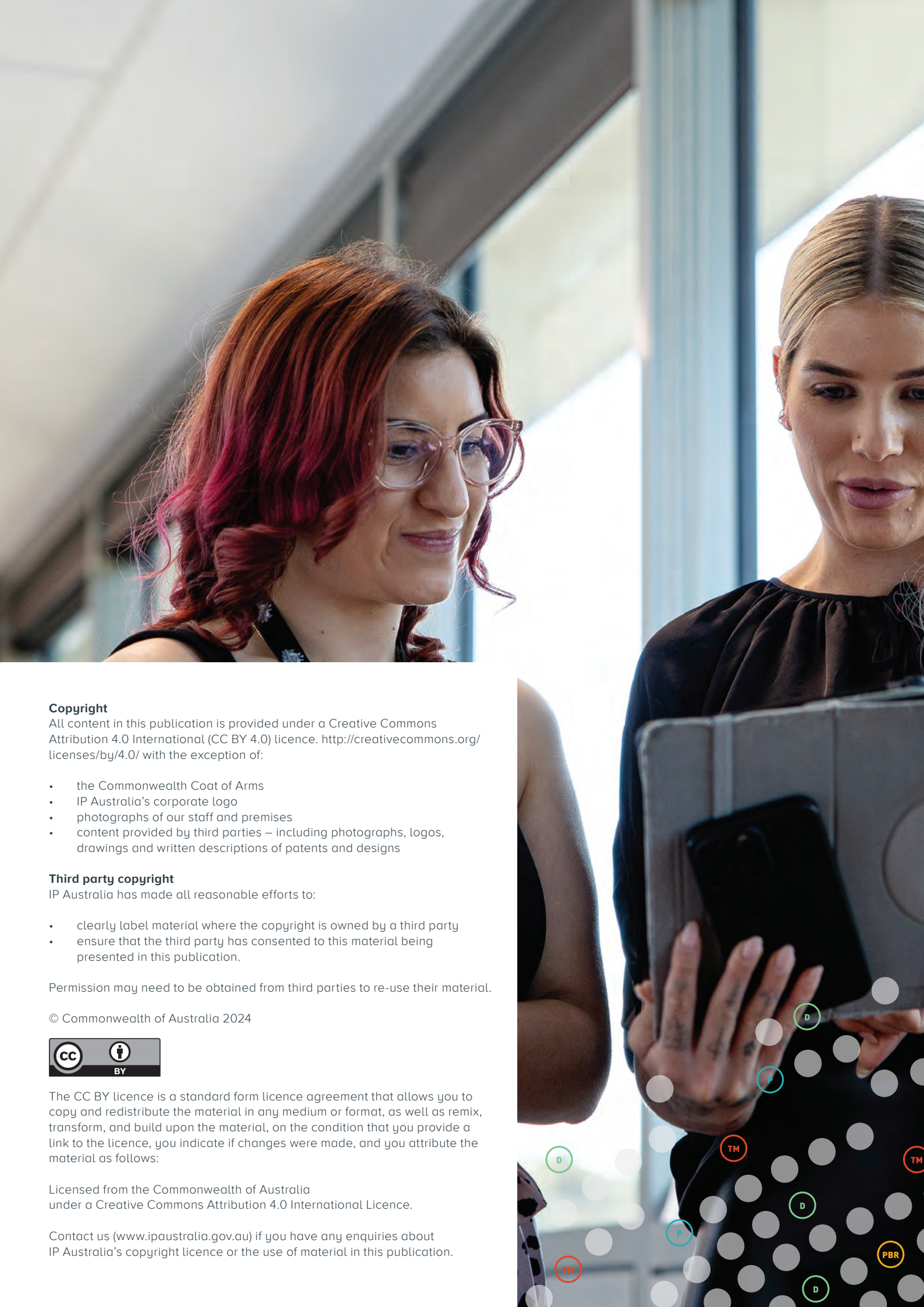




Australian Government
IP Australia

AUSTRALIAN IP REPORT 2024





Copyright

All content in this publication is provided under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence. <http://creativecommons.org/licenses/by/4.0/> with the exception of:

- the Commonwealth Coat of Arms
- IP Australia's corporate logo
- photographs of our staff and premises
- content provided by third parties – including photographs, logos, drawings and written descriptions of patents and designs

Third party copyright

IP Australia has made all reasonable efforts to:

- clearly label material where the copyright is owned by a third party
- ensure that the third party has consented to this material being presented in this publication.

Permission may need to be obtained from third parties to re-use their material.

© Commonwealth of Australia 2024



The CC BY licence is a standard form licence agreement that allows you to copy and redistribute the material in any medium or format, as well as remix, transform, and build upon the material, on the condition that you provide a link to the licence, you indicate if changes were made, and you attribute the material as follows:

Licensed from the Commonwealth of Australia under a Creative Commons Attribution 4.0 International Licence.

Contact us (www.ipaustralia.gov.au) if you have any enquiries about IP Australia's copyright licence or the use of material in this publication.



Contents

Welcome to the Australian IP Report 2024	5
Overview	6
IP and the economy: Key roles and impacts	10
1 Collaboration, commercialisation and patenting in Australia	12
2 IP and competition: How broad are Australian patents?	22
3 Patents	28
4 Trade marks	44
5 Design rights	60
6 Plant breeder's rights	70
7 Copyright	82
8 Research program	90



P

TM

D

PBR

TM

PBR

P

Welcome to the Australian IP Report 2024

Australia has a strong advantage in emerging technologies including quantum, artificial intelligence, and clean energy generation.

By harnessing these strengths, we can supercharge the growth of new industries and gain a competitive edge.

These frontier technologies present some of the most powerful opportunities we have to grow the economy and raise the social wellbeing of Australians.

However, to get the most out of the country's capabilities in science and technology it is vital for government, industry, and the research sector to work together.

Especially important is developing young talent in STEM fields and helping them to use their know-how to build thriving new businesses.

According to this report, Australian startups that employ PhD graduates are nine times more likely than the average new business to receive a patent.

Australia's capacity to generate valuable IP depends on organisations exchanging their bright ideas and working collaboratively in pursuit of excellence.

IP rights help facilitate technology transfer and can provide small innovators time to develop commercialisation capability.

An effective IP system ensures that Australia's innovators can retain and develop their IP at home, while benefiting from access to new technology at the global frontier.

Innovation based on collaboration, cooperation and the exchange of know-how is vital to Australia's economic success. By supporting Australians on their innovation pathways, we can together tackle some of the world's most pressing and persistent challenges.

Hon Ed Husic MP
Minister for Industry and Science



Overview

Published annually, the Australian IP Report presents the latest statistics and research on the use of registered intellectual property (IP) rights in Australia.

This year's report explores the uses of IP in the innovation process, from invention (creating something new) to commercialisation (making it available for sale in the market).

Until the 1980s, much basic scientific research was conducted and developed into commercial applications in large corporate labs. Today there is greater specialisation, as described by American economist Professor Ashish Arora: Universities and public research organisations perform the bulk of basic research. Startups play a key role in identifying its commercial applications. Large firms often commercialise and scale the applications.¹

IP rights remain a driver of innovation in corporate scientific research by helping firms to commercialise their innovations. However, IP rights have added significance in an innovation system which relies on linkages between different players, such as universities, startups and corporations. First, IP rights facilitate technology trade, allowing universities and startups to trade their ideas and access the commercialisation capabilities of others. Second, by protecting innovations from imitation, IP rights provide young and small firms the time often needed to build commercialisation capability.²

In 2023, Australia saw significant growth in applications for trademarks and design rights, design filings reaching a record level. Applications for standard patents and plant breeder's rights fell slightly from their levels in 2022. However, Australian residents increased their filings across all the registered rights.

This year's report also shows Australia's prominence in emerging technology fields such as clean energy generation and storage. Among 19 major economies, Australia is the second fastest growing destination for patent filings in this field.

Innovation is a key lever for raising overall welfare and wellbeing. The Australian IP Report offers insights into the dynamic interplay between IP rights, innovation and the broader economy.

Research insights

The first two chapters of this year's report present new research by IP Australia and its research partners. Chapter 1 explores the links between patenting, collaboration and commercialisation by Australian firms. In Australia, patenting is linked both to research and development by universities and industry, and the exchange of know-how across firms and sectors.. For example, patenting is linked to a firm's propensity to collaborate – both its past in-sourcing of IP from partners, and its future propensity to form joint R&D and commercialisation arrangements.³

In many industries, a competitive environment is needed for technologies to improve over time, as companies vie for technological leadership. The scope of IP rights – for example whether they cover more specific or more general discoveries – determines their impact on investment and competition.

Broader patents can spur cumulative investment within pioneering firms, as they work to improve on their patented discoveries.⁴ Conversely, narrower patents reduce the likelihood that competitors will infringe a patent if they seek to build on or around patented technology or ideas.⁵

Chapter 2 reports on a new study which evaluates the scope of Australian patents compared to the scope of equivalent patents (for the same inventions) granted in the European Union and United States. The study demonstrates the potential for machine learning to create new opportunities to evaluate and benchmark IP rights and the impacts of policy reform.⁶





Australian IP outlook

IP data provides an important lens on economic activity from scientific and technological progress to commercialisation. In 2023, applications in Australia grew strongly for trade marks (+7.2% on their level in 2022) and for design rights (+11.5% to a record level).

While applications fell for standard patents (-2.4%) and plant breeder’s rights (-1.7%), filings by Australian residents increased across all the registered rights (Figure 0.1). In 2023, the global economy continued to confront the challenges

of persistent inflation and rising interest rates.⁷ However, monetary policy shocks have a limited effect on domestic patenting in Australia, research by the Reserve Bank of Australia shows.⁸ Further, trade marks, used to launch new products and services, tend to increase with entrepreneurial activity.⁹ While for small firms the entry rate (the number of new businesses created relative to existing businesses in the economy) has generally tracked sideways over the last decade, it recovered in 2023 from a sharp fall in late 2022, adjusting for seasonal trends.¹⁰

Figure 0.1 | At a glance: IP rights statistics, 2023

	All applicants				Australian applicants			Overseas applicants		
			Number	Growth	Number	Growth	Share	Number	Growth	Share
	Patents	Filed	31,515	-2.4%	2,556	+2.4%	8.1%	28,959	-2.8%	91.9%
		Granted	15,573	-5.1%	1,000	-6.0%	6.4%	14,573	-5.0%	93.6%
	Trademarks	Files	84,476	+7.2%	49,036	+9.8%	58.0%	35,440	+3.7%	42.0%
		Registered	62,825	-9.9%	33,983	-10.9%	54.1%	28,842	-8.6%	45.9%
	Designs	Filed	8,776	+11.5%	2,652	+24.2%	30.2%	6,124	+6.8%	69.8%
		Certified	1,540	+24.1%	520	+25.3%	33.8%	1,020	+23.5%	66.2%
	Plant Breeders' Rights	Filed	296	-1.7%	145	+22.9%	49.0%	151	-17.5%	51.0%
		Registered	290	+58.5%	155	+115.3%	53.4%	135	+21.6%	46.6%

This year’s report includes a chapter on copyright by the Attorney-General’s Department, which develops Australia’s copyright policy. Within the creative and cultural industries, collaboration and licensing are significant drivers of economic value. For example, Australia’s games industry saw a 59% increase in revenue in 2021-22, enabled by increased collaboration between games developers and music workers. For Australian artists and creators, licensing their copyright material generated over \$700 million in royalties paid through collecting societies in 2022-23.

International comparisons

Firms in the United States (US) are highly sensitive to monetary policy shocks in their patenting

activity.¹¹ Filings in Australia from the US fell across the registered rights in 2023. This has driven overall reductions in:

- new trade marks for science and technology services
- new design filings for computing equipment.

Conversely, growth in patent filings is sustained in technologies that are the focus of strategic competition between countries (e.g., semiconductors) and where Australia is a key destination market (e.g., clean energy technology).

Data for policy and decision makers

The analytics in this report are derived from IP Australia's new open data product, IP RAPID. This provides information on IP applications in Australia spanning more than 100 years and refreshed weekly. The data is publicly accessible in a format suitable for researchers and updated weekly. IP Australia periodically revises its data and time series as more up-to-date or better-quality source data becomes available.

Now in its 12th year, the Australian IP Report offers a rich account of IP activity in Australia to inform engagement between government, industry, researchers and the wider community. We welcome you to join the conversation.

- Web: Office of the Chief Economist, IP Australia
- Email: chiefeconomist@ipaustalia.gov.au

End notes

¹ Arora, A., Belenzon, S., Cioaca, L. C., Sheer, L. & Zhang, H. (2023). The effect of public science on corporate R&D. NBER Working Paper 31899. Arora, A. and Belenzon, S. (2023). The changing structure of American innovation. *NBER Reporter*, No. 1, March 2023.

² Teece, D. J. (1986). Profiting from technological innovation: implications for integration, collaboration, and public policy. *Research Policy*, 15, 285-305. See also Arora, A., Belenzon, S., Marx, M. & Shvadron, D. (2021). (When) does patent protection spur cumulative research within firms? *NBER Working Paper 28880*.

³ Menezes, F., Rampino, T. & Verreynne, M. (forthcoming). The Business Environment of Patenting Firms in Australia. IP Australia Economic Research Paper Series 15, The Commonwealth of Australia. Nguyen, K. (2024). Exploring innovation pathways: An insight into funding sources, collaboration networks, and complementary investments in Australia's R&D firms. *IP Australia Working Paper*. The Commonwealth of Australia. Dobson-Keefe, B. (2024). Employee mobility and startup characteristics: Impact on IP propensity and performance. *IP Australia Working Paper*.

⁴ Arora, A., Belenzon, S., Marx, M. & Shvadron, D. (2021). (When) does patent protection spur cumulative research within firms? *NBER Working Paper 28880*.

⁵ Merges, R. P. & Nelson, R. R. (1990). On the complex economics of patent scope. *Columbia Law Review*, 90(4), 836-916.

⁶ Kollmann, T., Palangkaraya, P., Sarwar, A., Webster, E., Anglim, C. and Falk, M. (forthcoming). *Raising the Bar reforms: Measuring the impact on relative patent scope*. *IP Australia Economics Research Paper Series 14*.

⁷ OCED (2023). *OECD Economic Outlook, Volume 2023 Issue 2*. OECD Economic Outlook, Volume 2023 Issue 2 | OECD Economic Outlook | OECD iLibrary (oecd-ilibrary.org).

⁸ Majeed, O., Hambur, J. & Breunig, R. (2023). Do monetary policy shocks and economic conditions impact innovation? Working Paper. Nolan, G., Hambur, J. & Vermeulen, P. (2023). Does monetary policy affect non-mining business investment in Australia? Evidence from BLADE. *Reserve Bank of Australia Research Discussion Paper, RDP, 2023-09*.

⁹ Lyalkov, S., Carmona, M., Congregado, E., Millán, E. & Millán, J. M. (2019). Trademarks and their association with Kirznerian entrepreneurs. *Industry and Innovation*, 27(1–2), 1–10.

¹⁰ Australian Bureau of Statistics. (2023, 22 August). *Counts of Australian businesses, including entries and exits*. <https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>.

¹¹ Ma, Y. & Zimmerman, K. (2023). Monetary policy and innovation. *NBER Working Paper 31698*.

IP and the economy:

Key roles and impacts

IP rights support businesses, startups and research organisations to commercialise their innovations.

IP rights facilitate technology transfer, enabling innovators to license or sell their ideas to others.

By reducing the threat of imitation, IP rights provide businesses the time needed to build commercialisation capability.

SMEs and IP rights

- After filing for an IP right, Australian SMEs are 16% more likely to experience high employment growth than their peers without recent filings.
- Start-ups that file IP in their first year are twice as likely to experience high growth (Zhang, 2021).
- In the past two decades, the number of Australian SMEs that hold patents has increased at 5 times the rate of SMEs in the economy, a pattern not observed for large firms (Dobson-Keefe & Falk, 2024).

Invention, collaboration and commercialisation

- Australian startups that employ in their first year a recent PhD graduate are 9 times more likely than the average new firm to eventually receive a patent (Dobson-Keefe, 2024).
- Australian firms granted patents are more likely to form collaborations including joint R&D and joint commercialisation arrangements (Menezes et al., 2024; Nguyen & Falk, 2024).
- The flexibility given to applicants to influence the timing of patent decisions is particularly beneficial for small firms, giving them time to obtain commercialisation resources (Higham et al., 2024).

Attracting investment

- International studies estimate that patents and trade marks increase investors' estimates of a startup's value by around 20% (especially in the early development stage and early financing rounds) (Hsu & Ziedonis, 2013).
- Compared to their peers, Australian firms with patents obtain more of their funding for innovation from external sources (Menezes et al., 2024).

Clean energy

- Among 19 major economies, Australia is the second fastest growing destination for patent filings related to clean energy generation and storage.
- In 2023, Australia saw strong growth in patents for electrical machinery and apparatus. Chinese design filings for electrical equipment also nearly doubled.

IP and competition

- Australian patents narrowed in the 2010s, relative to patents for the same inventions granted in the European Union and United States, reversing a trend toward Australian patents broadening in relative scope.
- Australia's past patent reforms – *the Intellectual Property Laws Amendments (Raising the Bar) Act 2012* – contributed to reducing the likelihood of Australian patents being broader than their international equivalents by between 1.0 and 4.0 percentage points.

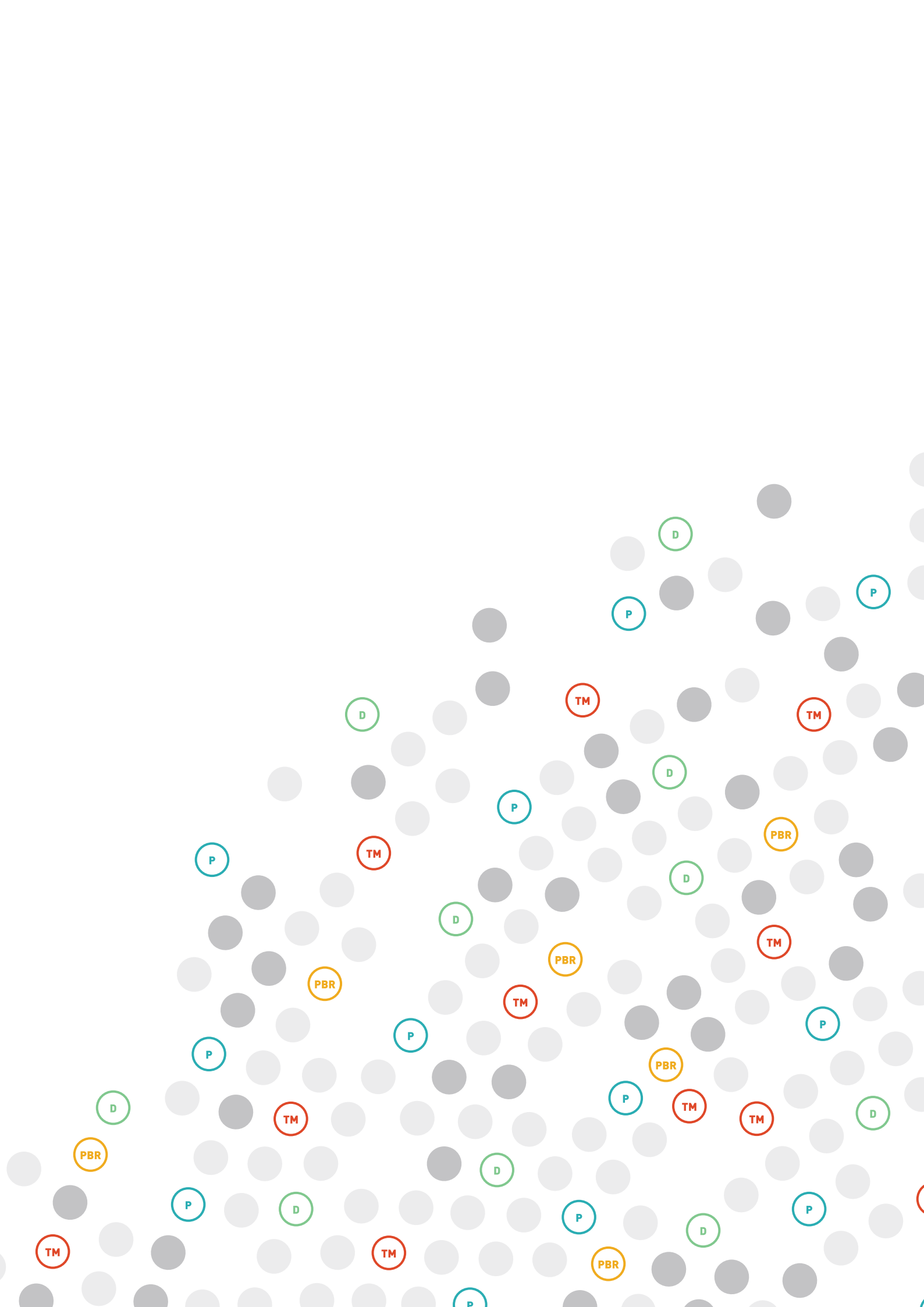
Resources

- Findings are drawn from the Australian IP Report (2022, 2023 and 2024 editions), research leveraging Australian Bureau of Statistics BLADE and PLIDA data, and referenced studies.



1

Collaboration, commercialisation and patenting in Australia



Across a range of measures, the contribution of small and medium enterprise to innovation in Australia has been rising in recent decades.¹² The trend may reflect an increasing division of innovative labour, with many successful innovations relying on basic research by universities, startups who contribute to identifying its commercial applications and large firms who acquire and scale innovative ideas and practices.¹³ This chapter explores the pathways to innovation in Australia and the relationship between patenting, collaboration and commercialisation.

At a glance:

- The number of SMEs in Australia that hold patents has increased at 5 times the rate of the number of SMEs in the economy, a pattern not observed for large firms.
- In Australia, young firms are more likely to patent than older firms. Furthermore, the

efficiency of firms in converting R&D spend into patents decreases after a threshold level, indicating it may be higher in smaller enterprise.

- For smaller firms, flexibility in the patent process to influence the timing of patent grants increases commercialisation outcomes, by providing them time to obtain necessary resources.
- Firms that have recently been granted patents are more likely to form collaborations including joint R&D and joint commercialisation arrangements.
- Universities are a key source of know-how for Australian startups.¹⁴ Australian startups joined in their first year of operation by a PhD graduate are 9 times more likely than the average Australian new firm to eventually receive a patent.

NEW INSIGHTS FROM COMPREHENSIVE LINKED MICRODATA

The findings in this chapter are drawn from three new studies by IP Australia and its research partners using administrative micro-datasets hosted by the Australian Bureau of Statistics. These include the Business Longitudinal Analysis Data Environment (BLADE) and the Person Level Integrated Data Asset (PLIDA).

