commissioned for the Designs Review Project, a holistic review of what drives design innovation, what the role of the IP system is, and what changes to the design rights systems could benefit Australia.

Defining design.

The Designs Review Project uses the term design to refer to the form characteristics of products, such as their shape, configuration, pattern or ornamentation.
A design can be the form of an entire product (e.g. of a smartphone) or the design for a component of the product (e.g. a screen icon). Design innovation is the creation and deployment of designs that are new to the market. Design is an activity aimed at identifying design solutions and products.



1 The damages were ultimately revised downward. Reuters. 'Jury awards Apple $539 million in Samsung patent case'. *New York Times*. Available at nytimes.com/2018/05/24/business/apple-samsung-patent-trial.html. Accessed 19 February 2020;
Randall, Joshua. 2018. The rise of design patents: insights from the Apple v. Samsung battle. *Holland & Hart*. Available at hollandhart.com/how-it-looks-may-be-more-valuable-than-how-it-works. Accessed 2 March 2020.

The data: 1.1 million businesses over 16 years

CTI used data that covers the 1.1 million Australian businesses that lodged financial or tax records between 2001–02 and 2016–17 and tracks all those businesses over that period.

This data enabled the research team to assess whether having design rights is an indicator of higher productivity, spending on research and development (R&D), and exports.

The data came from the BLADE dataset. BLADE – the Business Longitudinal Analysis Data Environment – is a comprehensive database integrating administrative, tax and IP records at the individual business level. It tracks the full population of around 1.1 million Australian businesses (including subsidiary parts of larger corporations) from 2001–02 to 2016–17.

BLADE also includes data from an annual business survey of around 50 000 Australian businesses, the Business Characteristics Survey.

The survey includes questions about design activities, which allowed the researchers to identify businesses that were 'design innovators' – those with experience in design activity and/or changing the aesthetics of products – and compare them to businesses that lacked this experience.

The use and value of design rights in Australia

Over the 16 years from 2001–02 to 2016–17, Australians filed between 2 500 and 3 000 design right applications per year with IP Australia, while global applications for design rights doubled in the same period.

Of the nearly 1 million Australian businesses studied, only 4 400 (or 0.4%) held one or more design rights in the 16 years of data available. This suggests that the majority of design rights were filed by private individuals, and that a few businesses hold a large share of the design rights in Australia.

Design rights-intensive industries: Industries in Australia were assessed for their *design rights intensity*—their number of active designs per employee. The EU, US and UK have used this measure for different purposes and identified design rights-intensive industries differently.

Industries ranked highest for design rights per employee, selected to create a sample comprising 5% of all Australian businesses.

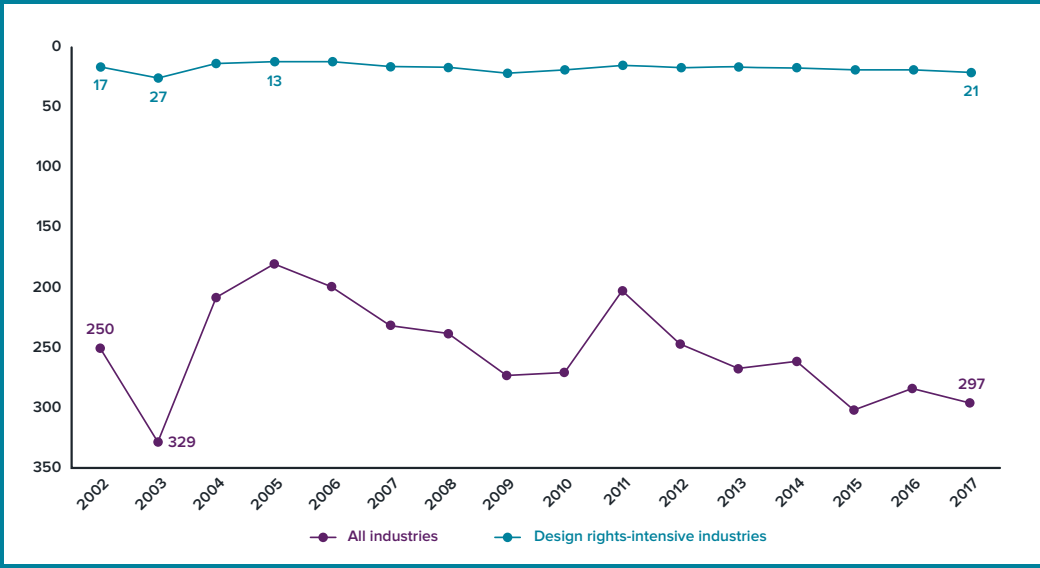
Industries where more than 5% of businesses have at least one design right.

Industries with above the average number of design rights per employee.

The CTI study used the Australian definition. The UK definition works well in studying countries with many businesses that are active design rights users, but in the Australian context there are no industries that fit this description. The definition used by the EU and US is aimed at understanding the broad use of rights, not how it affects individual businesses and industries. Their definition would apply to nearly half of the businesses in our data and would conceal important differences between industries. The CTI team ranked Australian industries for their design rights intensity – their number of active design rights per employee in the study period. As design rights-intensive industries, the team included the highest ranked industries on this measure until they reached a sample involving five per cent of all active Australian businesses.