- IP Australia commissioned the Australian Institute for Business and Economics (AIBE) at the University of Queensland to examine the business characteristics of patenting firms. The 'AIBE' study focuses on all active businesses from 2011 to 2021 that have interacted with the IP system.¹⁵
- IP Australia built on this study using data on 34,592 R&D-active firms identified in the ABS' R&D surveys.¹⁶

- Separately, IP Australia has used the ABS data linking information on employers and their employees. This covers more than 1.6 million businesses active in Australia and their 17.3 million employees from 2012 to 2021.¹⁷

In addition, the chapter draws on an ongoing study of economic outcomes associated with the timing of patent grants. IP Australia commissioned Motu Economic and Public Policy Research and École Polytechnique Fédérale de Lausanne for this work. The 'Motu/EPFL study' focuses on 316,077 standard patents granted by IP Australia from 2004 to 2016. It examines commercialisation outcomes using IPProduct, a dataset linking patents to products based on the webpage-listed patent markings.¹⁸

Innovation relies on small and large firms, backed by external funding

Across a range of indicators, the contribution of small and medium enterprise to innovation in Australia has been increasing over recent decades. For example, in Australia, the number of SMEs that hold patents has increased at 5 times the rate of the number of SMEs in the economy, a pattern not observed for large firms.¹⁹ It is possible this trend reflects an increasing division of innovative labour in Australia, as has been observed for the US. Many successful innovations – such as the mRNA Covid vaccine – today start their life in university labs. Startups often play a key role in developing aspects of a technology and identifying its commercial applications. Large firms will often scale up and commercialise innovative ideas that they acquire from startups or develop in collaboration with universities.

In an innovation system that relies on effective knowledge transfer and collaboration, IP rights can play several roles. On one hand, patents can complement firms' efforts to commercialise their innovations by excluding imitators. Conversely, for small and new firms, patents may also serve as a strategic substitute for commercialisation capability. Patents facilitate technology trade, for example between small innovators and larger firms with established commercialisation resources. By protecting innovators from copying, patents can also provide small firms the time necessary to obtain resources and financing.²⁰

The study for IP Australia by the Australian Institute for Business and Economics (AIBE) found that in Australia large firms are more likely to patent than smaller firms. In addition, R&D expenditure (which is typically greater in larger firms) is positively linked to the number of filed, granted and retired patents attributed to the firm. However, young firms (aged between 0 and 5) are more likely to patent than older firms.

Building on AIBE's analysis, IP Australia found that the strong positive relationship between R&D expenditure and patents holds only up to a point, estimated at around \$868,000. Beyond that point, the rate of increase in patents from each dollar of additional R&D spend diminishes.²¹ The result may reflect higher efficiency converting R&D into patents within small firms. Researchers have documented the 'preference of many engineers and scientists to work in smaller and more intimate organisations,' which can result in efficiency gains.²² For example, in large firms, managers may face large demands on their time to oversee existing product lines. In smaller firms, managers can find it easier to devote time to developing new products.²³

Focusing on users of Australia's patent system, the Motu/EPFL study found that a longer duration between patent filing and grant – such as when an applicant delays the patent process – tends to increase the likelihood that smaller firms will eventually commercialise a patent-protected product. The pattern was opposite to that observed for large firms. In addition, for small firms, applicant-side delays are linked to increased follow-on innovation within the firm.²⁴ The same patterns were not observed for larger applicants. These results reflect the distinct challenges for innovative small firms to acquire or access commercialisation resources. The findings are consistent also with research identifying the timing of patent grants as an important determinant of licensing and commercialisation outcomes.²⁵



Patenting firms are more likely to be involved in collaboration

As the AIBE study reports, collaboration is an integral feature of firms undertaking R&D activities in Australia. Collaboration is pervasive in Australian R&D, with various industries collaborating with overseas and domestic partners. Manufacturing firms and professional, scientific and technical services stand out as having the most overseas partners.

The AIBE study finds that patenting is positively related to a firm's propensity to collaborate. The finding is based on conditional correlations and no causality can be inferred. For example, firms with patents may be able to safely disclose their IP to potential R&D partners, helping to facilitate collaboration. Conversely, firms that have engaged in patenting may enter collaboration as they seek to enhance their R&D activities. Collaboration may also result in patenting by generating innovation outcomes.

Building on the AIBE study, IP Australia found that for R&D-active firms patent grants are positively linked to both joint R&D and joint commercialisation arrangements. In addition, Australian firms that acquire intangible assets from partners, such as technology licenses, patents or other IP assets, are on average granted more patents than their peers. In-licensing IP can provide critical access to components needed to develop more complex technologies.

More research is needed to understand the causal mechanisms behind these 'stylised facts.' Nevertheless, taken together, they highlight the role of patents in collaboration and commercialisation and the importance of collaboration to innovation in Australia.

Spinouts and patenting

To explore the origins of innovative ideas and practices in Australia, IP Australia is examining the characteristics of Australian startups. A particular focus of the research is on the employment trajectories of their early joiners – employees that joined a firm within its first year of operation.

US research shows that entrepreneurship by employees is a key driver of innovation, geographic clustering and industrial growth.²⁶ When employees of established firms found or join "spinout" ventures, they often target submarkets ignored by their previous employers. A spinout refers to a new company that is created from technology, research, or IP that originated within another organisation. The originator may be a research institution (e.g., a university) or existing company.

Figure 1.1. shows how startups that eventually receive a patent in Australia compare to the average new firm in the economy, and how they compare to the average startup in professional, scientific and technical services, being one of Australia's most patent-intensive industries.

Compared to the latter, those that eventually receive a patent:

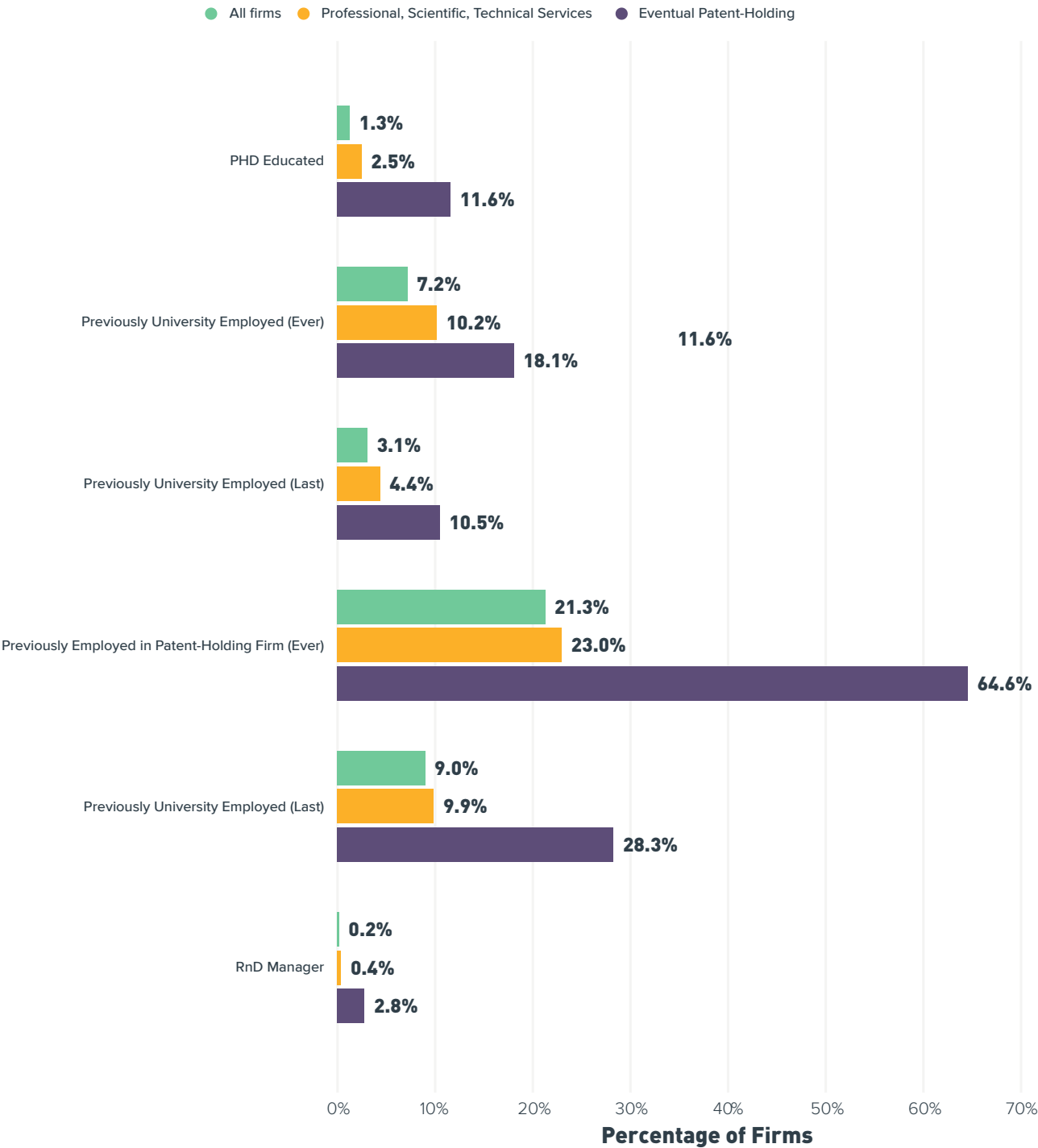
- Are 2.4 times more likely to have been joined by an employee who was previously with a university (10.5% of patent producers vs 4.4% on average).
- Are 4.6 times more likely to have been joined by at least one PhD graduate (11.6% of patent producers vs 2.5% on average).

Spinouts are a key means by which research from universities is commercialised. At the same time, as US research shows, the impact of public science on corporate innovation strongly depends on the training of human capital by universities.²⁷

Based on IP Australia’s analysis, inter-industry mobility – employees joining startups from firms in the same industry – appears to be an important driver of startup performance. In Australia, patent-

producing startups are around 3 times more likely than the average new firm to have employed at least one worker who came directly from another patent-holding employer.

Figure 1.1 | Proportion of Australian startups that employed in their first year of operation at least one employee of a given background



Source: ABS, PLIDA, 2022; ABS, BLADE, 2022.

Knowledge transfer via employees

The diffusion of know-how is critical to successful technology transfer and innovation.²⁸ A key way that firms access know-how is through employee mobility – by hiring new people and by maintaining ties with employees that exit to join other firms.²⁹

Mobility can provide firms with direct access to innovative knowledge or intellectual property. In addition, by enhancing a firm's stock of knowledge, mobility can improve a firm's absorptive capacity – its ability to identify, understand and exploit valuable external knowledge.³⁰

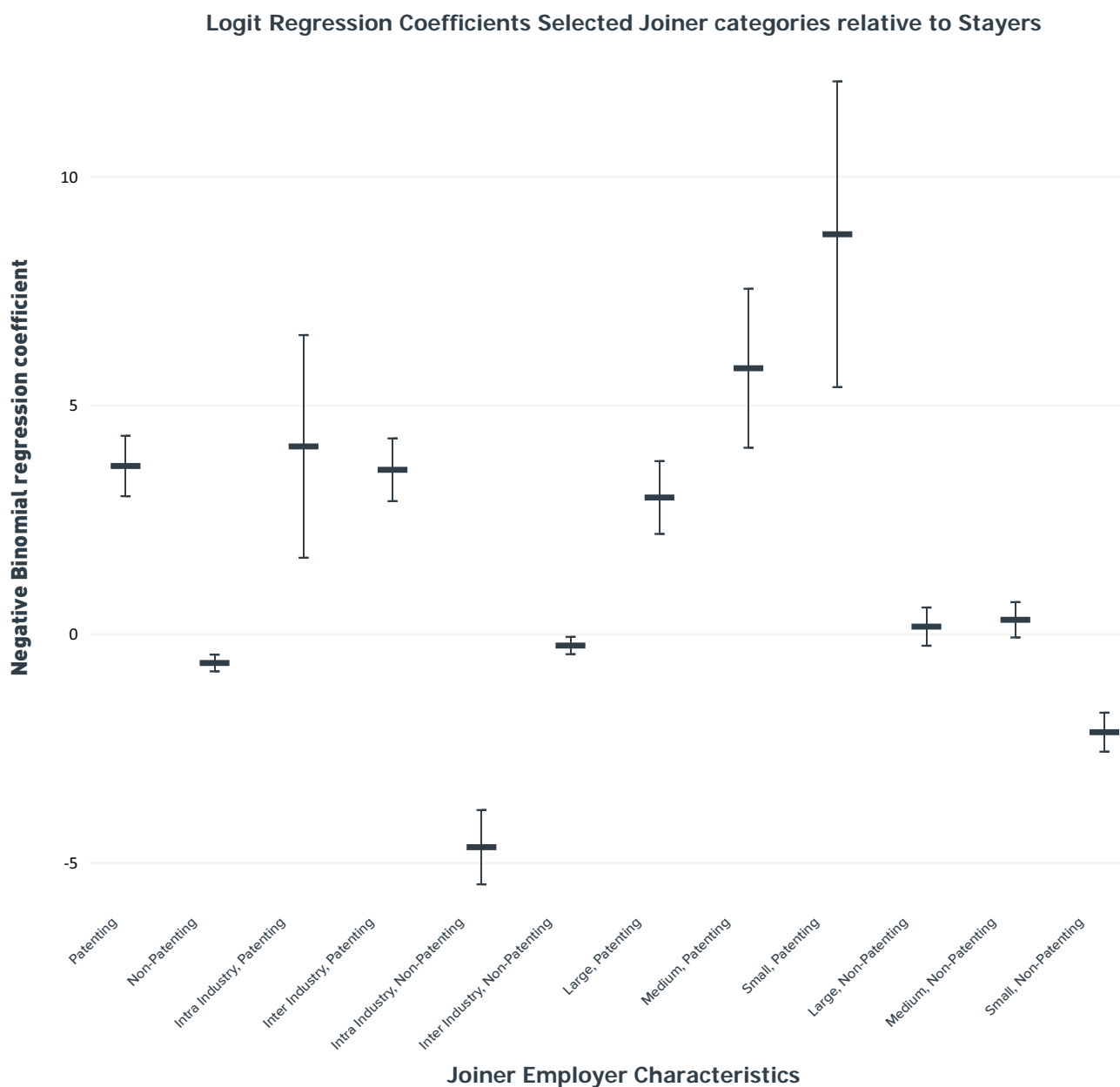
In Australia, firms with a higher proportion of new joiners (relative to a firm's existing employee base) tend to patent more, but only when those joiners have come from:

- university employment or are recent graduates
- patenting firms in the same industry or, to a lesser degree, patenting firms in other industries
- small patenting firms or, to a lesser degree, from larger patenting firms.

Looking at employee exits and their relationship to patenting, few significant effects are observed. An exception is when an employee exits to join a small patent-holding venture. For Australian firms, both hiring employees from small patent-holding ventures and losing employees to such ventures is linked to higher patenting by both parties.

Several explanations are plausible. As prior research shows, a firm's patent performance can influence preferences among inventors to work for that firm.³¹ Conversely, employee mobility can facilitate the exchange of know-how, especially if the employee maintains social ties with their previous employer.³² As the employers become more aware of each other's innovation activities, this may spur innovation effort and/or patent portfolio building.

Figure 1.2 | Estimated effect of joiners from various different types previous employers on a startup's patent performance (positive values indicate positive effect and vice versa)



Source: PLIDA, ABS, 2024; BLADE, ABS, 2024. Note: Firm size is identified based on a firm's number of full-time equivalent (FTE) employees, consistent with ABS definitions: micro, 0–4 employees; small, 5–19 employees; medium, 20–199 employees; large, 200+ employees. For every one percentage point change in joiners from each cohort, the log of firm's expected number of filings increase (or decrease) by the respective coefficient, holding other variables constant.

Understanding collaboration and the roles for IP in innovation

Innovation relies on collaboration and effective mechanisms for transferring know-how, such as dynamic labour markets. In turn, effective knowledge transfer can compound the economic benefits of investment in IP and innovation.

New microdata has the potential to dramatically improve our understanding of innovation pathways, vital to ensuring the IP system remains fit-for-purpose.

Visit our website to access our economic research papers.

End notes

¹² Jones, B. (2024, 4 April). Financing SME innovation in Australia – challenges and opportunities. Speech to COSBOA National Small Business Summit, 4 April 2024, Reserve Bank of Australia.

¹³ Arora, A. and Belenzon, S. (2023). The changing structure of American innovation. *NBER Reporter*, No. 1, March 2023.

¹⁴ Arora, A., Belenzon, S., Cioaca, L. C., Sheer, L. and Zhang, H. (2023). The effect of public science on corporate R&D. *NBER Working Paper* 31899.

¹⁵ Menezes, F., Rampino, T. & Verreyne, M. (forthcoming). *The Business Environment of Patenting Firms in Australia*. IP Australia Economic Research Paper Series 15, The Commonwealth of Australia.

¹⁶ Longlois, R. N. (2003). The vanishing hand: the changing dynamics of industrial capitalism. *Industrial and Corporate Change*, 12(2), 351-385.

¹⁷ Dobson-Keeffe, B. (2024). Employee mobility and startup characteristics: Impact on IP propensity and performance. *IP Australia Working Paper*.

¹⁸ Higham, K., Richardson, E. and de Rassenfosse, G. (2024). Patent pendency and applicant innovation outcomes. *Working Paper*.

¹⁹ Dobson-Keeffe B and M Falk (forthcoming), 'The Structural Change in Patenting Behaviour in Australia', IP Australia Analytical te.

²⁰ Teece, D. J. (1986). Profiting from technological innovation: implications for integration, collaboration, and public policy. *Research Policy*, 15, 285-305. See also Arora, A., Belenzon, S., Marx, M. & Shvadron, D. (2021). (When) does patent protection spur cumulative research within firms? NBER Working Paper 28880.

²¹ Longlois, R. N. (2003). The vanishing hand: the changing dynamics of industrial capitalism. *Industrial and Corporate Change*, 12(2), 351-385.

²² Soete, L. and Freeman, C. (1997). *The Economics of Industrial Change*. Routledge, London. Quoted in Arora, A. and Merges, R. P. (2004). Specialized supply firms, property rights and firm boundaries. *Industrial and Corporate Change*, 13(3), 451-475.

²³ Artz, K. W., Norman, P. M., Hatfield, D. E. and Cardinal, L. B. (2010). A longitudinal study of the impact of R&D, patents, and product innovation on firm performance. *Journal of Product Innovation Management*, 27, 725-740.

²⁴ Higham, K., Richardson, E. and de Rassenfosse, G. (2024). Patent pendency and applicant innovation outcomes. *Working Paper*.

²⁵ For example, see Gans, S., Hsu, D. H. & Stern, S. (2008). The impact of uncertain intellectual property rights on the market for ideas: Evidence from patent grant delays. *Management Science* 54(5), 982–997.

²⁶ Klepper, S. (2015). *Experimental Capitalism: The Nanoeconomics of American High-Tech Industries*. The Kauffman Foundation Series on Innovation and Entrepreneurship. Princeton University Press.

²⁷ Arora, A., Belenzon, S., Cioaca, L. C., Sheer, L. and Zhang, H. (2023). The effect of public science on corporate R&D. *NBER Working Paper* 31899.

²⁸ Reflecting this, patents and know-how are often bundled into licensing contracts. See Arora, A. (2006). Licensing tacit knowledge: Intellectual property rights and the market for know-how. *Economics of Innovation and New Technology*, 4(1), 41-60.

²⁹ Kaiser, U., Kongsted, H. C. and Rønde, T. (2015). Does the mobility of R&D labor increase innovation? *Journal of Economic Behavior & Organization*, 110, 91-105.

³⁰ Cohen, W. M. and Levinthal, D. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152.

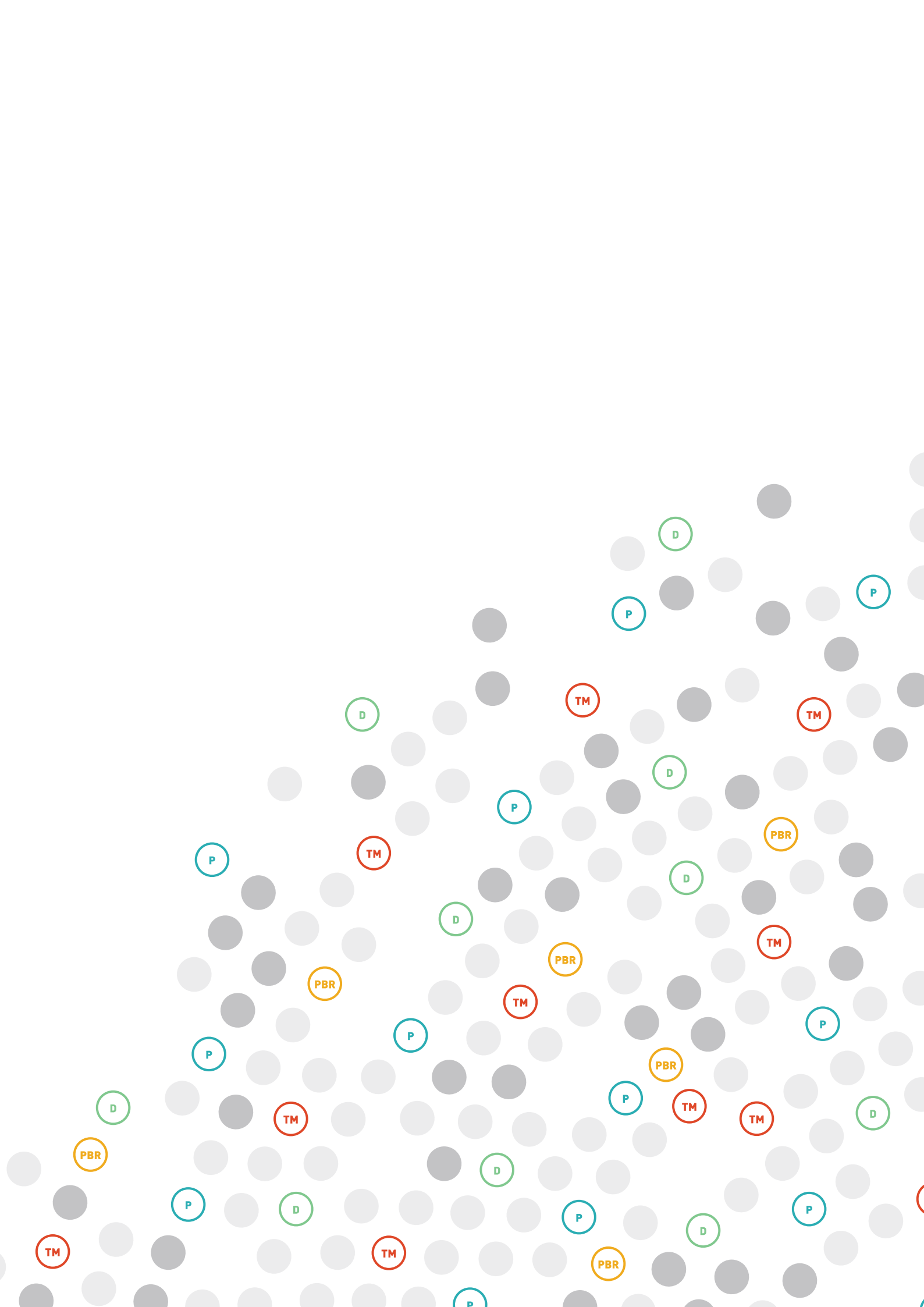
³¹ Bhaskarabhatla, A., Cabral, L., Hegde, D. and Peeters, T. (2020). Are inventors or firms the engines of innovation? *Management Science*, 67(6).

³² Kaiser, U., Kongsted, H. C. and Rønde, T. (2015). Does the mobility of R&D labor increase innovation? *Journal of Economic Behavior & Organization*, 110, 91-105.



2

IP and competition: How broad are Australian patents?



A key aspect of patents is their scope, the extent of legal protection that they provide. Broader patents, such as those for more general discoveries or ideas, can spur cumulative investment within patenting firms, as pioneers seek to build on their own discoveries. Conversely, narrower patents increase the likelihood that others – such as a patentee’s rivals – can design around the patent without infringing it and contribute to improving a technology. Machine learning is opening new opportunities to evaluate the characteristics and quality of patents. In 2022-23, IP Australia partnered with the Centre for Transformative Innovation (CTI) at Swinburne University of Technology to assess how Australian patents compare to patents granted for the same inventions in the United States and at the European Patent Office.³³

At a glance:

- Australian patents narrowed in the 2010s, relative to patents for the same inventions granted in the European Union and United States, reversing a trend toward Australian patents broadening in relative scope.
- Australia’s past patent reforms – *the Intellectual Property Laws Amendments (Raising the Bar) Act 2012* – contributed to reducing the likelihood of Australian patents being broader than their international equivalents by between 1.0 and 4.0 percentage points.
- The reforms’ estimated impact was greatest in ICT/software, where open innovation communities and principles are an important force for technological progress.
- As of 2019, around 51% of Australian patents are estimated to be similar in scope to their international equivalents, around 35% are estimated to be broader, and around 14% are estimated as narrower.

Why patent scope is important

In 1880 Thomas Edison received a basic patent for his “electric lamp... giving light by incandescence.” The invention paved the way for widespread use of electric light. The patent’s first claim was broad – a lamp using a carbonised filament as the source of light. However, the patent was narrowed because the filament needed to be of “high resistance.” Subsequent claims also had a narrowing effect: the invention relied on a bulb made of a single piece of glass that creates a vacuum, and technical principles for connecting the filament to electrical conductors.

The patent provided Edison’s company – now General Electric – a dominant position in the nascent electric lighting industry.³⁴ However, it was sufficiently narrow that others designed around the patent in developing substitute technologies, advancing electric lighting and contributing to the industry’s development.³⁵

A patent’s scope determines its economic impact. Broader patents can spur cumulative investment within pioneer firms.³⁶ However, the broader a patent, the more rival products and processes are likely to infringe it. As a result, broader patents can also limit rival innovation and affect market entry decisions by potential competitors.³⁷

Evaluating patent scope is difficult, since a patent’s scope is defined by the text in its claims. New research methods such as machine learning are opening new opportunities for evaluation and benchmarking. In 2023, IP Australia partnered with the Centre for Transformative Innovation (CTI) to assess Australia’s relative patent scope – the scope of Australian patents compared to patents granted for the same inventions in other jurisdictions – and the impact of past legislative reforms.

MEASURING PATENT SCOPE

The CTI project developed in several stages. First, the team tasked IP Australia's patent examiners with manually assessing 500 patents for their scope, relative to their equivalent patents granted in the United States and, separately, at the European Patent Office.

Second, the CTI team used these assessments to validate certain metrics and as inputs to train and test supervised machine learning models. A key metric is the difference in word length between the patents' first claims: longer claims (e.g., "an incandescent lamp using carbonised paper as filament" vs "the incandescent lamp") tend to include more detail

and modifying statements which will narrow a patent's scope. The CTI team validated this metric against the examiners' manual assessments.

The machine learning models predict scope based on a range of textual features of the patent's claims. Applying the models resulted in a sample of over 80,000 "patent pairs" for analysis. The data covered close to the full population of patents for which applicants requested examination in Australia between 2000 and 2019 and for which equivalent patents were granted by the European Patent Office (EPO) and the United States Patent and Trademark Office (USPTO).

Trends in the relative scope of Australian patents

In 2013, Australia significantly overhauled its patent system, when the *Intellectual Property Laws Amendments (Raising the Bar) Act 2012* came into effect. The 'Raising the Bar' reforms aimed in part to narrow the scope of patents granted in Australia to bring them in line with international standards.

Figure 2.1 charts the proportion of Australian patents predicted to be either narrower, similar or broader than their international equivalents using the Machine Learning model. The figure presents results based on both the full set of claims in the patents and the patents' first claims. Patents are charted over time based on their examination request date. In Australia, applicants must request examination within 5 years of an application's filing date or the application will lapse.³⁸

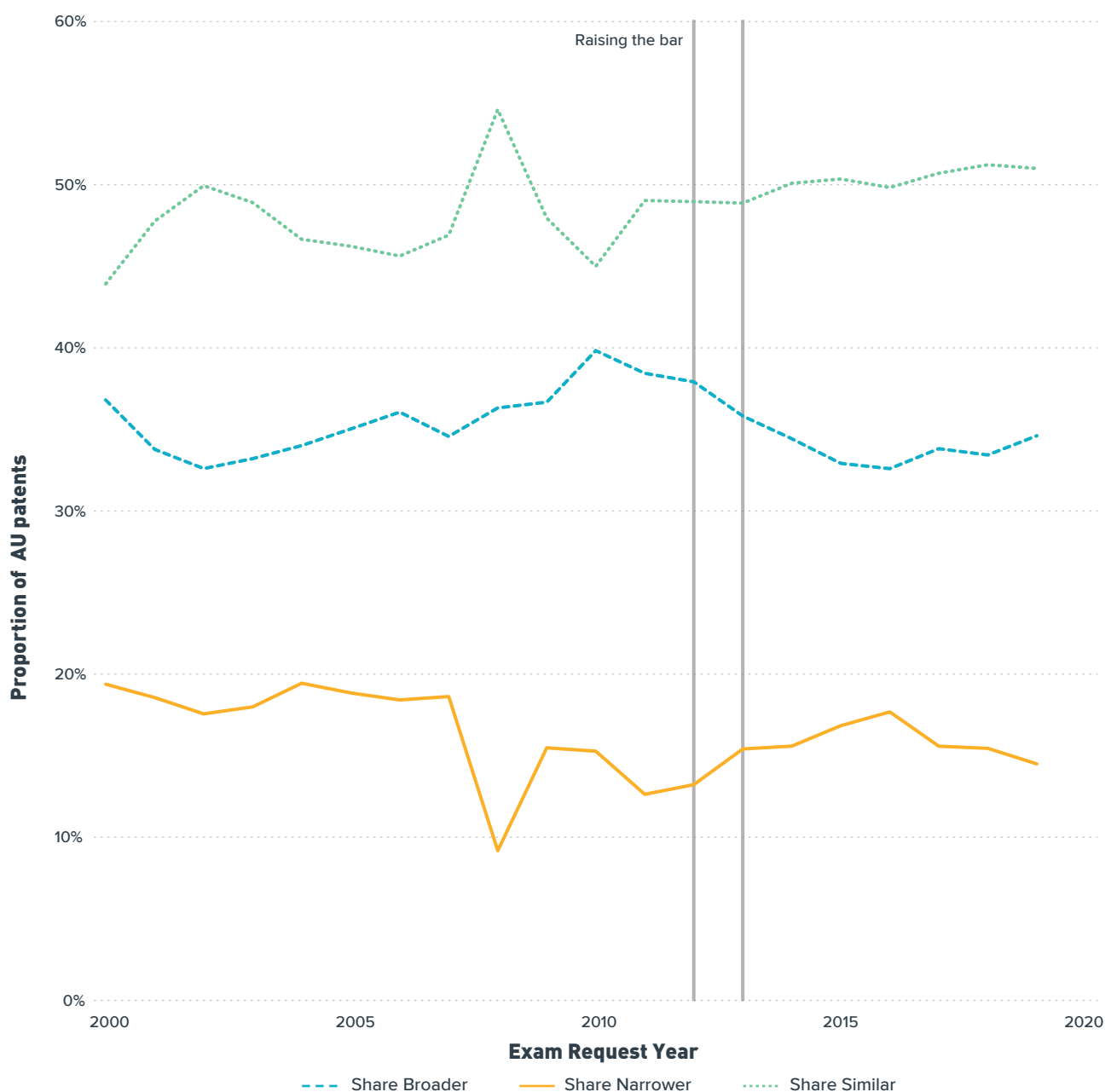
The results suggest the proportion of Australian patents that are broader has declined after 2010, reversing a trend toward Australian patents getting

broader. The downward trend in broader patents appears to have corresponded with an increase in the share of Australian patents with narrower equivalents, and a trend toward Australian patents becoming more similar in scope continuing to 2019.

While the chart suggests a small uptick since 2015 in the proportion of Australian patents that are broader, partial data for 2020 (not charted) suggests that the trend is flat. Consistent with this finding, the median difference in word counts between Australian patents and their equivalents has remained flat over the same period. Continued monitoring over coming years will confirm whether the trend remains stable.

Any changes in relative scope over time may reflect changes in Australian patents but may also partially reflect changes in patent scope within the United States or European Union. For example, previous research has found that US patents were narrowing between 2004 and 2014, after broadening from the early 1980s to 2004.³⁹

Figure 2.1 | Proportion of Australian patents that are broader, narrower and similar in scope to their international equivalents, by examination request year (averages based on comparisons to US and European equivalents)



Source: IP Australia; USPTO, PatentsView, 2022; EPO, 2022. Note: Values represent averages calculated from relative scope measures based on first claims and full set of claims.

As of 2019, most (around 51%) of Australian patents are estimated to be similar in scope than equivalents granted overseas, a minority (around 35%) are broader, and a smaller share (around 14%) are narrower, based on the Machine Learning models. These findings are consistent with results

from the manual assessment of 500 patents pairs by examiners. Based on a small sample of patents, they assessed that around 38% of Australian patents had first claims that were broader than their international equivalents after the Raising the Bar reforms.

The impact of the Raising the Bar reforms

Using the same data, the CTI team estimated the impact of the Raising the Bar reforms in 2013 on the scope of Australian patents. Based on economic modelling, the reforms are estimated to have reduced the likelihood of Australian patents being broader than their international equivalents by between 1.0 and 4.0 percentage points. The effect is significant considering that an estimated 38% of Australian patents were broader prior to the reforms.

Given that the narrowing of Australian patents appears to have begun prior to the reforms, caution is warranted in ascribing causality to the reforms. That said, the results were robust to shortening the study's timeframe to focus on the period immediately before and after the reforms.

The estimated impact of the reforms varied slightly across technology areas. The strongest impact was in ICT/software, while the weakest impact was in more traditional technology fields like mechanical and process engineering. Like aircraft and semiconductors, computer technologies are complex and cumulative technologies: many inventors contribute to technical advances, developing different components that build on

existing technologies. Narrower patents, alongside open innovation, can be important in these contexts. Semiconductors have undergone rapid advancement in part because the pioneer patents were freely licensed and proprietary knowledge was shared.⁴⁰ Advances in artificial intelligence and quantum computing also rely on open innovation, open source and knowledge sharing, according to market leaders like IBM.⁴¹

New opportunities for evaluation and benchmarking

New research methods like machine learning are creating new opportunities to evaluate and benchmark IP rights. This complements other forms of benchmarking conducted by IP Australia and activities under the agency's ISO-certified Quality Management System. Techniques for measuring patent scope remain experimental in nature and the focus of continuous improvement by researchers. As they are further improved, they will serve as valuable tools for monitoring trends in patents, and evaluating policy, to ensure the IP system remains fit for purpose.

Visit our website to access our economic research papers.

End notes

³³ Kollmann, T., Palangkaraya, P., Sarwar, A., Webster, E., Anglim, C. and Falk, M. 2024. Raising the Bar reforms: Measuring the impact on relative patent scope. IP Australia Economics Research Paper Series 14.

³⁴ Merges, R. P. & Nelson, R. R. (1990). On the complex economics of patent scope. *Columbia Law Review*, 90(4), 836-916.

³⁵ Katznelson, R. D. and Howells, R. (2021). Exclusive rights stimulate design around: How circumventing Edison's lamp patent promoted competition and new technology development. *Journal of Competition Law & Economics*, 17(4), 1007-1052.

³⁶ Arora, A., Belenzon, S., Marx, M. & Shvadron, D. (2021). (When) does patent protection spur cumulative research within firms? *NBER Working Paper* 28880.

³⁷ Merges, R. P. & Nelson, R. R. (1990). On the complex economics of patent scope. *Columbia Law Review*, 90(4), 836-916.

³⁸ Under Australian legislation, a patent is examined only once the applicant has requested examination. The request can be voluntary or result from the Commissioner of Patents directing an applicant to request examination.

³⁹ Marco, A. C., Sarnoff, J. D. & DeGrazia, C. A.W. (2019). Patent claims and patent scope. *Research Policy*, 48(9), 103790.

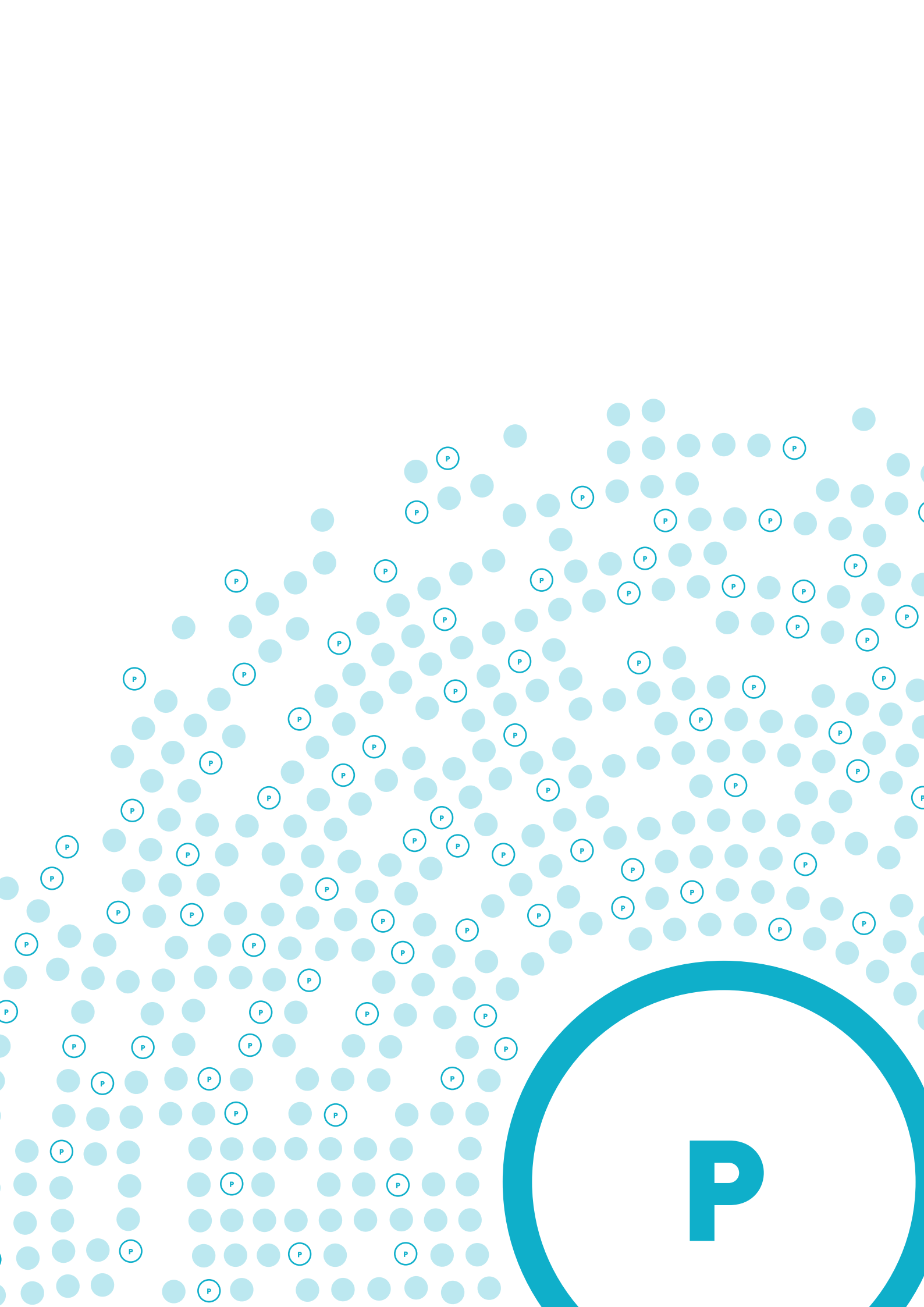
⁴⁰ Lim, K. (2009). The many faces of absorptive capacity. *Industrial and Corporate Change*, 18(6), 1249-1284. See also Von Hippel, E. and von Krogh, G. (2006). Free revealing and the private collective model for innovation incentives. *R&D Management*, 36(3): 295-306.

⁴¹ Gil, D. (2023, 7 January). Why IBM is no longer interested in breaking patent records – and how it plans to measure innovation in the age of open source and quantum computing. *Fortune*. <https://fortune.com/2023/01/06/ibm-patent-record-how-to-measure-innovation-open-source-quantum-computing-tech/>.

3

Patents





Despite persistent inflation and tightening financial conditions in 2023, standard patent filings by Australian residents grew by 2.4%. Overall patent filings fell by 2.4%, driven by a reduction in US filings, with US firms highly sensitive to rates shocks in their patenting activity. Australia saw

growth in patent filings within less research-intensive consumer products. Sustained growth in patent filings is also observed in fields where Australia is a key destination market (e.g., clean energy technologies) and for which there is intense international competition (e.g., semiconductors).

WHAT IS A PATENT?

A patent is a temporary legal right that allows the patent owner to exclude others from commercially exploiting an invention. Standard patents are granted for inventions that are new, useful and involve an inventive step beyond the normal progress of science and technology.

Without patent rights, innovators may be unable to recoup investments in innovation and tend to underinvest. By excluding imitators, patents enhance the returns to research and development (R&D) investment. In return for patent rights, innovators must disclose new technical knowledge in their inventions, allowing them to be reworked by others.

Standard patent applications and grants

In 2023, a total of 31,515 standard patent applications were filed in Australia, down by 2.4% from their level in 2022. In Australia, the COVID-19 shock saw an increase in the volume of patent filings in Australia to record levels in 2021 and 2022 (see Figure 1.1). The latest figures are consistent with applications now following a similar rate of annual change to that observed pre-pandemic.

The overall 2.4% decrease in applications in 2023 is wholly attributed to a 2.8% reduction in filings by non-residents (entities outside Australia),

which account for 91.9% of all applications filed in Australia. Applications by Australian residents increased by 2.4%.

The global economy continues to confront the challenges of persistent inflation, rising interest rates and weak trade growth.⁴² Economic downturns and rates shocks can reduce aggregate demand and the profitability of innovations.⁴³ Such conditions have a significant effect on patenting by firms in the United States, research shows. US filings in Australia fell by 5.9% in 2023. However, such conditions tend to have a limited effect on patenting by Australian firms.⁴⁴

Figure 3.1 | Standard patent applications and grants in Australia, 2012 to 2023



A patent is enforceable in Australia only after it has been examined and granted. Inventions are examined to determine whether they are novel, industrially useful and not obvious before a patent can be granted. In Australia, applicants must request examination within 5 years of an application's filing date or the application will lapse.⁴⁵ In 2023, grants of standard patents in Australia fell by 5.1%, to 15,573. Patent grants fell both for residents (–6.0%, to 1,000) and non-residents (–5.0%, to 14,573).

Patent grants in Australia saw a significant spike over the period 2015 to 2017, as shown in Figure 3.1. The spike in grants followed an increase in

applications and a large spike in examination requests in 2013. That year, IP Australia received 1.8 times the number of examination requests as received on average over the past 5 years. Applicants were motivated by Australia's Raising the Bar legislative reforms. The new law applied to applications for which examination was requested after April 12 2013, spurring many applicants to bring their examination requests forward.

In addition, the spike in grants followed a temporary fall in requests for IP Australia to conduct international type searches – reports that help applicants review the novelty of their patent claims – which affect IP Australia's examination capacity.

Technology fields

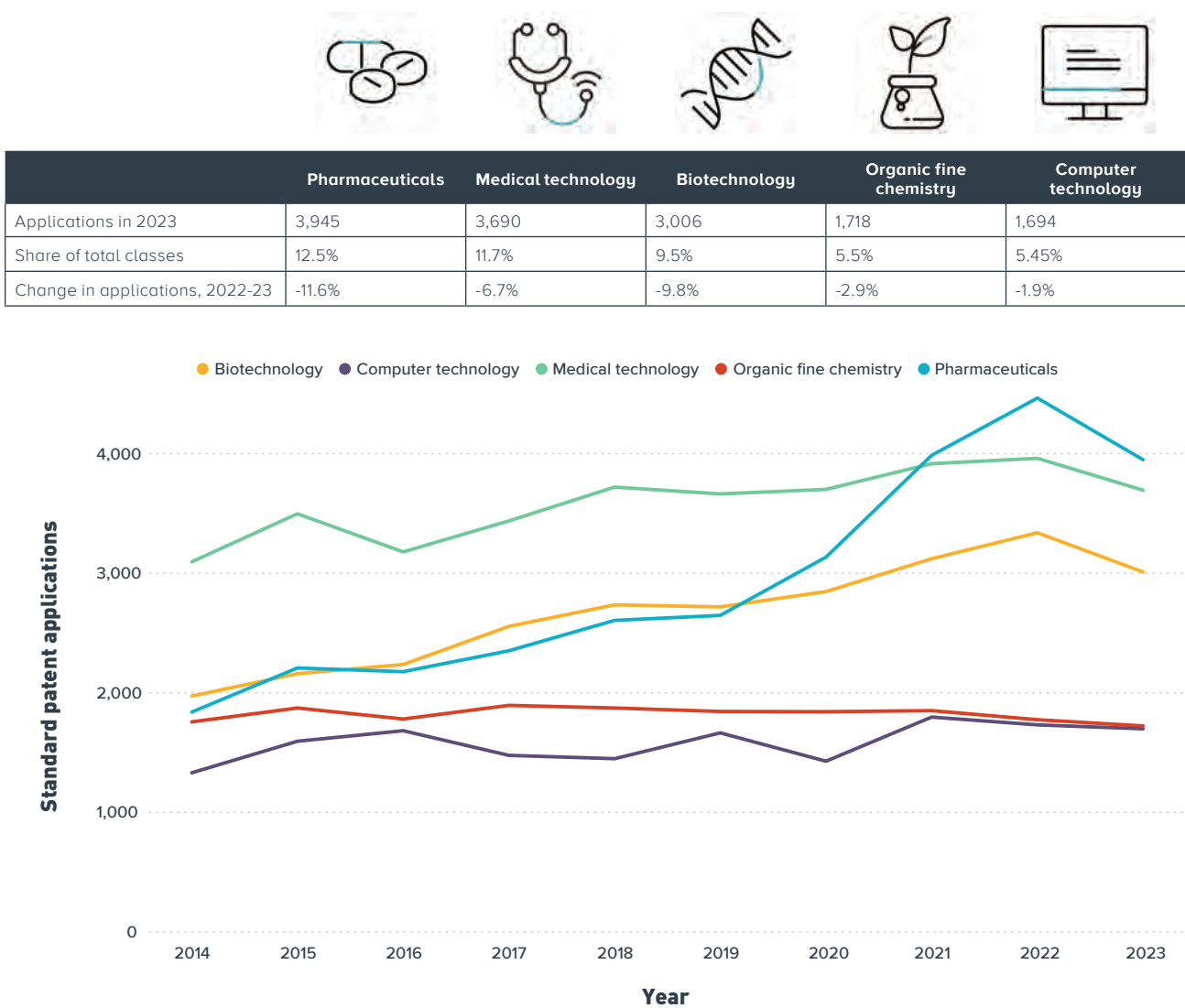
Technology trends in patenting

Patents are assigned to technology classes, so provide a useful indicator of the rate of inventive activity across technology fields.⁴⁶

Consistent with tighter economic and financial conditions in 2023, Australia saw a decline in patenting within research-intensive fields including the life sciences, while patenting grew strongly for consumer goods that are less research-intensive.