As with other research in this field, the study looked separately at design rights-intensive industries and the economy more generally. Australian design rights holdings per employee are low compared to other OECD countries, considering the size of Australian industries. In design rights-intensive industries, an average of one in 21 businesses held a registered design right. For the general population of businesses, that number drops to an average of one in 297 businesses. The average number of businesses per design right owner has not changed much in design rights-intensive industries or in the wider economy (Figure 1).

Figure 1: One in 21 businesses in design rights-intensive industries held a design right in 2017



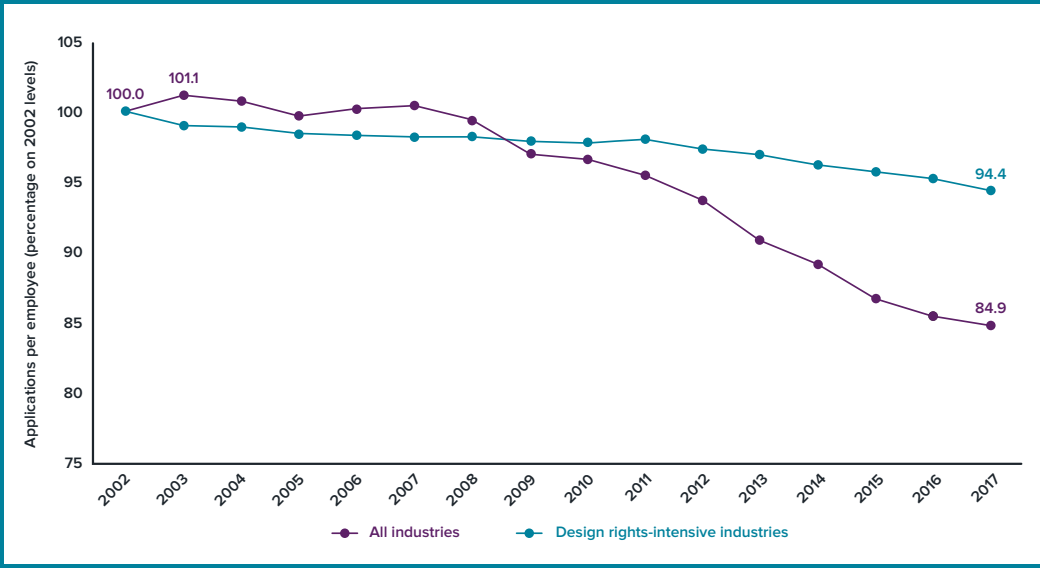
Source: Koswatta et al., 2020. Note: Design rights-intensive industries are the top 45 industries for design rights per employee.

Applications for design rights by Australians remained relatively flat during the study period.

The number of applications per employee was low compared to the number of trade marks per employee, and fell over time (Falk et al., 2019). The decreasing number of design right applications per employee means that even the intensive users of design rights are using the design system less. This may reflect a decline in design investment in Australia.

But it is important to note that applications for design rights fell by much less in design rights-intensive industries (5% fewer applications per employee from 2002 to 2017) than in Australian industry as a whole (15% fewer, with a pronounced drop after 2010). Figure 2 illustrates the difference in trends by showing how applications per employee fell as a percentage of the levels they were at in 2002.

Figure 2: Design rights per employee have dropped across all industries to 84.9% below their levels in 2002



Source: Koswatta et al., 2020. Note: Design rights-intensive industries are the top 45 industries for design rights per employee.

The fall in design right applications per employee may reflect changes in where design activity has been occurring in the economy. Previous research shows that a country's level of design labour force may decrease as designers move from manufacturing into services (Falk et al., 2019). Design service providers may create designs intended for mass production, but it is reasonable to expect that they are less reliant than manufacturers on registering design rights. This is consistent with the data: manufacturing is the most prolific industry when it comes to owning design rights.

The remaining five were spread across construction, retail trade, agriculture, and rental, hiring and real estate services. Wholesale trade industries produce goods such as wool, plumbing supplies, telecommunications, clothing, furniture and toys, which are often designed or developed in Australia and then produced by another business, Australian or overseas, through a contracting arrangement. Many businesses in wholesale trade do not own the factories that produce design output (products) but do own the design IP and the right to sell those products.

The study found that of the 45 industries that most intensively applied for design rights, 31 were in manufacturing and nine in wholesale trade.