In Australia, the life sciences dominate other fields for the number of standard patent applications received each year (see Figure 3.2). In 2023, standard patent filings fell across the major life science fields – by 11.6% in pharmaceuticals, by 6.7% in medical technology and by 9.8% in biotechnology. The results reflect an overall decline in performance for global pharmaceuticals and medicine manufacturing. Global industry revenues declined by 2.2% in 2022 with global imports and exports down by 1.9% on 2021 levels.⁴⁷

Figure 3.2 | Top five technology fields for volume of standard patent filings in 2023, and high-volume fields with the greatest relative growth and decline in 2023⁴⁴



Among ‘high-volume’ fields, the strongest growth was in ‘other consumer goods’ (+18.5%, to 744 in total). This category includes personal and household items like clothing, jewellery, non-electric cables, musical instruments and decorative arts. These products usually involve specific technologies that can be customised and improved for different users and purposes. They generally require less scientific research compared to science-based fields.⁴⁹

Despite challenging economic conditions, significant patent growth was observed in fields that are the focus of strategic competition between countries (e.g. semiconductors – see the next section). Strong growth was also observed in electrical machinery

and apparatus (+17.7%, to 1,275). This field includes electric machines and basic electric elements, as well as equipment for generating, converting and distributing electric power.

In the September quarter of 2023, renewable energy supplied 38.9% of average electricity demand across Australia’s national electricity market – a higher share than recorded in any previous September quarter – reports the Australian Energy Market Operator (AEMO).⁵⁰ Analysis by IP Australia has found that among 19 major economies, Australia is the second fastest destination for growth in patents related to clean energy generation and storage.⁵¹

International patenting in Australia

Filing routes into Australia

Effective patent laws can encourage businesses to transfer technology into a country and increase inward foreign direct investment (FDI).⁵² The preferred route for non-residents to file patent applications into Australia is through the Patent Cooperation Treaty (PCT).

A total of 22,929 PCT applications were filed in Australia in 2023, down 3.3% on their level in 2022. The decline in PCT filings underpins the 2.8% fall in

non-resident filings in the same year. In contrast, applications filed directly with IP Australia – a route favoured by residents – were stable at their 2022 level, with 8,586 in total (Figure 3.3)

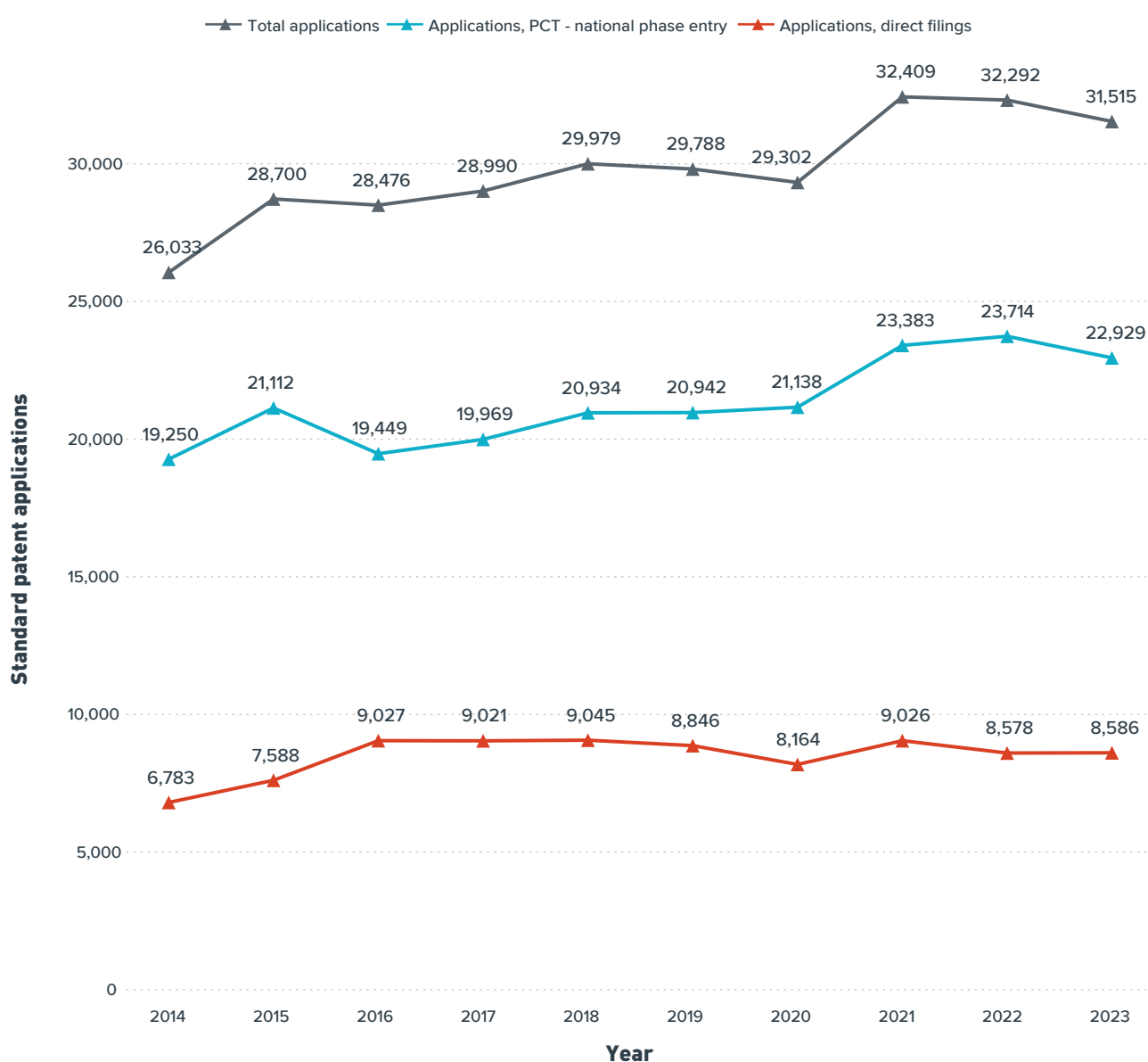
For applicants who file in Australia through the PCT system, on average there is an 18-month interval between their application’s earliest international filing date and when they file the application in Australia (it enters Australian ‘national phase’). As such, trends in PCT applications in 2023 largely reflect changes to innovation activity from 2022 and earlier.

TAKING IP GLOBAL: THE PCT SYSTEM

The Patent Cooperation Treaty (PCT) provides an alternative route to filing applications in Australia. An applicant can file a single ‘international’ patent application through the PCT instead of filing several national or regional applications. The approach provides applicants more time to assess the value of an invention and its most

profitable markets while they build their patent strategy. PCT applicants are given 31 months to file an Australian ‘national phase’ for their application from its ‘priority date’. The priority date is the date used to identify prior art relevant to assessing the invention’s novelty and non-obviousness.

Figure 3.3 | Standard patent applications in Australia by filing route, 2014 to 2023



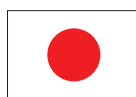
Locations of origin

The lead origins for standard patent applications in Australia are the United States and China, followed by Japan, the United Kingdom and Germany (Figure 3.4).⁵³

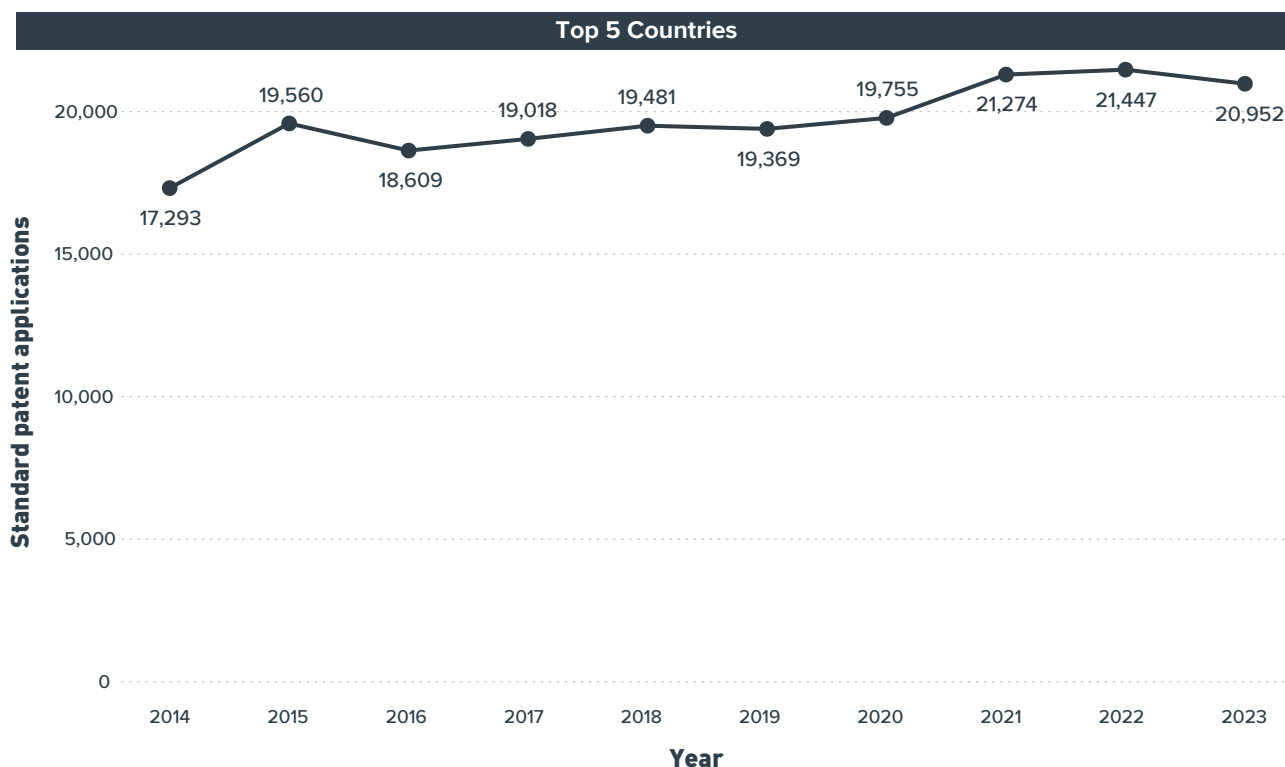
Applications from the US fell by 5.9% in 2023 (to 13,872). A likely contributing factor was the US's rapid increase in interest rates over 2022 and 2023. In response to an inflation surge, the US Federal Reserve raised the US's benchmark funds rate 18-fold, from 0.25% to 4.5%, between March and

December 2022. Federal Reserve officials agreed to hold the funds rate steady between 5.25% and 5.5% in December 2023. A recent study estimates that, on average, a 100-basis point increase to the federal funds rate reduces patenting in US firms by up to 9% in the following 2 to 4 years. The effect is pronounced for the most impactful and disruptive technologies.⁵⁴ US filings are concentrated in pharmaceuticals (16.7% of US-origin filings), medical technology (15.8%), biotechnology (12.2%) and computer technology (6.6%) in Australia.

Figure 3.4 | Leading locations of origin for standard patent applications in 2023, and high-volume locations with the greatest relative growth or decline in 2023⁵⁵



	United States of America	China	Japan	United Kingdom	Germany
Applications in 2023	13,872	2,459	1,685	1,537	1,399
Share of total applications	44.0%	7.8%	5.3%	4.9%	4.4%
Change in applications, 2022-23	-5.9%	+13.1%	+5.5%	-0.5%	+1.1%



Despite challenging economic conditions, applications to China have grown to a record level, increasing 13.1% on their level in 2022, to 2,459 in total. China-origin filings have returned to growth after several years of stalled growth through the pandemic period.⁵⁶ Between 2015 and 2020, applications from China rose at an average annual rate of 25.3%. The rise coincided with a dramatic increase in entrepreneurial activity within China. Just 7% of global venture capital investment was located outside the US in 2012. By 2019, China was the site for 38% of global investment.⁵⁷

Over recent years, among technology fields, semiconductors is the field that has seen the strongest growth in its share of standard patent

filings by Chinese and Australian applicants. Semiconductors – or microchips – are essential to all electronic devices. Advanced new chips are developed to power new technologies. Given their strategic importance, the development of domestic chip production has been a major focus of industrial policy and competition between the United States, China and European Union.⁵⁸

Semiconductor filings from China have increased in Australia since 2015, when China initiated its Made in China 2025 strategic plan to upgrade its technological manufacturing. Since 2019, China has led the US as the leading source of semiconductor patents in Australia.

BLUGLASS LIMITED: FROM LICENSING TO COMMERCIALISATION

BluGlass Limited has developed a breakthrough semiconductor technology called remote plasma chemical vapour deposition (PPCVD). The technology allows for the sustainable production of high efficiency devices, with applications in artificial intelligence, quantum computing and biotechnology.

The company was formed in 2006 to spin out 10 years of research from Macquarie University and has since built a portfolio of 96 patents

internationally.¹ While the company's entrepreneurial strategy was initially focused on licensing its technology, the company has built capability over time and reoriented to compete directly with other equipment manufacturers.

In October 2023, BluGlass was named the only Australian member of a regional innovation hub established by the US Department of Defence. The hub is funded under the US's \$442.3 billion Chips and Science Act aimed at building capability in domestic chip production.

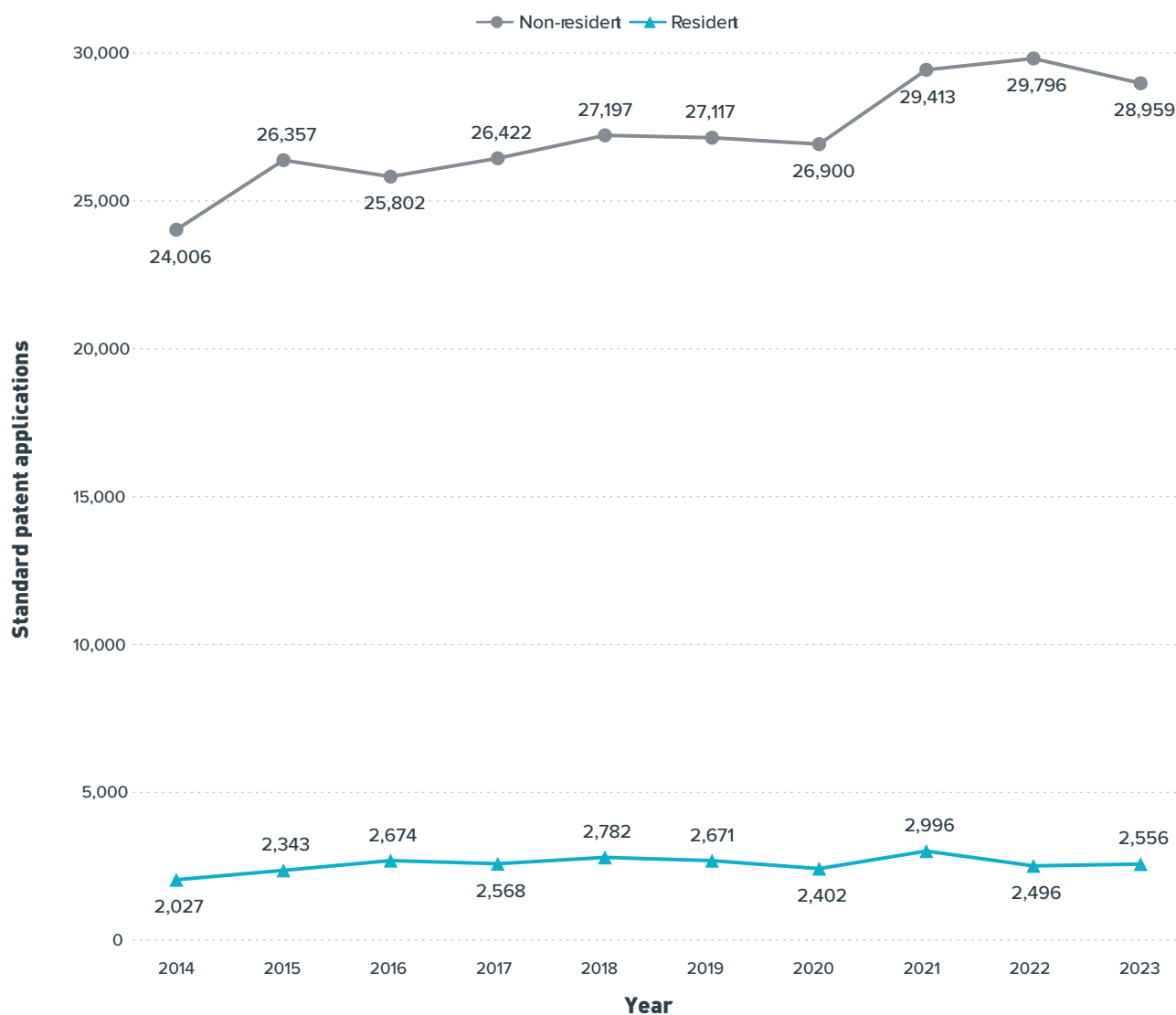


Domestic patenting in Australia

Standard patent applications by residents increased by 2.4% in 2023, to 2,556 in total (Figure 3.5). This follows several years of volatility in resident applications, due largely to a policy change to the patent system (see the Australian IP Report 2023 for more details).

Between May 2022 and December 2023, the Reserve Bank of Australia raised Australia's cash rate 14 times, from less than 1.0% to 4.25%. Domestic patenting in Australia, however, has not significantly declined. This is consistent with research showing that monetary policy shocks and macroeconomic conditions tend to have a limited effect on domestic patenting by Australian firms.⁵⁹

Figure 3.5 | Standard patent applications in Australia by residency, 2014 to 2023



Most domestic patents by Australian applicants are filed for inventions in Civil engineering (12.9% of Australian-origin applications), Medical technology (8.1%), Transport (6.8%) and Computer technology (6.7%).

In 2023, around 2,208 employing small and medium enterprise (SMEs) held an enforceable patent. This equates to 0.22% of employing SMEs




in operation in Australia by the end of the 2023 financial year.⁶⁰ The SME share of resident filings has steadily increased over the past decade, from 57.9% in 2014 to 62.9% in 2023, and private inventors (individuals) account for an additional 22.1%.

States and territories

Among Australian states and territories, New South Wales (NSW) is the leading source for resident standard patent applications in Australia, followed by Victoria and Queensland. However, the Australian Capital Territory (ACT) was the most

patent-intensive in 2023, with 5.23 applications per thousand businesses in the territory. In 2023, application volumes increased in New South Wales (+13.5% on their level in 2022), Queensland (+9.0%) and Tasmania (+35.0%) but fell in all other states and territories (Figure 3.6).

Figure 3.6 | Patent applications by Australian states and territories, 2023

			
	New South Wales	Victoria	Queensland
Applications	1,043	570	474
Change in applications, 2022-23	+13.5%	-9.5%	+9.0%
Applications per thousand businesses	2.50	1.90	2.05

	Western Australia	**South Australia**	**Australian Capital Territory**
Applications	292	92	77
Change in applications, 2022-23	-3.6%	-22.7%	-3.8%
Applications per thousand businesses	2.67	1.46	5.23
	Tasmania	**Northern Territory**	
Applications	27	3	
Change in applications, 2022-23	+35.0%	-25.0%	
Applications per thousand businesses	1.21	0.47	

Source: IP Australia; ABS. Counts of Australian Businesses, including Entries and Exits, August 2023. Retrieved 14 March 2023.

Leading applicants

Figure 3.7 lists Australia’s leading applicants for standard patent applications, separately focusing on resident and non-resident filers.

Patent filing activity in Australia is dominated by major global information and communications technology producers.

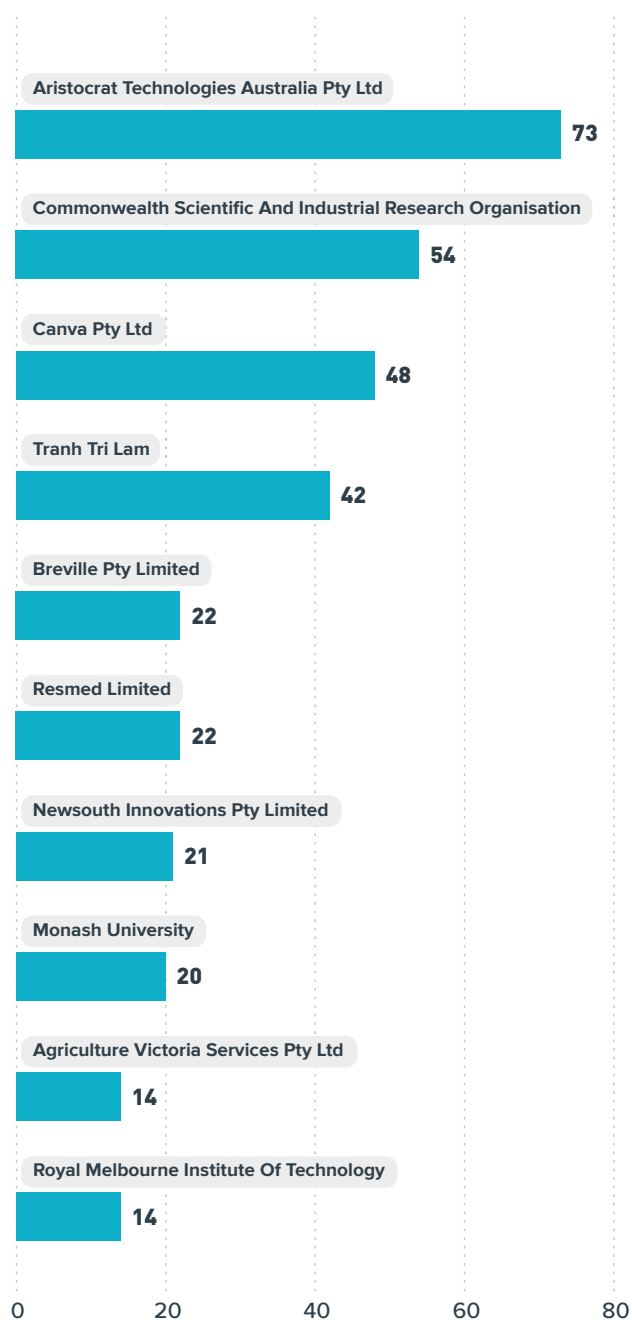
- In 2023, LG Electronics, a multinational electronics company headquartered in South Korea, retained its place as the lead filer for standard patents in Australia. The company filed 196 applications, down from 282 applications in 2022.

- Huawei Technologies, a major Chinese smartphone and telecommunications company, was second in 2023, with 180 applications, down slightly from its 183 filings in 2022.

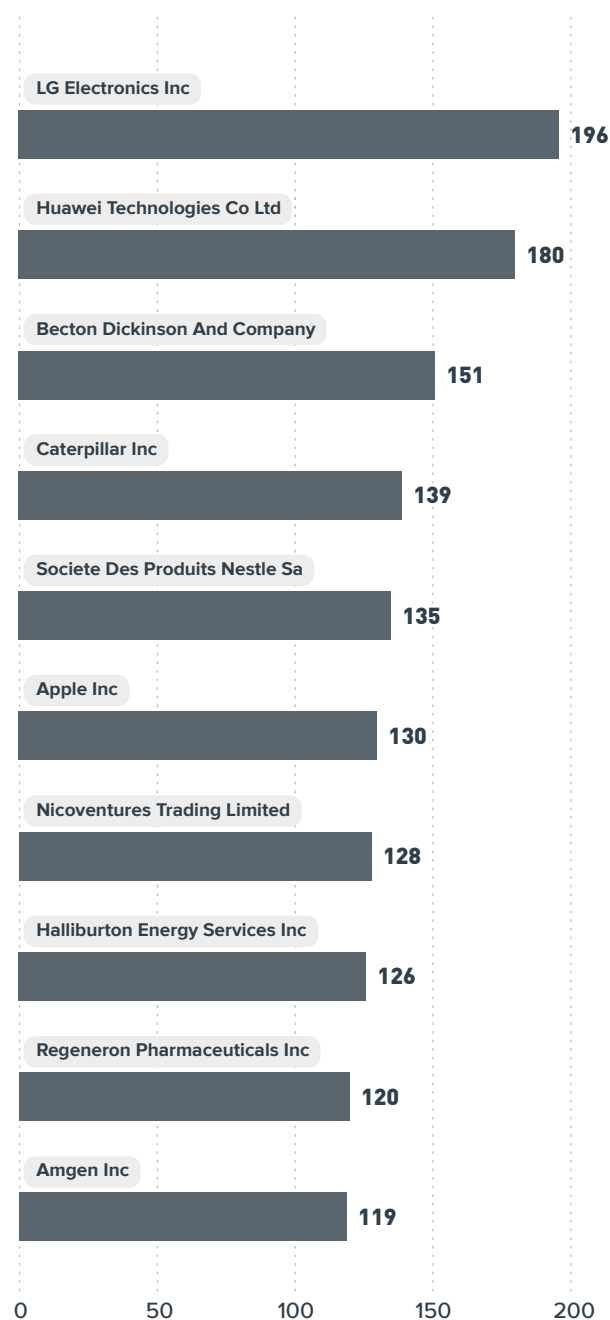
Ranked third to fifth were: US medical technology producer Becton Dickinson and Company (151 applications); construction, engineering and mining equipment manufacturer Caterpillar Inc. (139 applications); and Swiss food and beverage multinational Nestlé (135 applications).

Figure 3.7 | Top domestic and international applicants for standard patents in Australia, 2023

Domestic applicants



International applicants



Australia's lead resident applicants focus across a broad range of technology fields including games and furniture, computer technology, biotechnology, medical technology, materials metallurgy, food chemistry and measurement.

In 2023, gaming technology producer Aristocrat Technologies retained its position as the top domestic patent filer with 73 applications. Second ranked was the Commonwealth Scientific and Industrial Research Organisation (CSIRO) with 54 applications.

After entering the ranks of top domestic filers in 2022, Australian design software company Canva improved its place from 4th to 3rd in 2023 with 48 applications. Canva was founded in Perth in 2013. Within a decade the company's valuation peaked at \$54.5 billion in 2021, making it one of the world's most valuable start-ups.⁶¹ With a current focus on launching artificial intelligence-based products, many of the company's patent filings in 2023 relate to systems and methods for automatically generating designs, processing designs, animating design elements, and managing prompt-based image editing.

The above rankings are based on the number of standard patent applications filed by applicants (including original and divisional applications). Applicants vary in the rate at which they convert patent applications into grants and the timing with which they progress applications.

Provisional applications

A provisional application is one of several options available to businesses to establish a position in the patent system in Australia and key export markets.

TAKING THE FIRST STEP: PROVISIONAL PATENTS

Filing a provisional patent gives applicants 12 months to decide whether to file a complete patent application. Provisional applications are not subject to substantive examination and offer no enforceable protection. However, they establish the priority date that will be used to identify prior art relevant to assessing the complete patent application, should an applicant decide to file one. Obtaining a provisional patent is not prerequisite to filing for a complete patent. A key benefit though is that applicants can disclose, make, use and sell their invention while maintaining the option to seek complete protection.

In 2023, the number of provisional filings totalled 4,244, up 5.2% from their level in 2022. Applications by residents increased by 4.0% (to 3,903) while those by non-residents increased by 20.9% (to 341). Residents account for 92.0% of all provisional applications.

As a proportion of standard patent filings, provisional filings have declined steadily over the past decade. On average, 7 standard patent applications were filed for every provisional application in 2023, compared to 5 standard patents for each provisional in 2014. The decline in provisional filings is mostly driven by a reduction in filings by individual applicants. Filings by large organisations and SMEs have remained relatively stable over the past decade.

The likelihood of applicants converting provisional applications into complete applications has increased over the last decade. This trend holds both for applicants in general and for key users of the provisional patent system (e.g., CSIRO). It may reflect an increasingly efficient ability of applicants to triage new discoveries for patent protection.⁶³

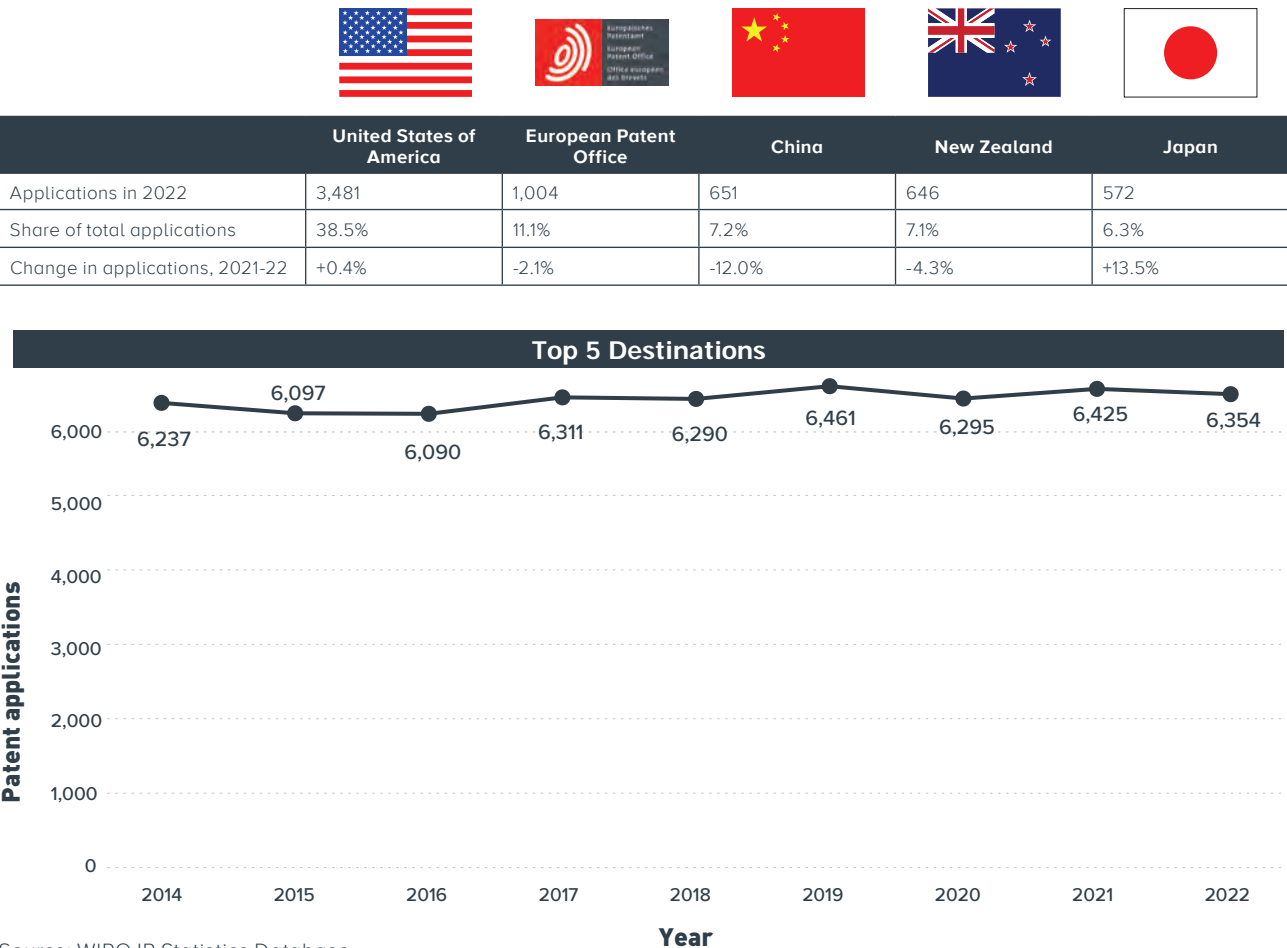
Australian filings overseas

In international trade, patents are associated with a significant export premium. According to one recent study, patenting in a destination market increases the value of exports by 6%.⁶² Given their role in trade, patents often comprise part of larger patent “families,” sets of patents in various countries relating to a single invention. Over 90% of patents granted in Australia have at least one family member granted in another jurisdiction.⁶⁴

The leading destination markets for Australian patents are the US, the European Patent Office (EPO), China, New Zealand and Japan (see Figure 3.8). In 2022, Australian patent filings abroad fell by 3.1% in 2022 below their level from 2021, to 9,045, based on the latest available data from the World Intellectual Property Organization (WIPO). However, Australian filings increased in the US (+0.4%, to 3,481) and in Japan (+13.5%, to 572), while they fell at the EPO (–2.1%, to 1,004).

Australians can seek patent protection in other countries by filing through the PCT or at IP offices in target markets. Australians increasingly prefer the PCT route when taking their ideas global. The share of Australian filings abroad filed via the PCT increased from 66.9% in 2013 to 72.7% in 2021, a stable share as of 2022.

Figure 3.8 | Leading destinations for Australian patent filings abroad, 2022



Source: WIPO IP Statistics Database

End notes

⁴² OCED (2023). *OECD Economic Outlook, Volume 2023 Issue 2*. OECD Economic Outlook, Volume 2023 Issue 2 | OECD Economic Outlook | OECD iLibrary (oecd-ilibrary.org).

⁴³ Ma, Y. & Zimmerman, K. (2023). Monetary policy and innovation. *NBER Working Paper 31698*.

⁴⁴ Majeed, O., Hambur, J. & Breunig, R. (2023). Do monetary policy shocks and economic conditions impact innovation? Working Paper. Nolan, G., Hambur, J. & Vermeulen, P. (2023). Does monetary policy affect non-mining business investment in Australia? Evidence from BLADE. *Reserve Bank of Australia Research Discussion Paper, RDP, 2023-09*.

⁴⁵ Under Australian legislation, a patent is examined only once the applicant has requested examination. The request can be voluntary or result from the Commissioner of Patents directing an applicant to request examination.

⁴⁶ Application trends across classes are analysed using a scheme maintained by the World Intellectual Property Organization (WIPO). The WIPO technology concordance groups various International Patent Classification classes and subclasses into 35 technology fields. For details, see <https://www.wipo.int/ipstats/en/>.

⁴⁷ IBISWorld. (2023). *Global Pharmaceutical and Medicine Manufacturing, Industry Report*.

⁴⁸ High volume fields are defined as classes in the top quartile for total number of applications received in 2023.

⁴⁹ Merges, R. P. & Nelson, R. R. (1990). On the complex economics of patent scope. *Columbia Law Review*, 90(4), 836-916.

⁵⁰ AEMO. (2023, October). *Quarterly Energy Dynamics Q3 2023*. <https://aemo.com.au/-/media/files/major-publications/qed/2023/qed-q3-2023-report.pdf?la=en>.

⁵¹ The analysis, by IP Australia's Patent Analytics Hub, used global patent data provided by PATSTAT, covering patent families filed between 2017 and 2021. The key growth metric used was defined as the annual growth in patent families filed within a jurisdiction (in percentage terms), relative to the average growth across key comparator countries, given by the gradient of the line of best fit of the total patent family data.

⁵² Lee, J. Y. & Mansfield, E. (1996). Intellectual property protection and U.S. foreign direct investment. *The Review of Economics and Statistics*, 78(2), 181-186.

⁵³ A country's count of applications includes single party applications originating from that country and multi-party applications with at least one co-applicant from that country. Where an application names multiple applicants from a given country of origin, that application is counted only once toward that country.

⁵⁴ Ma, Y. & Zimmerman, K. (2023). Monetary policy and innovation. *NBER Working Paper 31698*.

⁵⁵ High volume locations are defined as those above the mean for total number of applications received in 2023.

⁵⁶ The rapid growth in Chinese patent filings in Australia moderated in 2021 and 2022, as China's government phased out financial subsidies, tax breaks and other social benefits designed to encourage patenting.

⁵⁷ Lerner, J., Liu, J., Moscona, J., Yang, D. Y. (2023). Appropriate entrepreneurship? The rise of China and the developing world. *NBER Working Paper 32193*.

⁵⁸ Edwards, J. (2023, 28 May). Chips, subsidies, security, and great power competition. *Lowy Institute*. Chips, subsidies, security, and great power competition | Lowy Institute.

⁵⁹ Majeed, O., Hambur, J. & Breunig, R. (2023). Do monetary policy shocks and economic conditions impact innovation? Working Paper. Nolan, G., Hambur, J. & Vermeulen, P. (2023). Does monetary policy affect non-mining business investment in Australia? Evidence from BLADE. *Reserve Bank of Australia Research Discussion Paper, RDP, 2023-09*.

⁶⁰ ABS. Counts of Australian Businesses, including Entries and Exits, August 2023. Retrieved 14 March 2023.

⁶¹ Nugent, A. (2023). Running out of ideas or getting better at picking winners: what does the decline in provisional patent applications mean? *IP Australia Working Paper*.

⁶² de Rassenfosse, G., Grazi, M., Moschella, D. & Pellegrino, G. (2022). International patent protection and trade: Transaction-level evidence. *European Economic Review*, 147, Article 104160.

⁶³ Nugent, A. (forthcoming). Running out of ideas or getting better at picking winners? Trends in provisional patent applications in Australia. *IP Australia Analytical Note*

⁶⁴ Higham, K., Richardson, E. and de Rassenfosse, G. (2024). Patent pendency and applicant innovation outcomes. *Working Paper*.



4

Trade marks





In 2023, trade mark filings in Australia returned to growth, rising 7.2% on their level in 2022, driven by a 9.8% increase in resident filings. Trade mark filings reflect entrepreneurial activity, and Australia's business entry rate recovered in 2023 from a sharp fall in late 2022, in seasonally adjusted terms. Trade mark filings for technology-intensive services fell, as filings from the United States (US) declined, while overall filings from China rose by 51.2%.

WHAT IS A TRADE MARK?

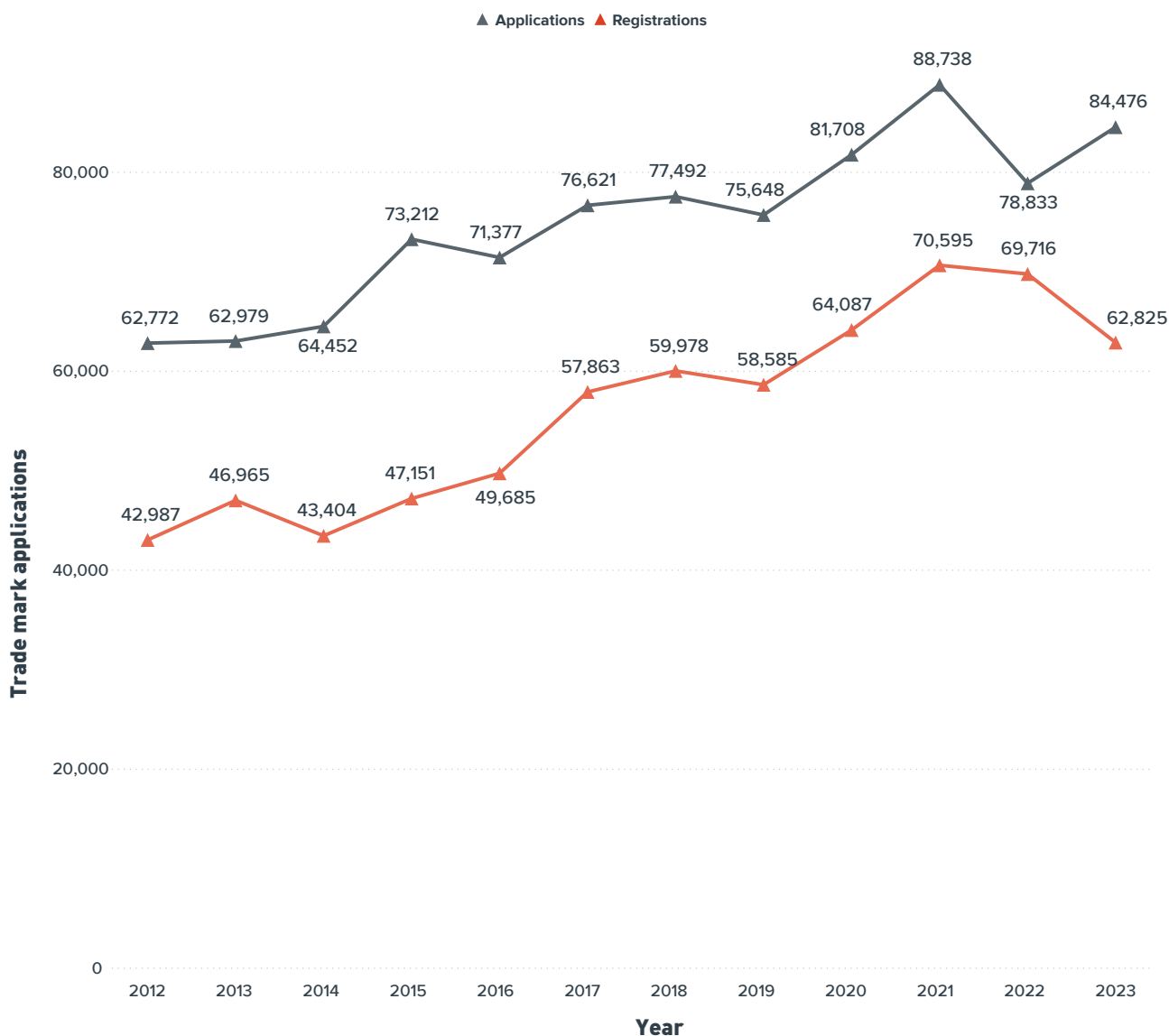
A trade mark is a type of IP right which distinguishes the trade origin of goods or services in the market. A registered trade mark confers its owner with the exclusive right to use the mark, or authorise others to use it, and seek relief if the trade mark is infringed.⁶⁵ To be registrable, a trade mark must be sufficiently distinctive and not confusingly similar to any earlier marks. Registered trade marks enjoy protections under trade mark law which are often easier to enforce than protections available to unregistered trade mark owners.

Trade mark applications and registrations

In 2023, trade mark applications filed in Australia increased by 7.2% on their level in 2022, to 84,476 (see Figure 2.1). The total for 2023 is exceeded only by the record filing volume in 2021. Resident applications grew by 9.8% (to 49,036) and non-resident applications grew by 3.7% (to 35,440). Trade mark filings by residents comprise 58.0% of total annual filings.

Trade mark registrations fell by 9.9%, to 62,825 in total, down from the record level in 2021 and slightly smaller volume in 2022. Similar proportional rates of change were observed for registrations by residents (–10.9% to 33,983) and non-residents (–8.6% to 28,842).

Figure 4.1 | Trade mark applications and registrations filed in Australia, 2012 to 2023



Trade mark filings are a leading economic indicator, providing an early indication of significant turning points in the business cycle and where the economy is heading in the near term. A new IP Australia study estimates that a 1% increase in real Gross Domestic Product (GDP) is linked to a 1.4% increase in trade mark filings.⁶⁶

From the same study, Figure 4.2 charts the number of trade mark applications filed in Australia each quarter from 1970 to 2023. Filings per quarter have generally exhibited an upward trend over the past 5 decades, accounting for seasonal patterns

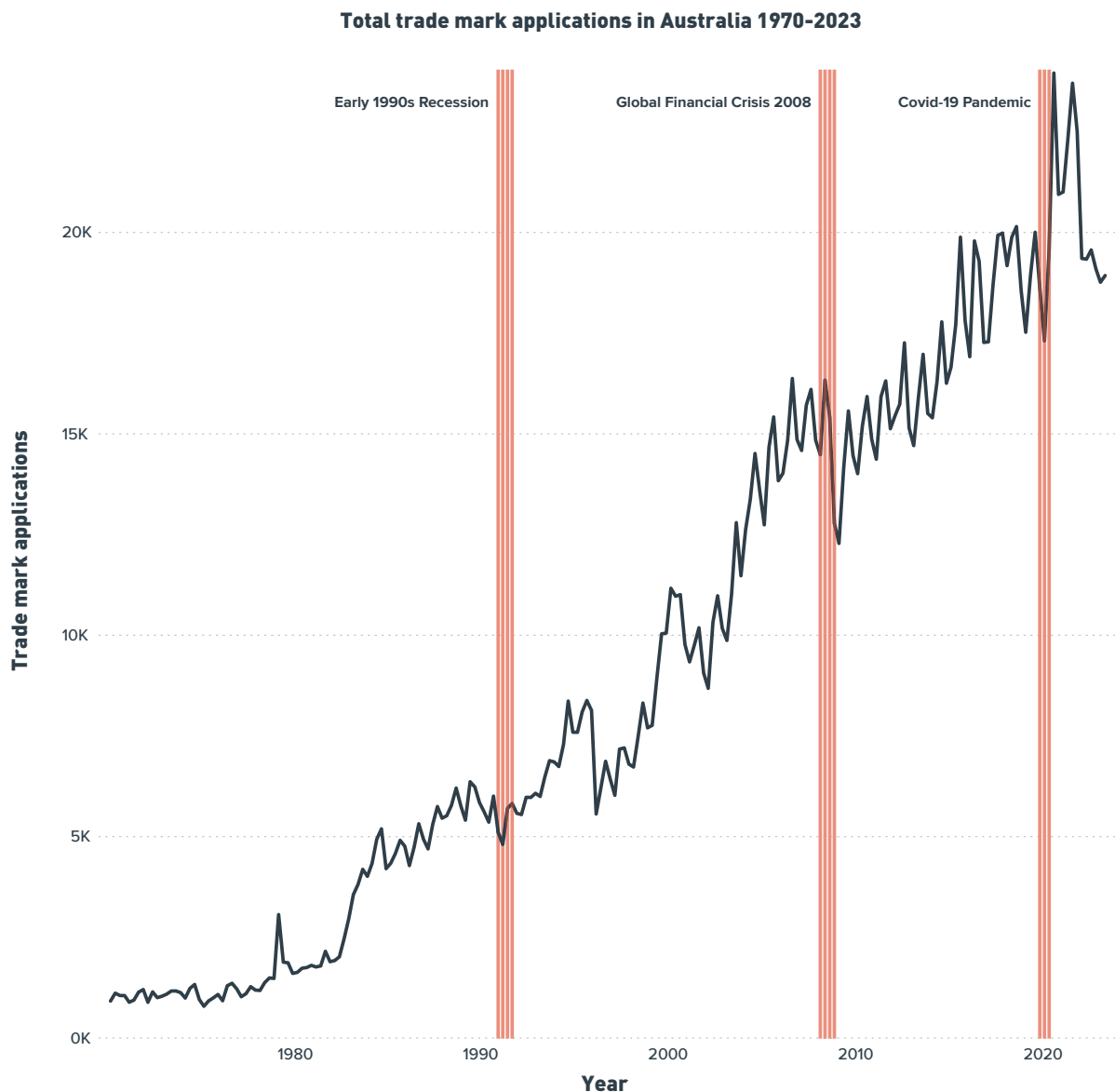
over time. On average, in the 1970s, around 1,200 applications were filed per quarter, amounting to 4,800 applications per year. By the 2010s, more than 17,000 applications were filed per quarter, totalling over 68,000 applications a year.