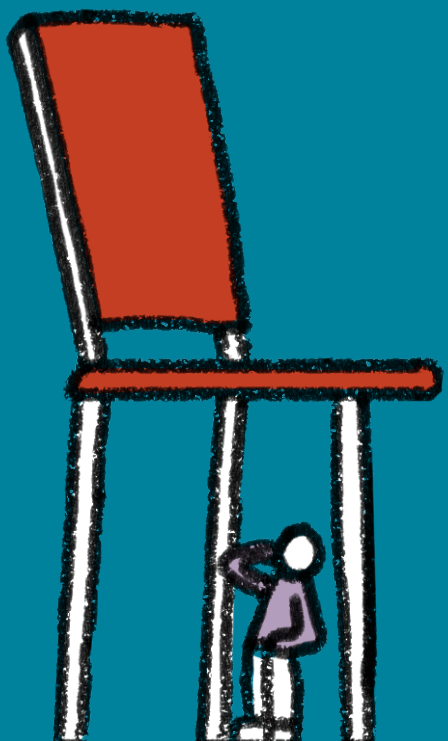
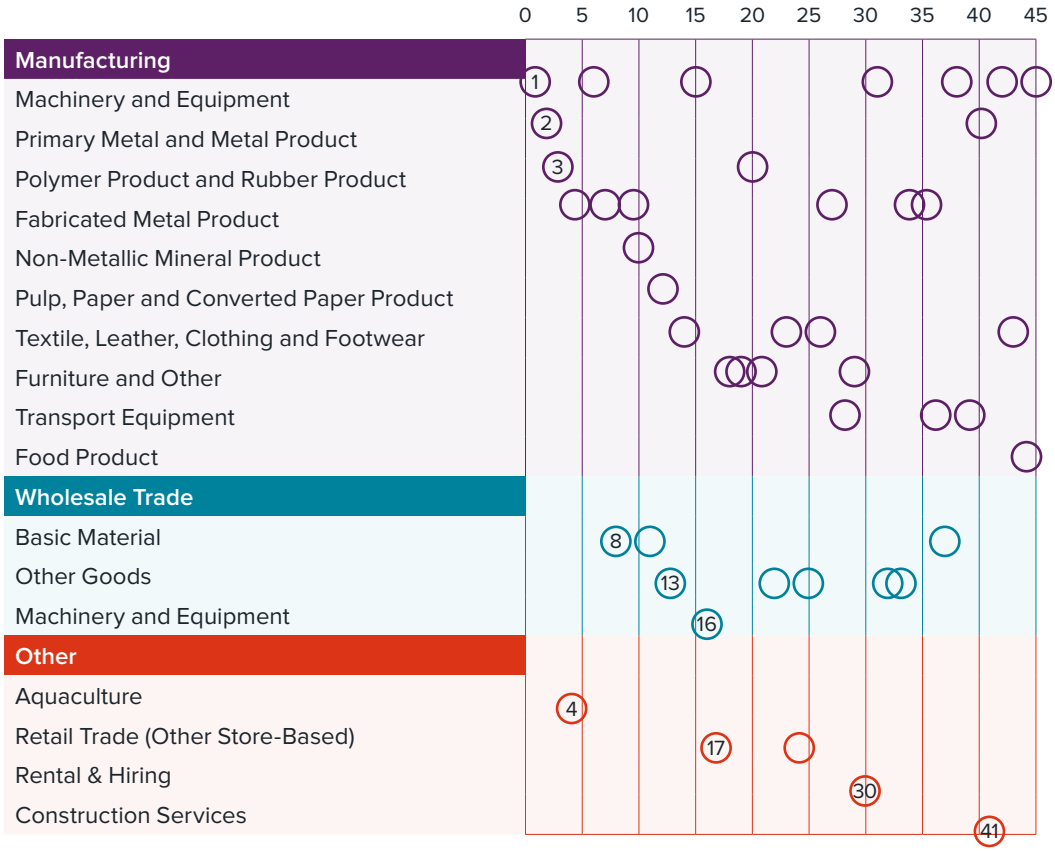


Figure 3 shows how the 45 design rights-intensive industries are concentrated in a small number of sectors (especially manufacturing and in wholesale trade) and subsectors. How industries in these subsectors rank in design rights intensity is indicated by their position along the horizontal axis. A subsector of manufacturing is machinery and equipment manufacture, which alone contains seven design rights-intensive industries. These include the top-ranked industry for design rights intensity, electric lighting equipment manufacture.

Figure 3: Ranking the seven sectors and 45 subsectors that are design rights-intensive



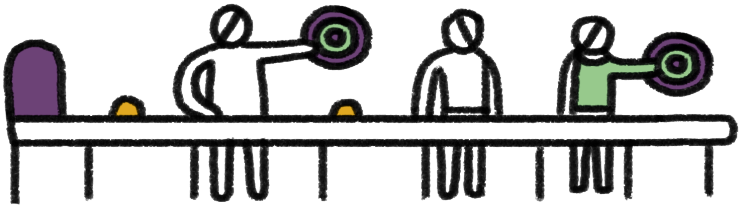
Source: See Appendix 1 for a list of all design rights-intensive industries.

Design rights-intensive businesses are different

The study identifies Australia's design rights-intensive industries (those ranked highest for the most design rights per employee, included to create a sample with 5% of all Australian businesses) and describes how businesses in these industries compare to the average Australian business. Compared to other parts of Australia's economy, businesses in these industries are more likely to participate in global value chains.

Global value chains

Production in industries is staged along a 'value chain'. This is the series of value-creating activities by which a product is produced (starting with creating the idea) and brought to market (ending with sales and service). In value chains, a business adds inputs (e.g. raw materials, parts or services) to their ideas, adds value through its own production processes, then sells its output to the next business, which adds its own value. This repeats until the product is ready for sale. Global value chains are industry value chains where value is added to the final product in three or more countries.