Trade mark filings have experienced significant fluctuations during key economic downturns including Australia's early 1990s recession, the 2008 Global Financial Crisis and the Covid-19 pandemic. Resident filings fluctuated more strongly than non-resident filings during these periods.

The COVID-19 pandemic saw a significant increase in trade mark filings in 2020 and 2021, which were counter-cyclical, followed by a correction in 2022. In 2023, trade mark filings increased despite growth in the Australian economy slowing over

the first half of the year. However, final demand growth remained around its pre-pandemic average and business investment was strong, as supply disruptions being unwound to a large pipeline of work.⁶⁷

Figure 4.2 | Quarterly volume of trade mark applications filed in Australia, Q1 1970 to Q3 2023



Trade mark classes

Trade mark applications are assigned to good and service categories using the Nice Classification, an international system of 45 good and service classes.⁶⁸ Applicants can nominate one or several classes for their trade marks – on average, applicants filed 1.83 classes per application in 2023, amounting to 153,852 total class filings.

Trade mark filing activity is concentrated in a variety of goods and service categories. High-tech manufacturing industries are heavy filers of trade marks, as are information-intensive services (e.g., advertising and education, see Figure 4.3).

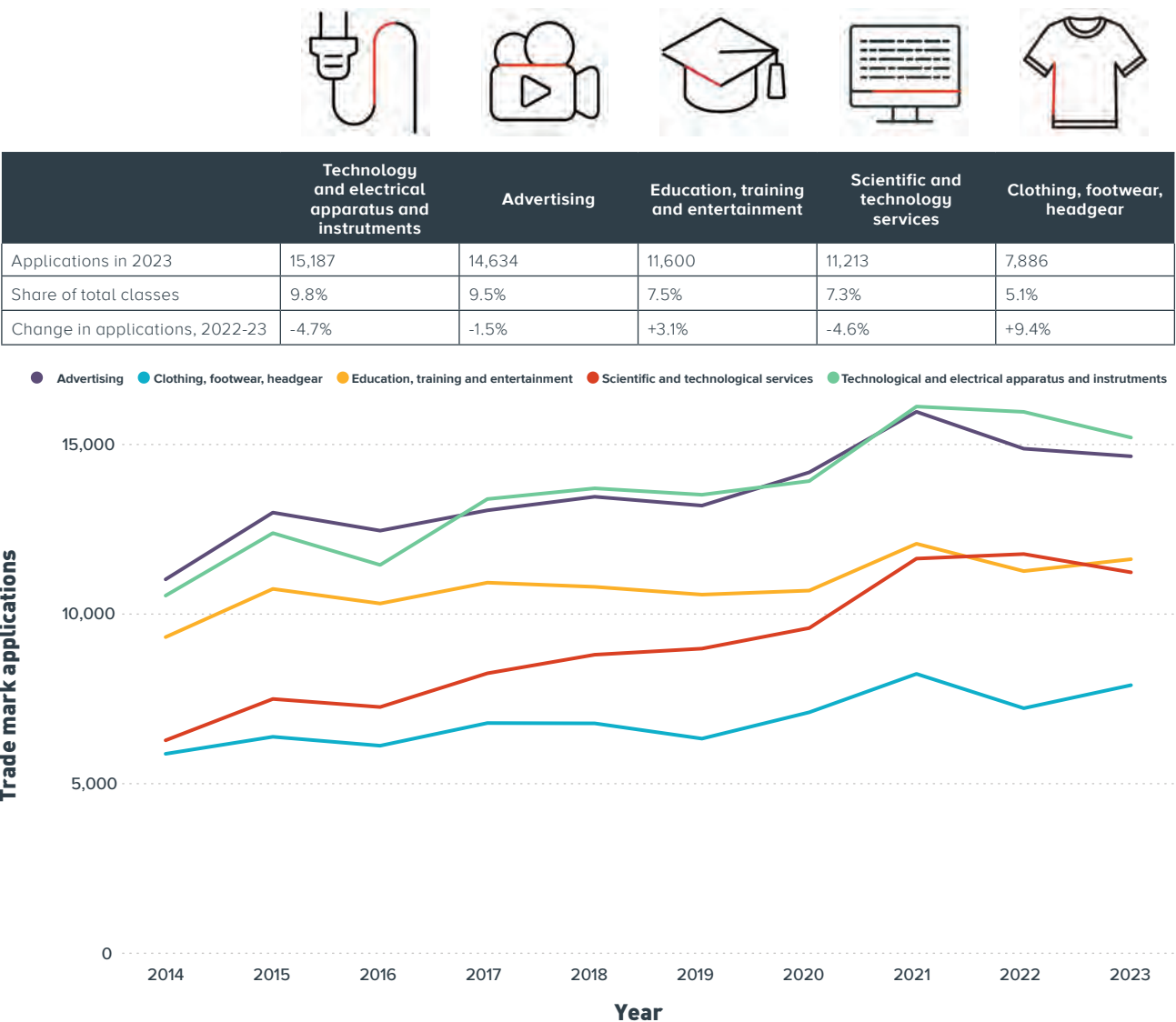
In 2023, trade mark filings fell across several technology-intensive classes – by 4.7% for

technological and electrical apparatus (to 15,187) and by 4.6% for scientific and technological services (to 11,213). The decline was underpinned by a reduction in filings from the US, which is the lead origin behind Australia for filings in these classes.

After an initial surge in 2022, applications remain elevated for virtual goods, such as non-fungible

tokens and services related to virtual environments where users interact (e.g., the ‘metaverse’). In 2023, IP Australia released new guidance for trade mark applicants on how to classify mark goods and services that relate to emerging technologies, in anticipation of an update to the Nice Classification system.

Figure 4.3 | Top five trade mark classes for volume of trade mark filings in 2023, and high-volume classes with the greatest relative growth and decline in 2023⁶⁸



Prior studies link trade mark trends to changes in real household income.⁶⁹ Through the year to November 2023, household spending in Australia grew by 3.1%, with the growth concentrated in services (+6.2%). Across spending categories, the largest increases were in transport (+8.3%), health (+7.8%) and hotels, cafes and restaurants (+5.8%), reports the Australian

Bureau of Statistics.⁷⁰ Consistent with these trends, trade mark filings increased in food-related product and service categories. These include Household or kitchen utensils and containers (+14.1%, to 3,342) and Food, drink and temporary accommodation services (+9.4%, to 3,822).

International trade mark activity in Australia

Filing routes into Australia

For businesses, trade mark registrations are an important ‘entry ticket’ into competing in overseas markets, and help exporters to differentiate their goods and services from competitors.⁷¹

TAKING IP GLOBAL: THE MADRID SYSTEM

Brand owners can directly file for trade marks with IP offices in the countries and regions where they seek protection or file an international application through the Madrid system. The Madrid route provides a streamlined way for applicants to file an international trade mark application and seek protection in multiple jurisdictions.

In 2023 Madrid filings in Australia fell by 5.3% from their level the year prior (to 18,557), while direct filings increased by 11.3% (to 65,919). Over the past decade, a steadily increasing share of new trade marks in Australia have been filed via the Madrid system – 22.0% in 2023 compared to 17.8% in 2014 (see Figure 4.4).

On average, for applications filed in Australia through the Madrid system, there is a 3.5-month delay between the international application’s earliest filing date and when the application is received by IP Australia. Consequently, Madrid filings in 2023 reflect international IP activity in 2022 and 2023.

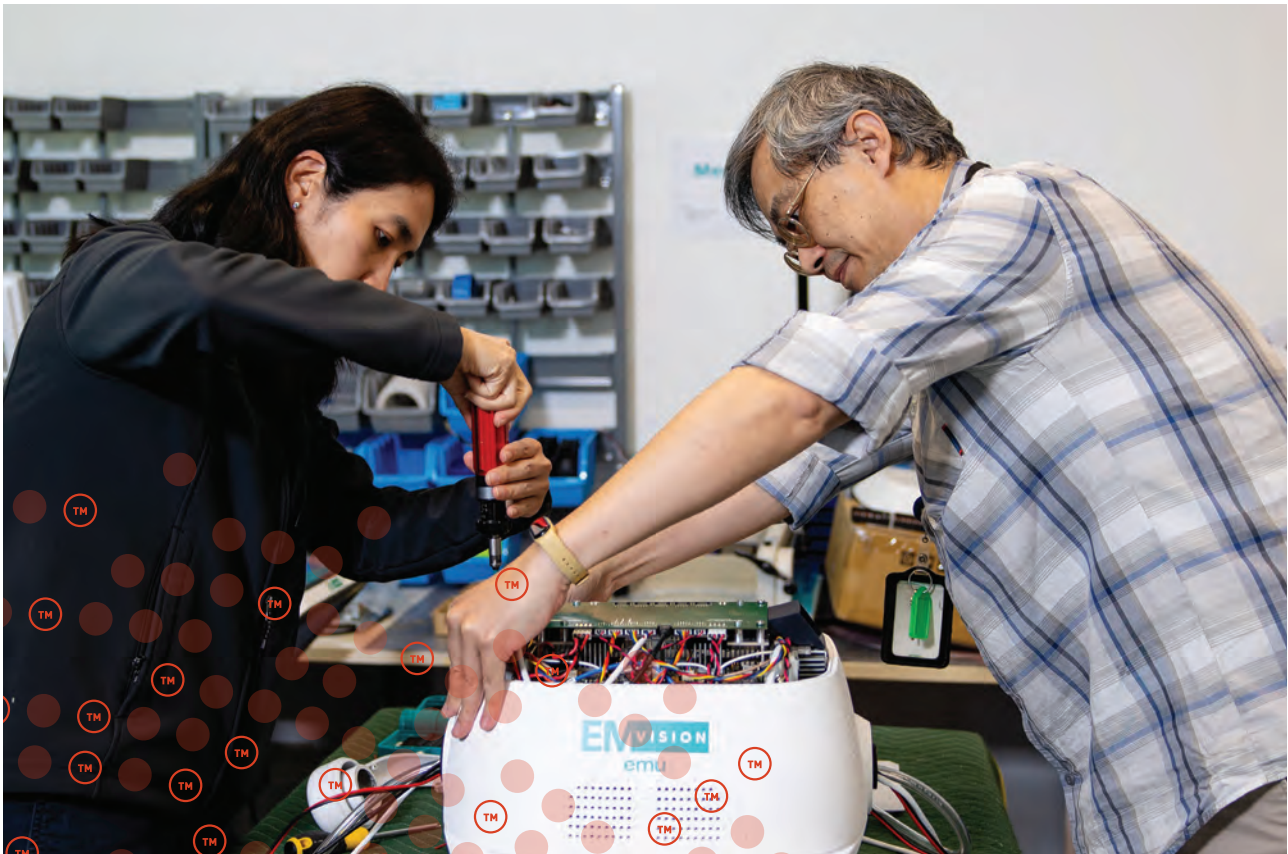
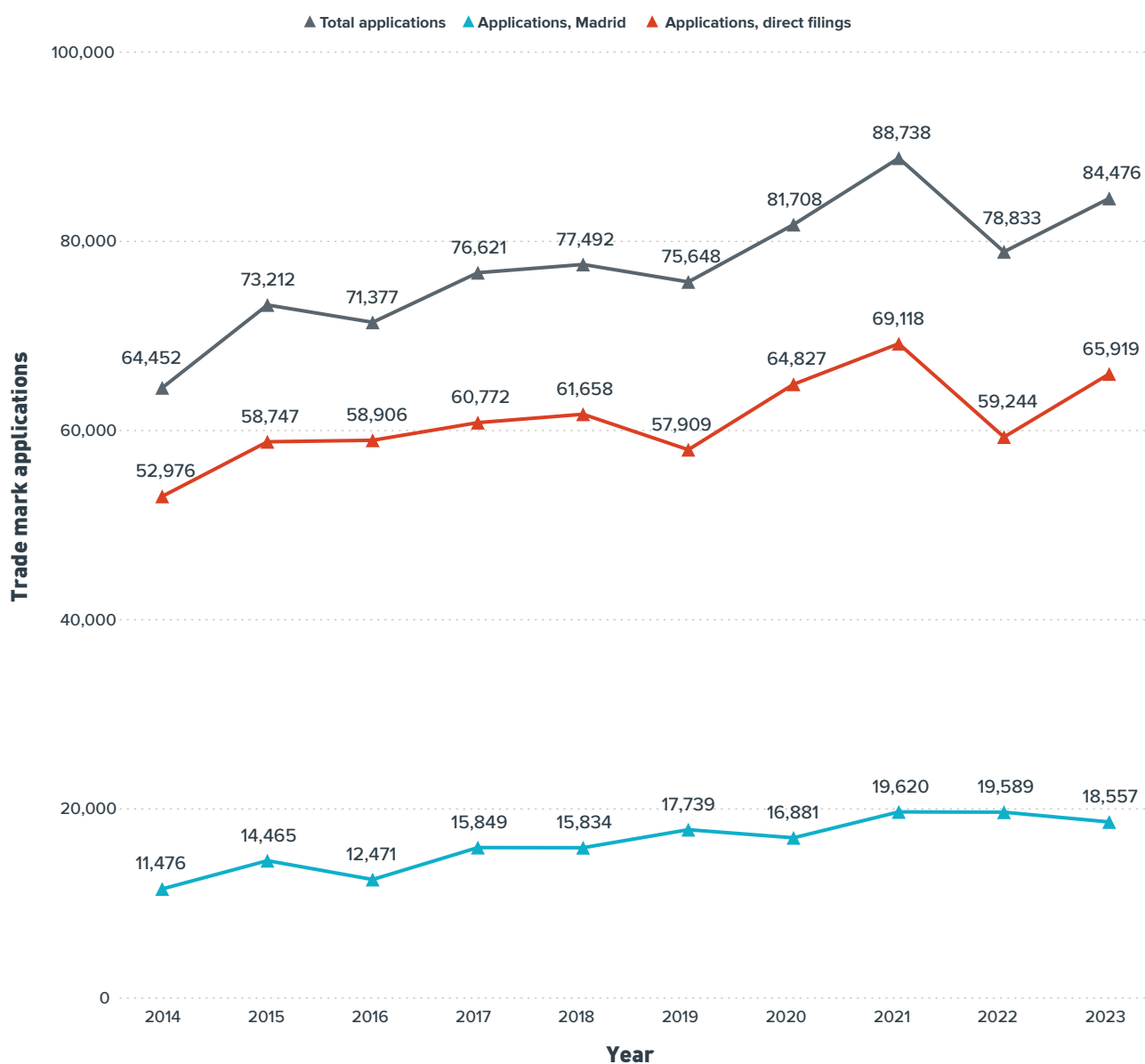


Figure 4.4 | Trade mark applications in Australia by filing route, 2014 to 2023



Locations of origin

The leading overseas locations of origin for trade mark filings in Australia are the United States (11.3% of total applications in 2023, China (9.8%), the United Kingdom (3.0%), Germany (1.9%) and New Zealand (1.5%), as shown in Figure 4.5.

Among 'high volume' locations, China saw the strongest filings growth in 2023. Trade mark applications naming Chinese residents increased by 51.2% between 2022 and 2023, from 5,486 to 8,295, and now account for 9.85% of total

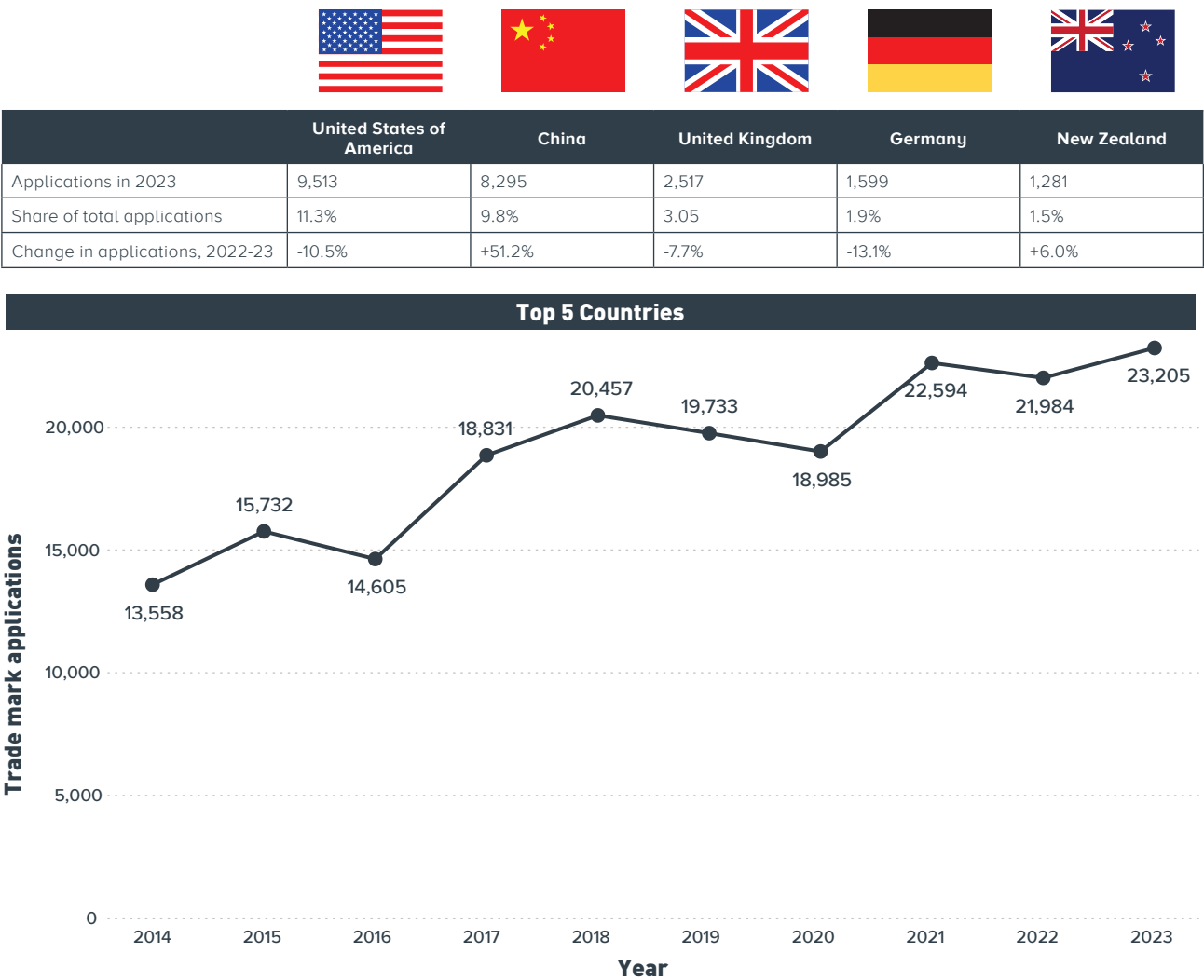
filings. The key driver of growth was filings for household or kitchen utensils and containers, which nearly doubled from 405 in 2022 to 815 in 2023. Applications fell in 2023 for 3 of the other 4 leading locations of origin. The largest relative decline was in applications from Germany (–13.1%, to 1,599), followed by the United States (–10.5%, to 9,513) and the United Kingdom (–7.7%, to 2,516).

For growth in applications, China was followed by Cyprus, filings from which spiked by 30.9% above their 2022 level (from 81 to 106). This follows 3 years of consecutive growth between 2020 and 2022.

On 12 June 2020, Cyprus overhauled its trade mark laws to simplify and accelerate application

proceedings and harmonise its trade mark law with European standards.

Figure 4.5 | Leading locations of origin for trade mark filings in 2023, and high-volume locations with the greatest relative growth or decline in 2023⁷²



Other jurisdictions such as the United States have experienced rapid increases in trade mark filings from China over the last decade. Between 2017 and 2021, China’s share of US trade mark filings tripled from 10% to 29%. A study of 365 Chinese-origin applications for apparel trade marks filed for apparel at the USPTO in 2017 found that 44.4% involve a word “that is unpronounceable in English and that the applicant indicated has no meaning in any other language.”⁷³

IP Australia undertakes daily scans of Australia’s trade mark register for marks comprised of random collection of letters. IP Australia also has rigorous processes for identifying and managing fraudulent filings. At present, most marks of this type meet minimum filing requirements, have a high acceptance rate and many appear linked to genuine use. For example, such marks are sometimes used to sell in online marketplaces inexpensive everyday items for which consumers do not have strong brand loyalty.

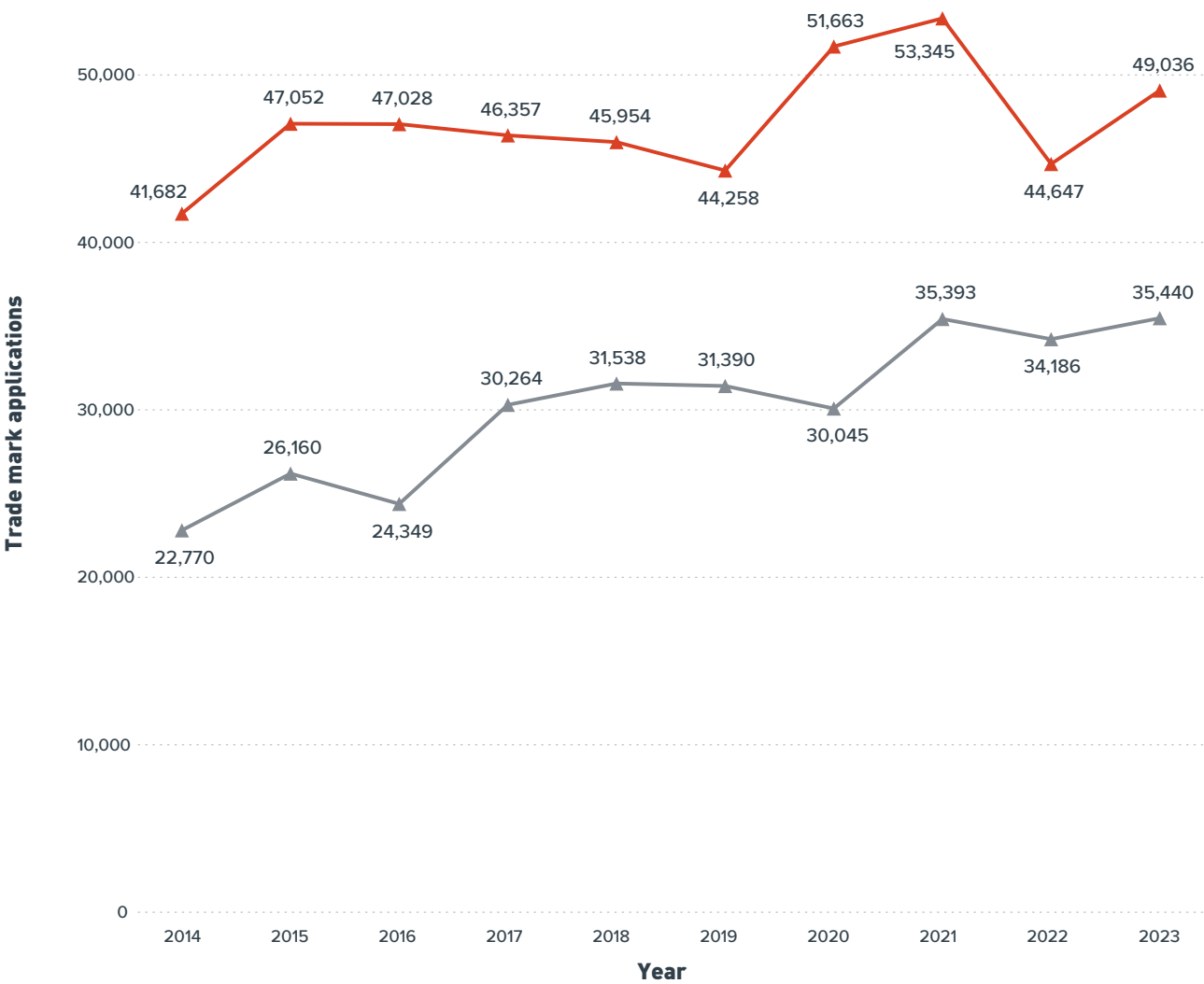
Domestic trade mark activity in Australia

The domestic trade mark environment

Trade mark applications filed by Australian residents grew by 9.8% in 2023, to 49,036 in total

(Figure 4.6). Resident filings have rebounded from a 16.3% decline in 2022. Today, they sit below their record levels during the first years of the COVID-19 shock but above the pre-pandemic trend from 2015 to 2019.