In general, compared to the average business outside these industries, businesses in design right-intensive industries:

- Spend 50% more on R&D ($41 million, on average, compared to $27 million for businesses outside these industries) and appear to be clustered in industries that primarily produce parts or services rather than finished products. Parts represent 60% of all design registrations by Australians between 2005 and 2016.
- Have high material costs and high exports relative to value added – their contribution to economic growth. This is characteristic of businesses that are part of larger value chains involving other businesses and industries.
- Are more labour intensive, employing more workers relative to tangible assets such as property, plant or equipment.

Design innovation is practised by globally active businesses

A key question is whether the availability of legal protection for designs encourages businesses to engage in high-value activities like R&D and design.

> Not all businesses that are design innovators register design rights, and not all businesses that hold design rights see design as an important capability.

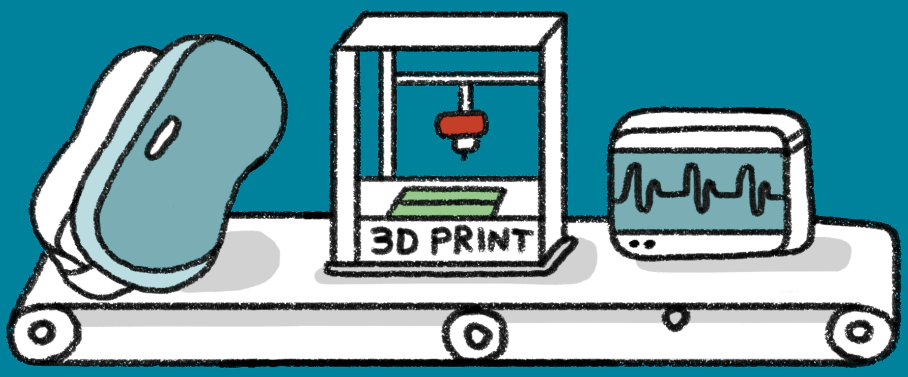
The available data gives us a complete record of the businesses that held design rights over the study period. In contrast, the Business Characteristics Survey in BLADE asked the 50 000 businesses it sampled whether they (1) made aesthetic changes to products or packaging, and (2) invested in design, planning and testing. Businesses that answered yes to either of these questions were classified as design innovators.

The research team compared businesses categorised as design innovators with businesses that held design rights. They found substantial overlaps in the characteristics of these groups. Businesses in both groups tended to be globally active innovators. Those in design rights-intensive industries tended to be involved in global value chains, contributing parts to products that are produced across multiple countries – for example, F35 Joint Strike Fighter aircraft are manufactured by Lockheed Martin in the US, but 50 Australian companies contribute components or services to the project.[2] Design rights users may focus on higher-value services like R&D and design rather than, or as well as, manufacturing. For these businesses, design rights appear to be part of a broader strategy for capturing value from innovation.

When they compared the characteristics of businesses that were design innovators to those that were not,[3] even if they held design rights, the team found that design innovators are more likely to:

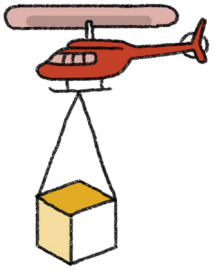
- spend more on R&D and innovate new products, processes and marketing methods
- have a competition strategy of being at the leading edge of industry and responsive to customers
- be globally active – that is, have at least some foreign ownership, be engaged in importing and exporting, and be growing their export markets
- use various forms of IP protection, including legal IP rights (e.g. patents, design rights and trade marks) and informal protection methods (e.g. trade secrets and lead-time advantage).

As with design rights users, design innovators tend to be businesses that are more globally active than the average Australian business.



2 See the F-35 Lightning II website for details. f35.com/global/participation/australia-ip

3 The analysis used a matched sample approach. This approach takes each business known to be a design innovator and searches in the database for a business that is not a design innovator but is 'matched' for size (i.e. has a similar number of employees).



Design rights increase performance for some (not all) businesses

The study also assessed whether having active design rights is associated with higher performance, R&D spending and exports. Performance was assessed in terms of productivity: a business's efficiency in turning inputs (labour, materials, tangible and intangible assets) into output, measured by annual revenue.

Descriptive evidence showed that large businesses held nearly twice as many design rights per employee than small and medium enterprises. Businesses in metropolitan areas had around a quarter more design rights per employee than non-metropolitan businesses.

The study revealed that having more design rights is a leading indicator of higher productivity for businesses in design rights-intensive industries, but not for businesses in the wider Australian economy. For businesses across all industries, having more design rights was a leading indicator of greater R&D investment and export activity. The implication is that R&D and design are complementary activities. The findings from tracking the same businesses over time suggest that having design rights predicts future gains in R&D, exports and productivity. However, the effect on productivity only applies to businesses in design rights-intensive industries.