Figure 4.6 | Trade mark applications in Australia by domicile, 2014 to 2023



Trade mark filing activity is linked to the level of opportunistic entrepreneurship in a country – to start-up activity directed at creating high-growth businesses.⁷⁴ Businesses will often use trade marks to announce the introduction of new products and services to the market.⁷⁵ Given this role, in Australia, domestic trade mark filings are concentrated

in advertising (11.0% of resident applications), education, training and entertainment (9.2%), and technological and electrical apparatus and equipment (7.1%).

In 2023, the growth in resident filings coincided with a recovery in Australia's business entry rate. During 2022, the total count of businesses operating in Australia dropped, by 0.3% from the June to December quarters after adjusting for seasonal patterns. This decline in total businesses was counter to the long-term trend and underpinned by a fall in Australia's business entry rate, from 5.41% to 4.58% in late 2022. A low entry rate held through

the first half of 2023 before recovering to 5.44% in the 2023 September quarter.⁷⁶

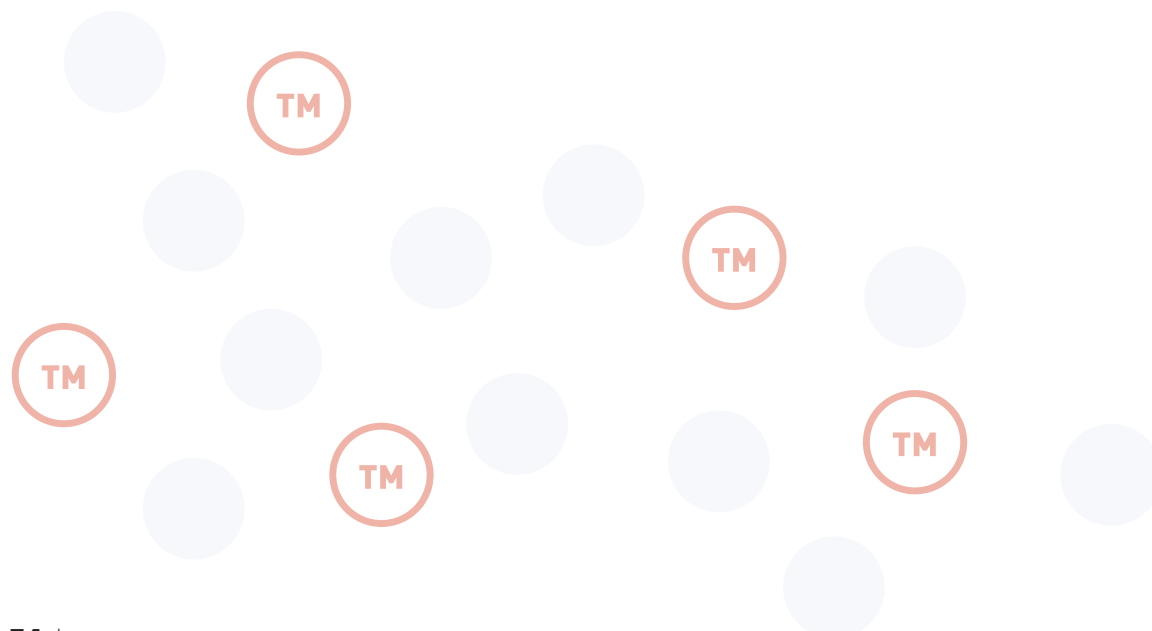
In 2023, small and medium enterprise (SMEs) accounted for 73.7% of all resident trade mark filings. Individuals accounted for 25.5% of resident filings. The share of employing SMEs operating in Australia that hold a trade mark increased between 2022 and 2023, from 4.12% to 4.38%.⁷⁷

TM CHECKER: FREE TRADE MARK AVAILABILITY CHECK, POWERED BY AI

In 2023, IP Australia piloted a new digital self-service product, TM Checker, to increase the ease and efficiency of applying for trade marks. The product makes it easier for novice users (e.g., self-filers or SMEs) to check whether their ideas for trade marks are similar to existing registered marks. The tool uses AI technologies to provide information to users on common issues they might face during the application process and guides them to complete the process.

In the second half of 2023 there were over 58,000 checks performed using the product, which resulted in 3,300 TM Headstart applications submitted via the tool.

TM Checker also supports IP Australia to meet our demand for public education and awareness on the use (and limits) of trade marks. We have formed partnerships with other outlets for new businesses, such as domain registration websites, who link to our product. These partnerships are aimed at ensuring that business owners can check whether their trade mark is registrable as they set up their business.

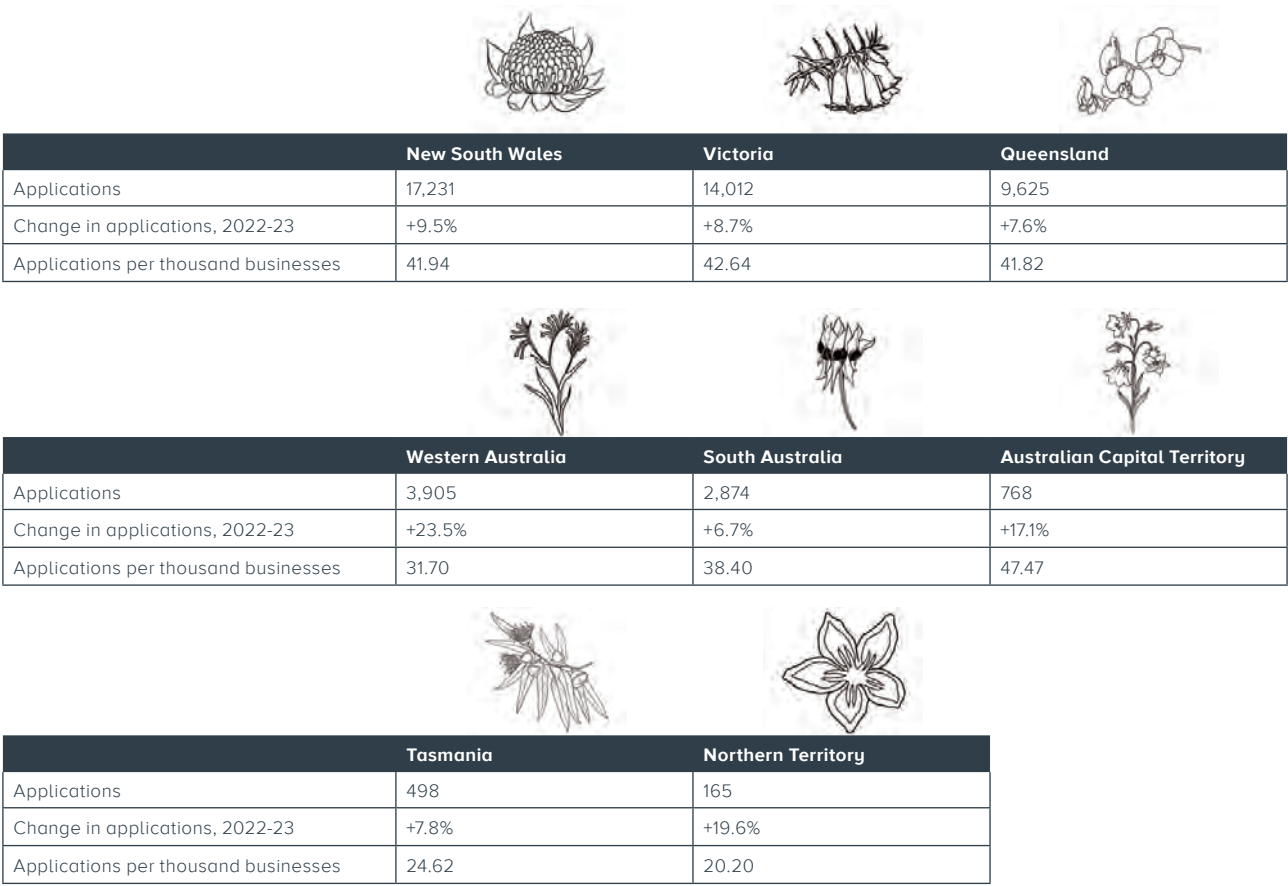


States and territories

Among Australian states and territories, New South Wales (NSW) is the leading source for resident trade mark applications in Australia, followed by Victoria and Queensland. However, the Australian Capital

Territory (ACT) was the most trade mark-intensive in 2023, with 47.47 applications per thousand businesses in the territory (compared to 42.64 in Victoria and 41.94 in New South Wales). In 2023, application volumes increased in all states and territories on their levels in 2022 (Figure 4.7).

Figure 4.7 | Trade mark applications by Australian states and territories, 2023



Source: IP Australia; ABS. Counts of Australian Businesses, including Entries and Exits, August 2023. Retrieved 14 March 2023.

Leading applicants

International filers

In 2023, the top international filers for trade marks in Australia were led by major multinational pharmaceutical and personal care companies.

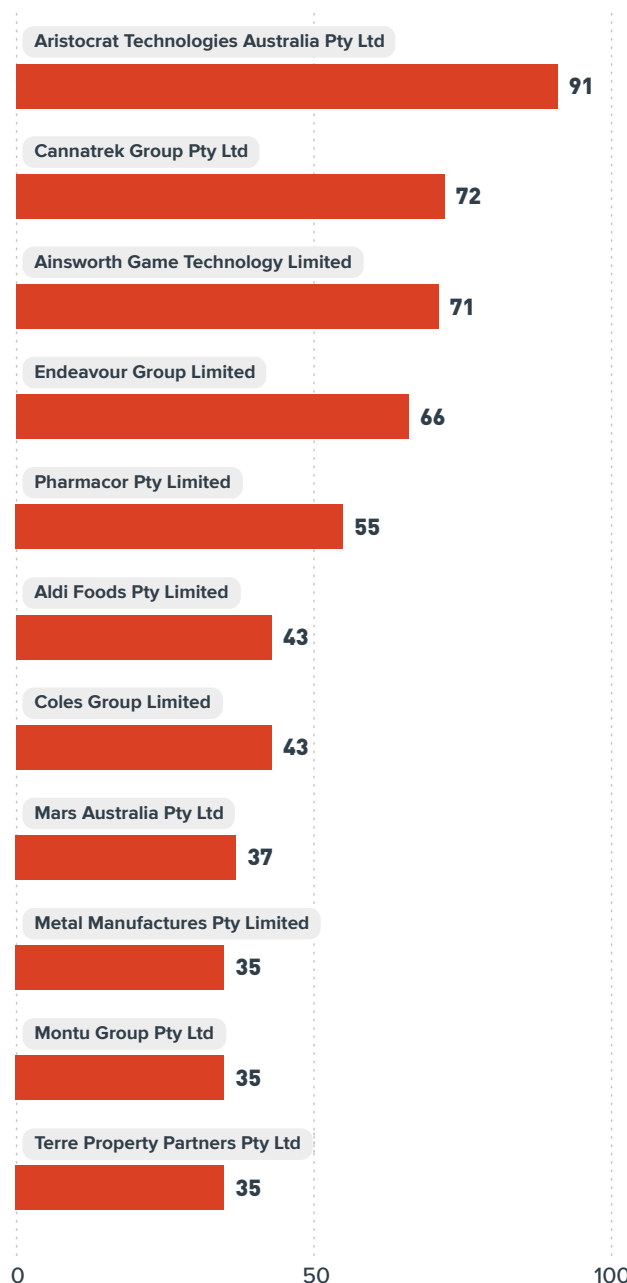
Swiss pharmaceutical manufacturer Novartis AG filed 107 applications, followed by French cosmetics producer L'Oréal, with 98 applications. After leading

in 2021 and 2022, the British biopharmaceutical company Glaxo Group Limited slipped to eighth place. Its filings more than halved between 2022 and 2023.

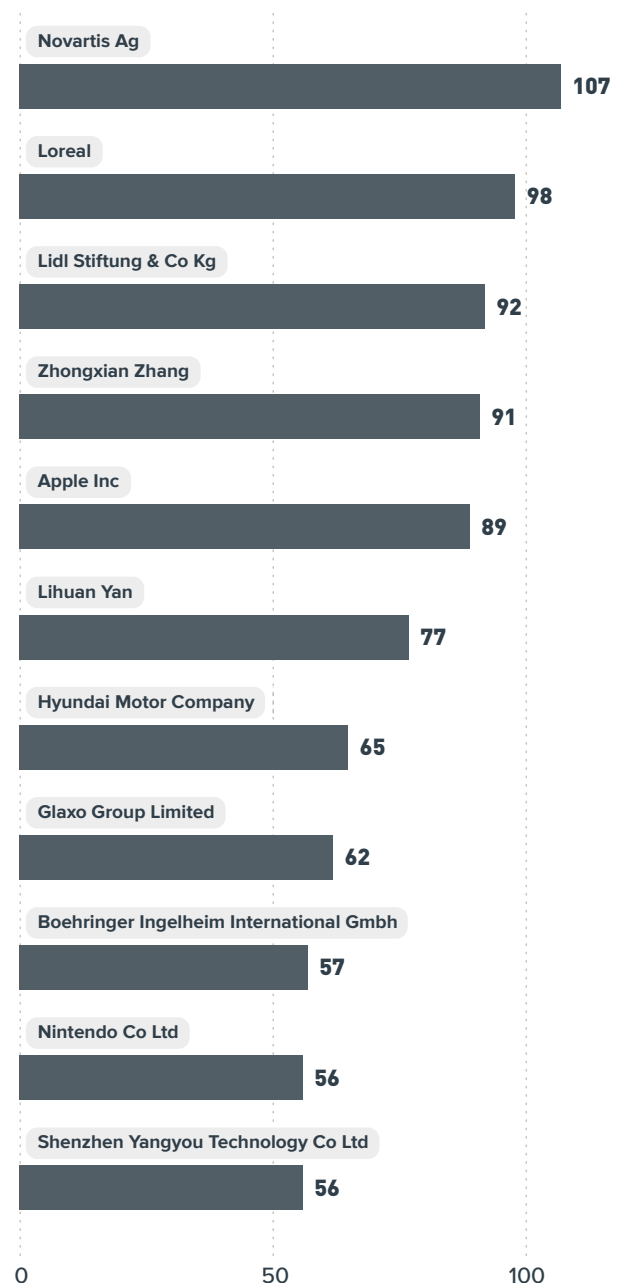
In third place, a new entrant into the list of top international filers was Lidl Stiftung & Co KG, a major European discount supermarket chain. The company announced plans for expansion into Australia in 2019 then pulled back from these plans in 2020.⁷⁸

Figure 4.8 | Top domestic and international applicants for trade marks in Australia, 2023

Domestic applicants



International applicants



Domestic filers

The leading domestic trade mark filer was gaming machine producer Aristocrat Technologies, with 91 applications, down 16.5% from the company's filings in 2022. Cost of living pressures, new international restrictions on Casino and gaming machine operators and tougher gaming laws have contributed to softer market conditions for Australia's gaming sector.⁷⁹






A new entrant into Australia's lead trade mark filers, Cannatrek ranked second. The company is an Australian-owned licensed grower and supplier of medicinal cannabis products. It was established in 2016 after the Australian government legislated to allow the cultivation and use of medicinal cannabis. Cannatrek is reported to have doubled its revenue from \$41.9 million in 2021-22 to \$90 million in 2022-23.⁸⁰

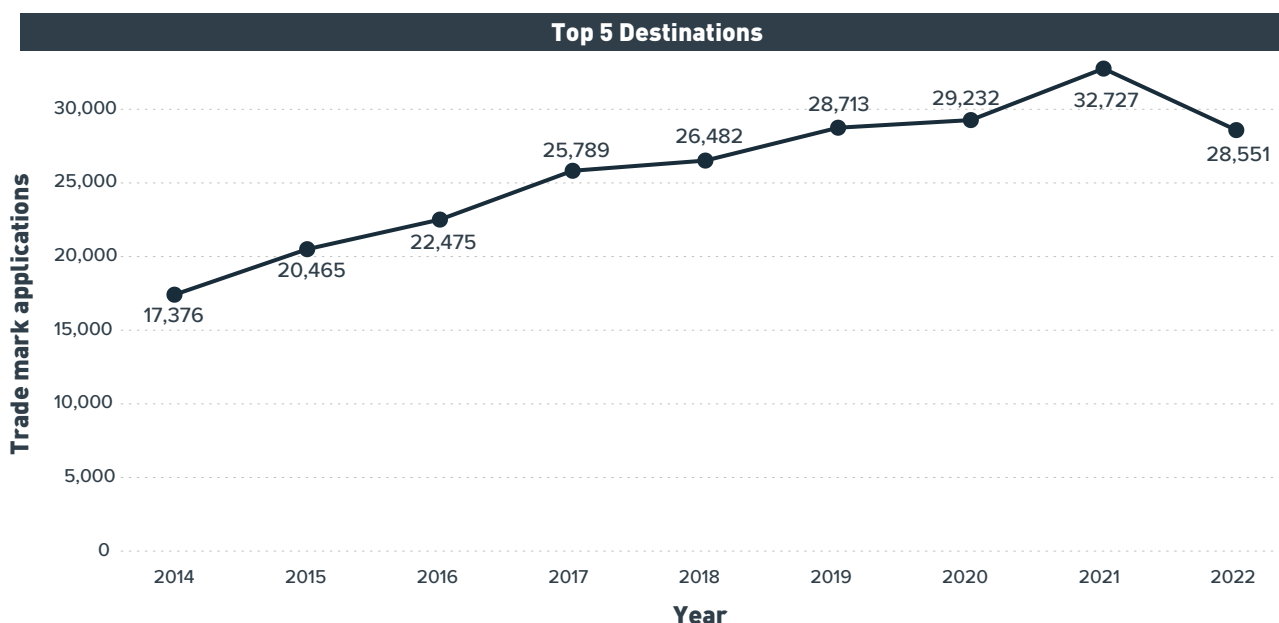
Australian filings overseas

In 2022, Australians filed 20,685 trade mark applications abroad, down 10.3% on their level in 2022. This represents a correction from the 11.9% increase that year.⁸¹ Total trade mark classes filed by Australians abroad fell by 14.5% to 48,291 in total.

The leading destination markets for Australian trade mark filings are the United States, New Zealand, China, the United Kingdom and the European Union Intellectual Property Office (EUIPO), as shown in Figure 4.9. These destinations were followed by Canada, Singapore, Japan, India, the Republic of Korea and Indonesia. Applications by Australians to each of these locations fell in 2022 from their level in 2021, as global growth moderated.

Figure 4.9 | Leading destinations for Australian trade mark applications (class count), 2022

	 United States of America	 New Zealand	 China	 United Kingdom	 European Union IP Office
Applications in 2022	7,138	6,851	6,348	4,642	3,572
Share of total applications	14.8%	14.2%	13.1%	9.6%	7.4%
Change in applications, 2021-22	-11.1%	-16.0%	-13.5%	-16.1%	-2.7%



Source: WIPO IP Statistics Database

Among ‘high volume’ destinations, the United Arab Emirates (UAE) saw the strongest growth in Australian filings abroad for the second year running.⁸² In 2022 Australian class filings in the UAE grew to 1.56 times their level of the previous year, from 189 to 484. This follows the UAE government agreeing to join the Madrid system from 28 December 2021 and revamping its trade mark laws in March 2022 to provide for more effective brand enforcement. On 13 December 2023, Australia and the UAE announced the commencement of negotiations for a bilateral trade agreement to lay the groundwork for closer economic ties.

Trade mark applicants can obtain protection for their marks in multiple countries by filing a single international registration via the Madrid system. As of February 2023, 130 countries were members of the Madrid system, representing more than 80% of world trade. As the system has expanded to cover more countries, the share of Australian classes filed abroad via Madrid has increased, from 45.54% in 2018 to 58.69% in 2022.



End notes

⁶⁴ Trade marks can be renewed every 10 years in perpetuity, on the basis that the need to prevent consumer confusion does not lessen over time.

⁶⁵ Reserve Bank of Australia. (2023). Statement on *Monetary Policy: November 2023*. Statement on Monetary Policy – November 2023 | RBA.

⁶⁶ Nguyen, K. & Yoo, Y. R. (forthcoming). Evaluating trade marks as a leading economic indicator of the Australian business cycle. *IP Australia Analytical Note*.

⁶⁷ For more information, see <https://www.wipo.int/classifications/nice/en/>.

⁶⁸ High volume classes are defined as classes in the top quartile for total number of applications received in 2023.

⁶⁹ For example, see Jensen, P. H. & Webster, E. (2011). Patterns of trademarking activity in Australia [Melbourne Institute Working Paper No. 2/04]. *Australian Intellectual Property Journal*, 15.

⁷⁰ Australian Bureau of Statistics. (2024, 12 January). *Monthly household spending indicator: Experimental indicator of household spending using bank transactions data*. Monthly Household Spending Indicator, November 2023 | Australian Bureau of Statistics (abs.gov.au).

⁷¹ Barroso, A., Giaratana, M. S. & Pasquini, M. (2019). Product portfolio performance in new foreign markets: The EU trademark dual system. *Research Policy*, 48, 11–21.

⁷² High volume locations are defined as those above the mean for total applications received in 2023.

⁷³ Beebe, B. & Fromer, J. C. (2020), Fake Trademark Specimens: An Empirical Analysis, *120 Colum. L. Rev. F.* (217), 218–20.

⁷⁴ See Lyalkov, S., Carmona, M., Congregado, E., Millán, E. & Millán, J. M. (2019). Trademarks and their association with Kirznerian entrepreneurs. *Industry and Innovation*, 27(1–2), 1–10.

⁷⁵ Nathan, M. & Russo, A. (2022). Innovative events: Product launches, innovation and firm performance. *Research Policy*, 51(1), Article 104373.

⁷⁶ Australian Bureau of Statistics. (2023, 22 August). *Counts of Australian businesses, including entries and exits*. <https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>.