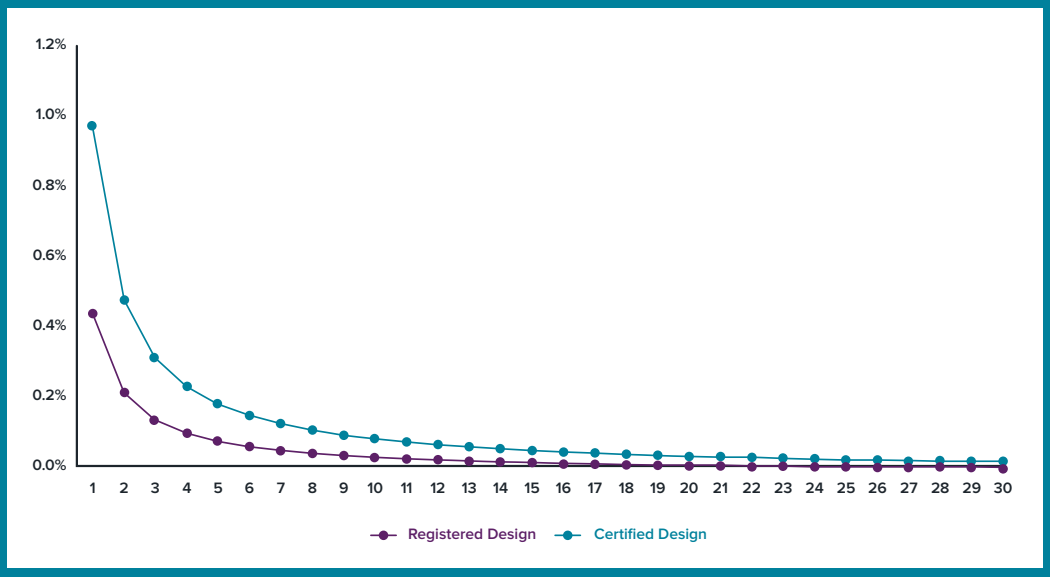
Modelling the drivers and impacts of having design rights

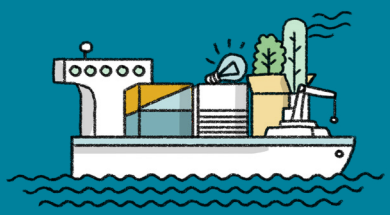
In their main analysis, the research team used statistical techniques on the full BLADE dataset (approximately 1.1 million businesses tracked from 2001–02 to 2016–17). To model performance, the team studied how revenues were affected by the number of design rights held by a business at the end of each financial year. The model included other variables to account for a business's number of employees, tangible assets, material costs, IP rights in force (patents, trade marks and certified designs) and design rights registered during the previous financial year. It accounted for business-level differences that did not vary over time, which may include its managerial strategy. Annual influences shared across businesses (e.g. the state of the economy) were accounted for with fixed effects for each year. Similar models were used to test what causes a business to file for design rights, and whether having design rights predicts R&D and exports. Those involving R&D were restricted to 950 000 businesses from 2004–05, being the first year that R&D data is available in BLADE. Model outputs are available in the full report of the study.

For businesses in design rights-intensive industries, the team simulated the effect on revenue of having one more design right. The model finds that for a business with annual sales of $4 million, increasing its number of design rights from one to two will increase its annual revenue by 0.44% (or $17 895). The percentage benefit stays the same as the size of the business grows but decreases the more prior design rights are held.

In Australia, design registration protects the design for a maximum of ten years from the application date. In order to take legal action to stop another person from using your design, it needs to be examined and certified. Rights holders usually only certify their right if they anticipate an infringement dispute. The model finds that certified design rights have a larger benefit than registered rights, as indicated in Figure 4. We emphasise that these estimates are for businesses in design rights-intensive industries only.

Figure 4: Adding a certified design right is associated with a revenue increase of up to 1% in design rights-intensive industries





Source: Based on Koswatta et al., 2020.

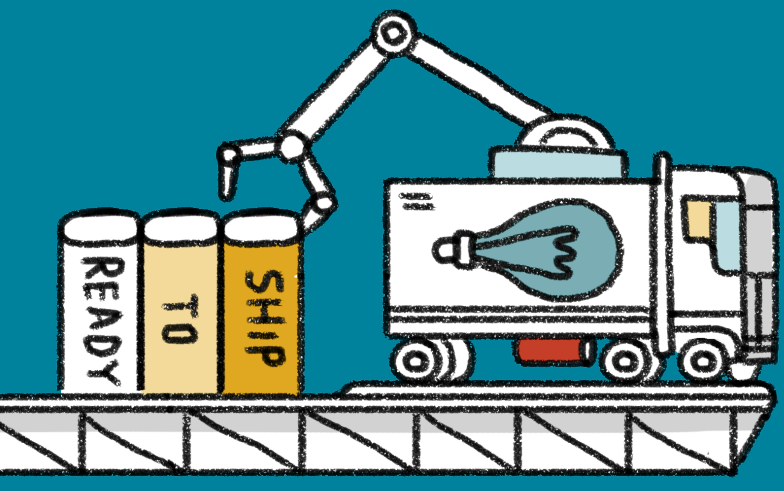
The value associated with design rights may be partly or wholly attributed to a business's underlying investment in design and the effect of that on its performance. The model results do not separate the value of the legal right from the value of the design that it protects, so these estimates of the value of design rights are at the upper bound (or toward the highest values in the set of possible values).

What drives a business to register its designs?

The researchers found that a business applying for design rights is positively predicted by its previous investment in R&D, its export activity, its use of patents and trade marks, and its size. The relationship of design rights to R&D, exports and performance is not just one-directional. Businesses that perform well on these outcomes are more likely to use design rights. In turn, using design rights appears to make them more likely to increase their R&D and export activities.

Summary

The CTI study provides new evidence of the benefits to performance associated with having design rights. It indicates that these benefits are significant only for businesses in design rights-intensive industries. Businesses in these industries focus largely on the design of components rather than finished products. These components may be manufactured in Australia or overseas. The value connected with having design rights appears to stem from their use within a broader strategy to capture value by controlling the intangible aspects of products, such as their technology, branding and design. That strategy is known to be highly relevant for businesses involved in global value chains.



The economic effects of past legislative changes

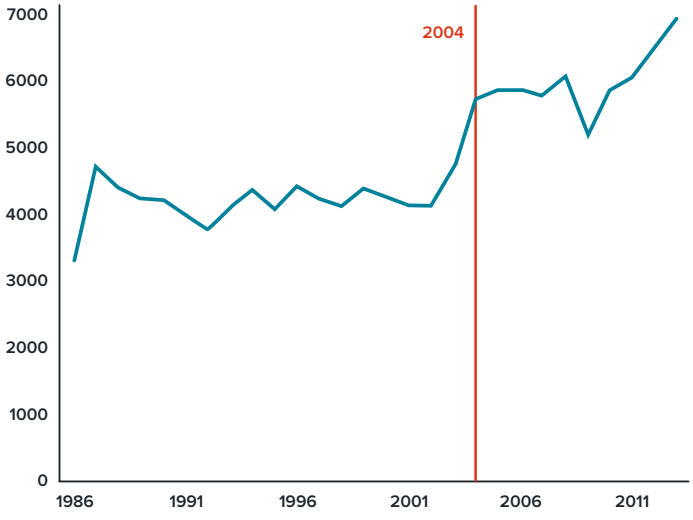
The Designs Review Project is investigating areas for improvement in Australia's design rights system. The CTI study provides an important baseline for assessing the economic impact of any future policy changes, by looking at what happened in the past.

Reducing the term of protection had no effect on demand or productivity

The *Designs Act 2003* made a set of major changes to design law in Australia, which took effect in 2004. They included reducing the maximum length of legal protection for designs from 16 years to 10 years, a change that could have been expected to decrease demand for design rights. Conversely, other changes at the same time could have been expected to increase the appeal of design rights.

The study examined the overall effect of the new Act and found no evidence that it affected either business productivity or demand for design rights. Focusing on filing behaviour by Australian residents, the number of applications for design rights per employee stayed about the same after the reforms. Later growth in applications was due to more non-resident applications.

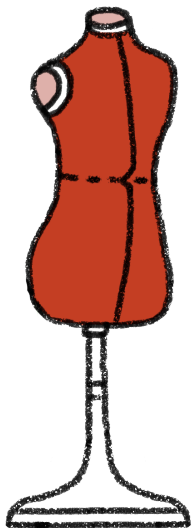
Figure 5: Total design applications to IP Australia, 1985 to 2013



Source: Advisory Council on Intellectual Property (ACIP) Review of the Design System (2015: 48).

Loss of unregistered protection did not affect the textile, clothing and footwear industry

There are substantial differences in design legal standards around the world. Countries vary on whether copyright applies to industrially produced designs. Some jurisdictions (e.g. the UK and EU) provide unregistered design rights, which usually grant narrower protection than a registered design right but do so automatically. Unregistered rights are thought to provide more suitable protection for industries with short design lifecycles, such as fashion.



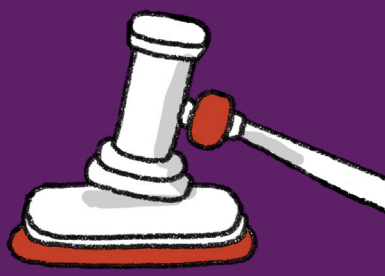
In Australia before 2003, two-dimensional designs (e.g. sketches) were given copyright protection. There is anecdotal evidence that many businesses in the textile, clothing and footwear industry relied on copyright to protect their designs. In 2004, these businesses lost protection under copyright law for artistic works with corresponding designs (such as images embroidered into or impressed upon fabric) that were industrially applied or registered as designs under the Designs Act. The research team analysed what happened after this change to get an indication of the general effects of unregistered design protection.

The researchers anticipated finding a post-2004 increase in demand for registered design rights from businesses for which copyright was a major part of their business model.

They also expected to find reduced productivity for these businesses after losing their preferred form of IP protection.

However, extensive modelling produced no evidence that the loss of copyright for designs affected businesses in the textile, clothing and footwear industry more than in other industries.

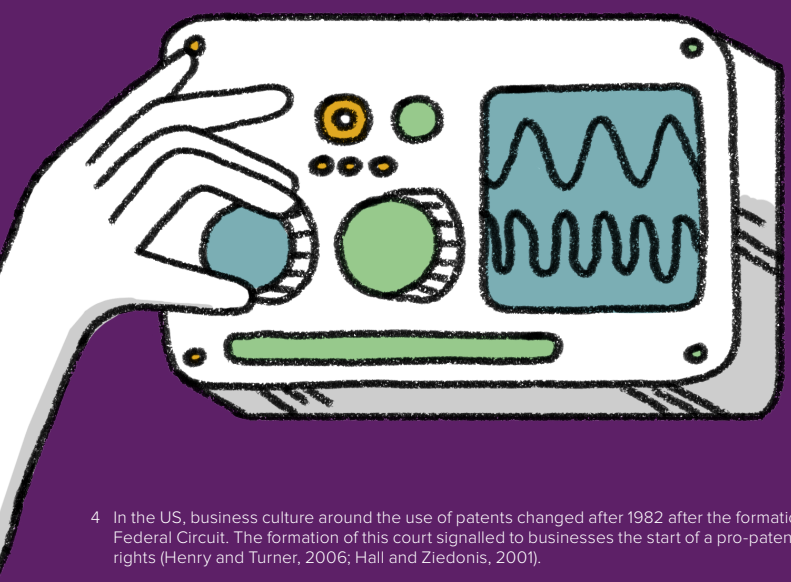
A faster, cheaper court for resolving design disputes had no large-scale impact



Landmark court cases can influence business culture around the use of IP rights. Establishing new courts for resolving IP disputes can also change awareness and perceptions.[4] In Australia, jurisdiction to hear design right disputes transferred from the Federal Court to the Federal Circuit Court in 2011. The intention was to provide a more streamlined and accessible alternative to Federal Court litigation.

The research team did extensive empirical modelling on this change to identify any effects. The team found no conclusive evidence that the change affected either the use of design rights or the productivity of Australian businesses, including businesses in design rights-intensive industries.

To complement this research, the Designs Review Project has undertaken a survey to determine whether enforcement barriers are blocking effective use of the design rights system. For the survey findings, see the fourth report in the Designs Review Project research series *Protecting designs*.



4 In the US, business culture around the use of patents changed after 1982 after the formation of the US Court of Appeals for the Federal Circuit. The formation of this court signalled to businesses the start of a pro-patent policy and the strengthening of patent rights (Henry and Turner, 2006; Hall and Ziedonis, 2001).

Conclusion

The CTI study summarised in this report contributes to knowledge about design's role in the economy and the evidence base for reviewing design rights.

Currently in Australia, design rights are intended to provide businesses with adequate incentives to invest in design. The study summarised in this report contributes new insights on the value and use of design rights. It finds that having design rights is a forward indicator of higher productivity, though only among businesses in design rights-intensive industries – not across all industries. It lends support to the view that design rights have a 'niche' role in Australia's IP system (Productivity Commission, 2016).

The study adds to a handful of international studies that measure the impact of design rights on business performance (Bascavusoglu-Moreau and Tether, 2012; Griffiths and Webster, 2010; Griffiths, Jensen and Webster, 2011). As with previous studies, the value estimates it provides may reflect the economic value of design as well as (or instead of) the economic value of the legal right. To the extent that design rights are a proxy indicator of design activity in a business, this study contributes to the limited evidence on how design affects business performance.

Building on earlier work, the study explores how design rights affect a range of behavioural and performance outcomes.

It finds that owning design rights is a forward indicator of more R&D and more exports. These areas of activity are evidently important drivers of design rights use.

Given this, the value associated with design rights is probably due to their use as part of a broader competitive strategy to control the intangible aspects of products, especially among businesses that are active in global value chains. This strategy is characteristic of design innovators in Australia, not just of businesses that use design rights. This study offers new evidence for how design activity and the use of design rights may link together as parts of a distinct competitive strategy.

This study contributes to IP Australia's ongoing review of the design rights system by evaluating the economic effects of past design changes to designs law. The ACIP Review of the Designs System (2015) raised the question of whether the design rights system is meeting its goal of encouraging and supporting Australian innovation to Australia's economic benefit. Using comprehensive business data, the CTI study indicates that the level of design rights use by Australians has been flat since the early 2000s, and that major changes to the designs law have had only limited economic impact.

Appendix

Table 1. Design rights-intensive industries (four-digit ANZSIC), ranked by rights applications per full-time-equivalent employee

	ANZSIC 06	INDUSTRY NAME	RANK
Agriculture, Forestry and Fishing	0201	Offshore Longline and Rack Aquaculture	4
	2432	Electric Lighting Equipment Manufacturing	1
	2142	Aluminium Rolling, Drawing, Extruding	2
	1912	Rigid and Semi-Rigid Polymer Product Manufacturing	3
	2299	Other Fabricated Metal Product Manufacturing n.e.c.	5
	2412	Medical and Surgical Equipment Manufacturing	6
	2291	Spring and Wire Product Manufacturing	7
	2224	Metal Roof and Guttering Manufacturing (except Aluminium)	9
	2021	Clay Brick Manufacturing	10
	1521	Corrugated Paperboard and Paperboard Container Manufacturing	12
	1351	Clothing Manufacturing	14
	2439	Other Electrical Equipment Manufacturing	15
	2512	Metal Furniture Manufacturing	18
	2511	Wooden Furniture and Upholstered Seat Manufacturing	19
	1911	Polymer Film and Sheet Packaging Material Manufacturing	20
	2519	Other Furniture Manufacturing	21
	1331	Textile Floor Covering Manufacturing	23
	1352	Footwear Manufacturing	26
	2223	Architectural Aluminium Product Manufacturing	27
	2313	Automotive Electrical Component Manufacturing	28
	2592	Toy, Sporting and Recreational Product Manufacturing	29
	2419	Other Professional and Scientific Equipment Manufacturing	31
	2229	Other Structural Metal Product Manufacturing	34
	2210	Iron and Steel Forging	35
	2319	Other Motor Vehicle Parts Manufacturing	36
	2429	Other Electronic Equipment Manufacturing	38
	2311	Motor Vehicle Manufacturing	39
	2149	Other Basic Non-Ferrous Metal Product Manufacturing	40
	2449	Other Domestic Appliance Manufacturing	42
	1333	Cut and Sewn Textile Product Manufacturing	43
	1192	Prepared Animal and Bird Feed Manufacturing	44
	2451	Pump and Compressor Manufacturing	45
Construction	3239	Other Building Installation Services	41
Wholesale Trade	3332	Plumbing Goods Wholesaling	8
	3311	Wool Wholesaling	11
	3712	Clothing and Footwear Wholesaling	13
	3493	Telecommunication Goods Wholesaling	16
	3739	Other Goods Wholesaling n.e.c.	22
	3733	Kitchen and Dining ware Wholesaling	25
	3731	Furniture and Floor Covering Wholesaling	32
	3734	Toy and Sporting Goods Wholesaling	33
	3339	Other Hardware Goods Wholesaling	37
Retail Trade	4211	Furniture Retailing	17
	4251	Clothing Retailing	24
Construction	6631	Heavy Machinery and Scaffolding Rental and Hiring	30

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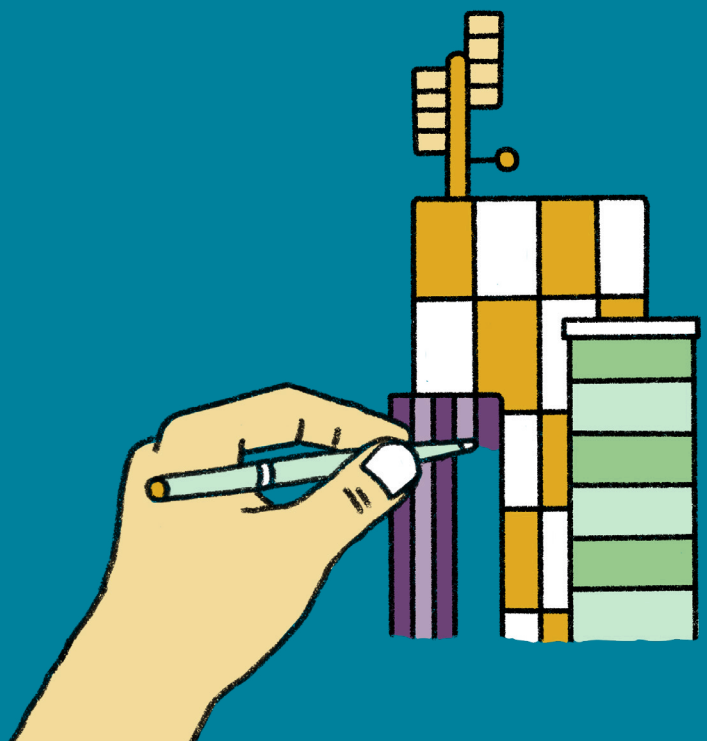

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Authors of the CTI Study		**Director General of IP Australia**	
Achinthya Koswatta Trevor Kollmann	Alfons Palangkaraya Elizabeth Webster	Michael Schwager	
Writers of this summary report		**Project Manager**	
Michael Campbell Michael Falk	Lana Halperin Benjamin Mitra-Kahn	Ramila Clugston	
Designs Review Project Board		**Advisers to the Board**	
Paula Adamson Benjamin Mitra-Kahn	Terry Moore Gemma Smith	Lisa Bailey Chrissie Norman	Andrew Wilkinson
Designs Review Project team		**IP Australia contributors**	
Jennifer Bowen Smith Brett Massey Natalia Reynolds Indrani Sen	Laura Trentini Margie Waterton Jade Whelan	Tyrone Berger Paul Drake Haiyang Zhang	Meilin Buba Greg Powell
External contribution			
Icon Agency Editing: Apricot Zebra		Illustrations: The Jacky Winter Group (James Hancock)	

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