⁷⁷ Australian Bureau of Statistics. (2023, 22 August). *Counts of Australian businesses, including entries and exits*. <https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>.

⁷⁸ Parnavitane, V. (2023, 22 December). Top 3 UK trade mark cases of 2023. *World IP Review*. <https://www.worldipreview.com/article/top-3-uk-trademark-cases-of-2023>.

⁷⁹ Samios, Z. (2023, 12 November). Aristocrat's investors aren't spooked by casino, bookie headwinds. *Australian Financial Review*. ALL ASX: Aristocrat's investors aren't spooked by casino, bookie headwinds ([afr.com](https://www.afr.com)).

⁸⁰ Evans, S. (2023, 29 November). Fast 100: This company doubled its revenue on medicinal cannabis demand. *Australian Financial Review*. Cannatrek medicinal cannabis group has doubled revenues to more than \$90 million and boss Tommy Huppert says demand is on the rise. ([afr.com](https://www.afr.com)).

⁸¹ WIPO IP Statistics Database.

⁸² High volume destinations are defined as those in the top quartile of locations for total class filings in 2022.

5

Design rights





Applications for design rights in Australia grew to a record high in 2023, up by 11.5% on their level in 2022. Applications by Australian residents rose by a quarter, focused in design inputs to building and construction. However, a primary driver of the growth was a 10.5% increase in filings from China. Chinese filings nearly doubled in designs for electricity production, transformation and distribution, as patents grew strongly in this field.

Design applications, registrations and certifications

Applications for design rights grew to a record level of 8,776 in 2023, up 11.5% on their level in 2022. Design filings have exceeded their previous peak of 8,123 in 2021, and more than recovered from the 3.1% decline in 2022. Design applications by Australian residents increased by a quarter, up 24.2% (to 2,652) in 2023. Applications by non-residents increased by 6.8%, to a record level of 6,189.

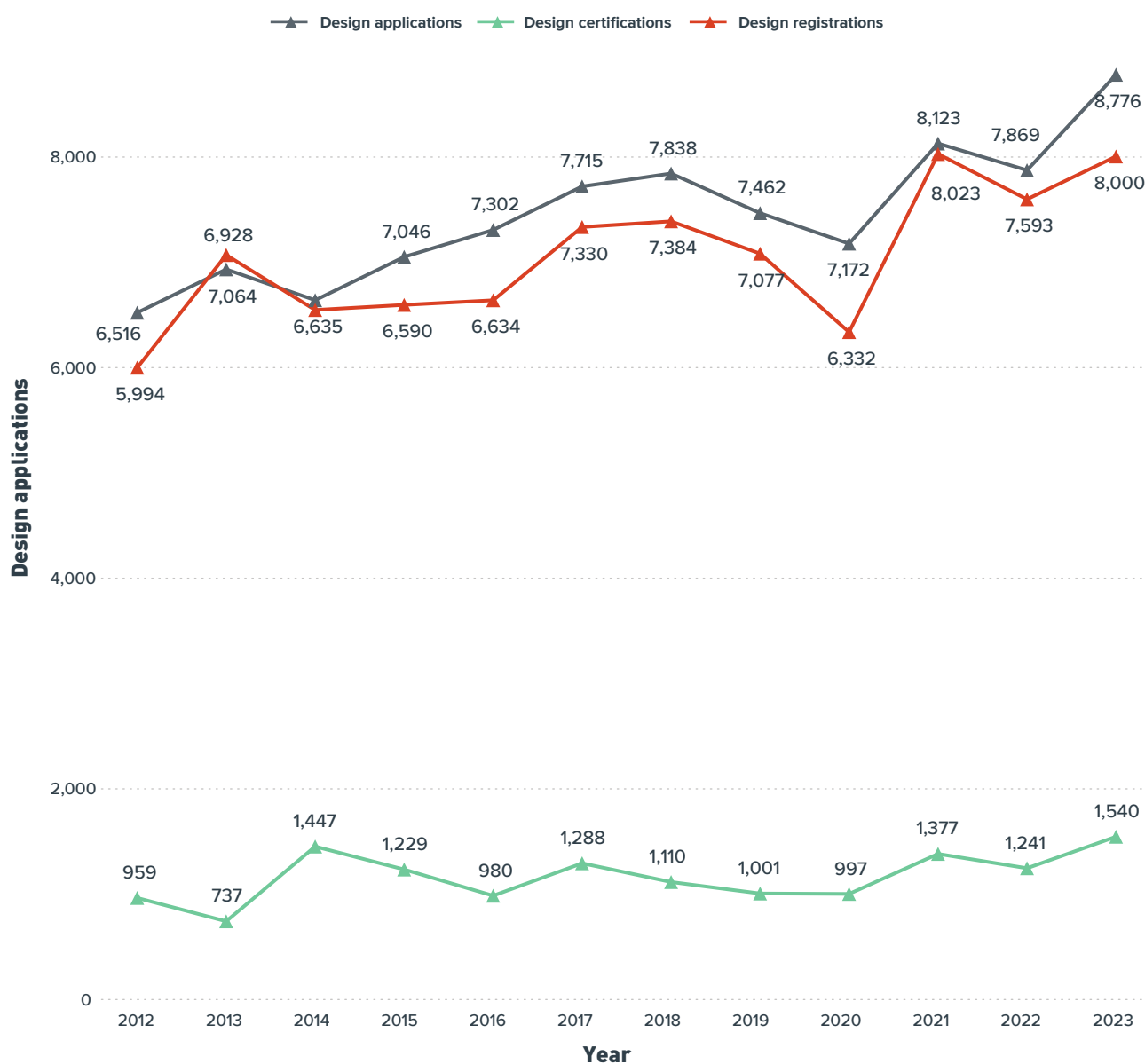
WHAT ARE DESIGN RIGHTS?

Design rights protect the unique visual features of a product that give it a unique appearance such as its shape, pattern, configuration or ornamentation. To be eligible for protection, a design must be new and distinctive – dissimilar in overall impression to designs that constitute prior art. Once certified, the design right confers to its owner an exclusive right to use, license and commercialise the design for up to 10 years.

Design rights are granted to ensure for creators adequate incentive to invest in design activity. When a design is made public it may be copied and used without the designer's permission, reducing potential earnings from the design. With a certified design right, the original creator can evidence their right as the creator and issue legal proceedings against infringers.



Figure 5.1 | Design applications, registrations and certifications in Australia, 2012 to 2023



Design registrations increased to 8,000, up by 5.4% on their 2022 level. The rate of growth from 2022 to 2023 is 3.5 times the average annual rate of growth from 2018 to 2022. Over that period, registration numbers saw significant volatility (see Figure 3.1).

IP Australia certified 1,540 designs in 2023, a 24.1% increase on the previous year. Certifications rose by a quarter both for residents (+25.3%, to 520) and non-residents (+23.4%, to 1,019).

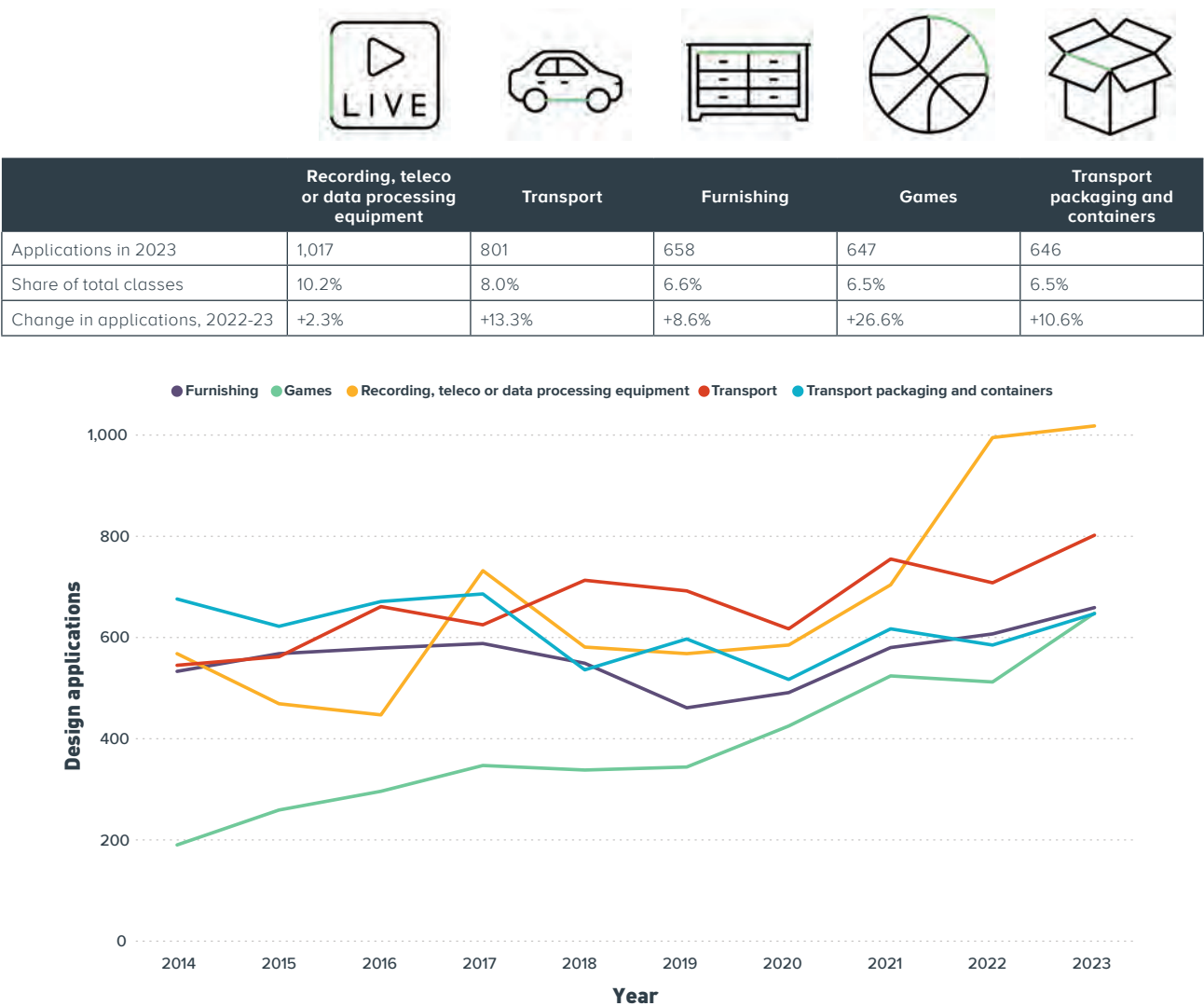
Design classes

In Australia, designs are classified using the Locarno Classification, comprised of 32 product categories.⁸³

The leading design class for filings in 2023 was recording, telecommunications or data processing

equipment (broadly, computing equipment). This class includes tablet computers, point-of-sale terminals, and screen displays and icons. Filings for such designs grew by 2.3% in 2023, to 1,017 in total. This followed a 41.4% increase in 2022.

Figure 5.2 | Top five design classes for volume of design filings in 2023, and high-volume classes with the greatest relative growth and decline in 2023⁸⁴



Focusing on ‘high volume’ classes, the strongest growth in design filings was in building units and construction elements; they increased by 53.2%, to 579 in 2023. Since 2019, industry revenues for hardware and building supply retailers has declined at an annual rate of 0.1%.⁸⁵ Apart from 2023, design

filings in this class have also been on a declining trend. Revenues across the industry are expected to grow over coming years, due to consolidation by the large hardware chains and sales growth via online retail.⁸⁶ Australian residents still file most (61.6%) applications in the class.

International design activity in Australia

Record non-resident filings

Applications by non-residents increased by 6.8%, to a record level of 6,189. As a result, non-resident

applications have grown for 3 consecutive years, at an average annual rate of 10.4%. This represents a clear break from the declining trend observed pre-pandemic (Figure 5.3).

Figure 5.3 | Resident and non-resident design applications, 2014 to 2023

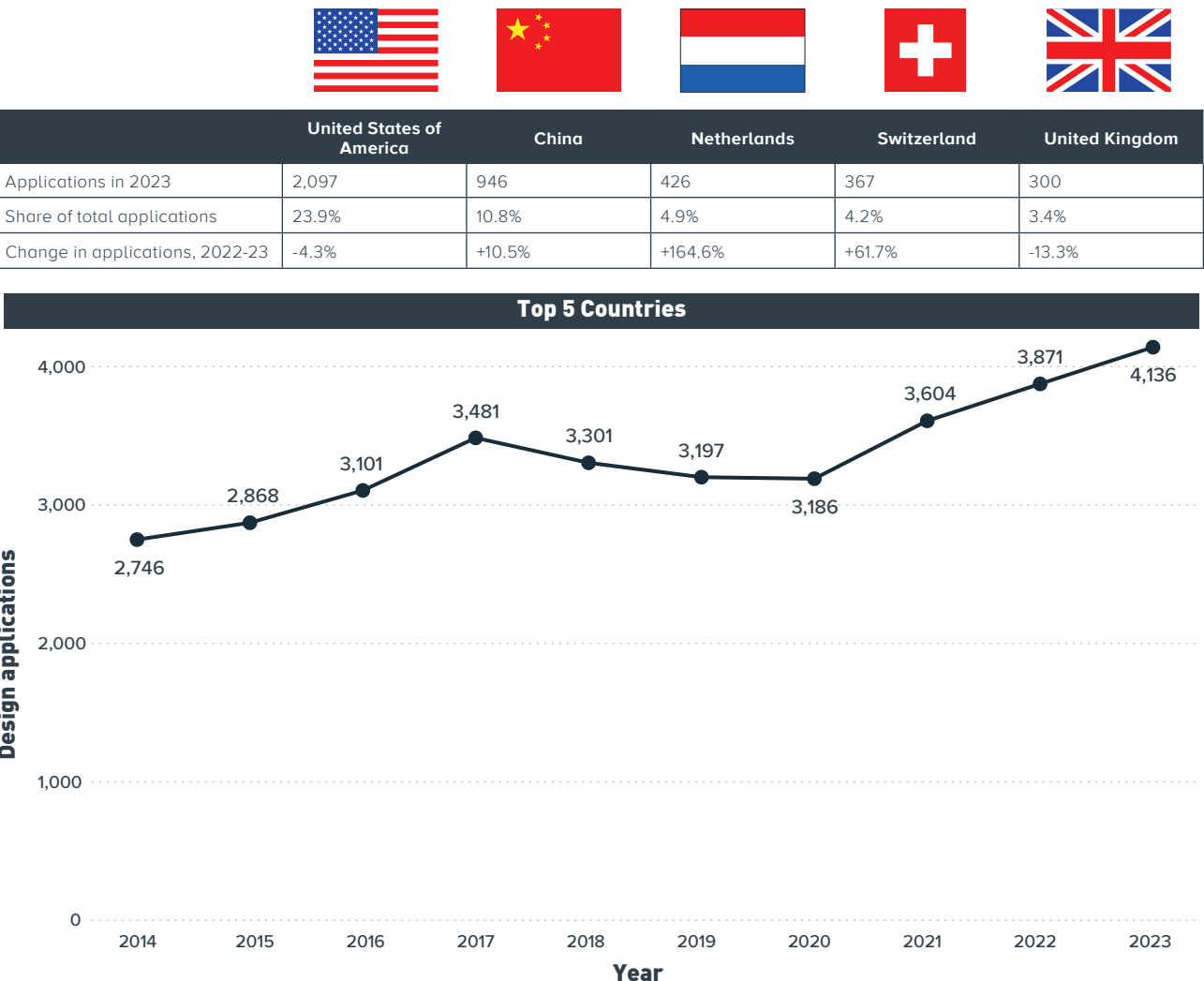


Locations of origin

The leading overseas origins for design filings in 2023 were the United States (US residents were named on 2,097 applications), China (946), the Netherlands (426), Switzerland (367) and the United Kingdom (300). Filings increased across

all origins except for the US (–4.3%) and the UK (–13.3%). Filings from China grew by 10.5%, including a near-doubling of designs relating to electricity production, transformation and distribution. Chinese applicants now account for 30.8% of all filings in this class, up from 17% in 2022.

Figure 5.4 | Leading locations of origin for design filings in 2023, and high-volume locations with the greatest relative growth or decline in 2023⁸⁷



There was significant growth in applications originating from Switzerland (+61.7%, to 367) and from the Netherlands (+164.6%, to 426). Swiss applications are typically concentrated in clocks and watches, as well as articles of adornment. Together these classes account for 35.9% of total Swiss filings. Dutch filings, typically focused in furnishings, saw a 17-fold increase in games, tents, toys and sporting goods (from 7 to 117 applications).

Domestic design activity in Australia

Last year saw the first yearly increase in resident filings since 2018, with resident applications up 24.2% on their 2022 level, to 2,652. This represents a correction from the sharp 17.9% drop in resident filings in 2022 (see Figure 3.2).

Resident design filings have typically focused in building units and construction elements, means of transport or hoisting, tools and hardware, and furnishing. However, over the past 3 years, the class that has seen the strongest relative growth in resident filings is equipment for the production, distribution or transformation of electricity.

Research for IP Australia in 2019 found that in Australian design-intensive industries, having a registered or certified design is associated with higher productivity, increased R&D expenditure and expanded exports.⁸⁸ As of 2023, small and medium enterprise (SMEs) filed 68.7% of domestic design filings, with individuals responsible for a further 23.6%.

Leading applicants

In 2023, the list of lead domestic and international design filers in Australia has experienced significant churn from previous years. Netherlands-based VidaX, the lead international filer, was new to the list with 268 applications. The company is an online retailer of home and garden items with filings focused in Furnishings.

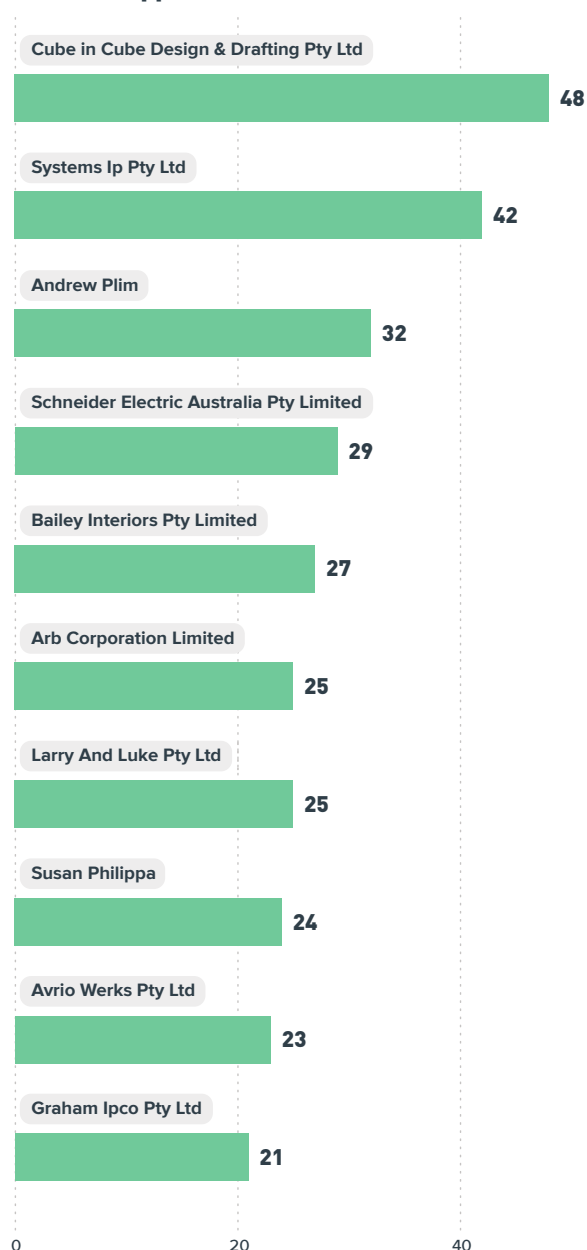
Ranked 2nd was the US multinational technology company Apple Inc, with 181 applications focused in

Recording, telecommunications or data processing equipment. Apple was followed by French luxury goods conglomerate Cartier International AG, with 99 applications for Articles of adornment.

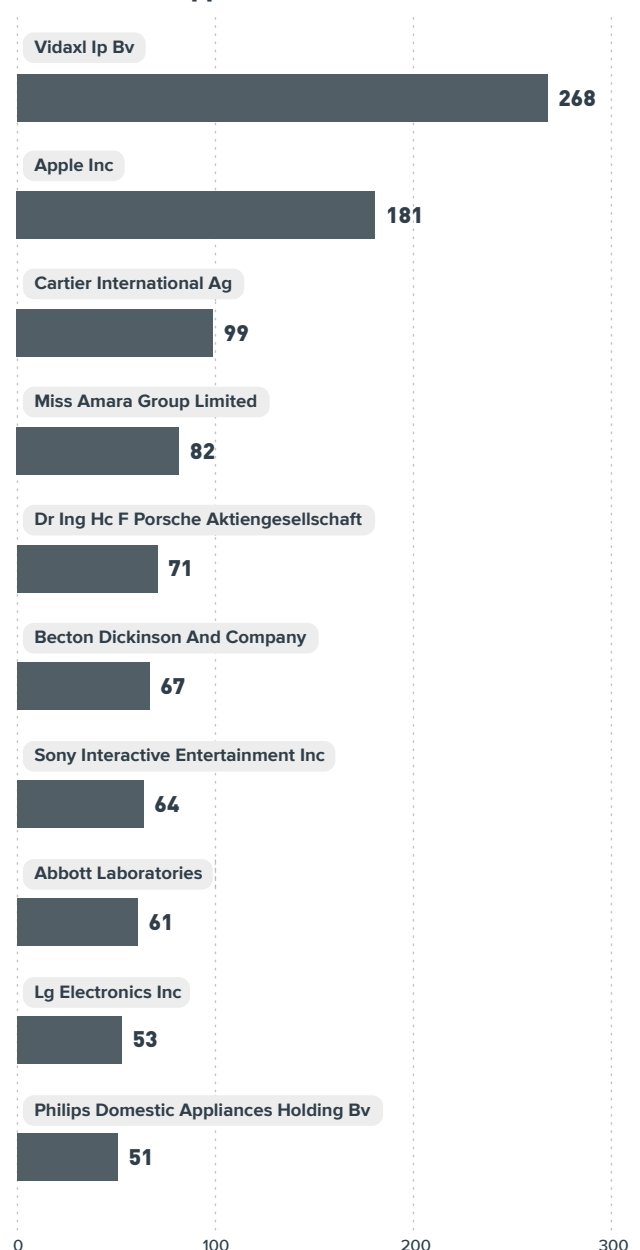
The list of lead domestic filers is comprised entirely of new entrants, with the exception of Schneider Electric Australia Pty Ltd, in 4th place. The lead domestic design filer for 2023 was Cube in Cube Design & Drafting, a lighting product designer.

Figure 5.5 | Top domestic and international applicants for design rights in Australia

Domestic applicants



International applicants








Australian filings overseas

In 2022, 2,625 design applications were filed abroad by Australian applicants, based on the latest available data from WIPO. Australian filings abroad fell by 12.5% from their record level from 2021.

China was the only lead destination where Australian filings grew in 2022, up 13.3% on their level in 2021 (see Figure 5.6). Australian filings fell in the remaining 4 of 5 lead destinations – the US, the European Union Intellectual Property Office (EUIPO), New Zealand and the United Kingdom.

The largest fall was recorded in the UK, with Australian applications down 47.4% from their level in 2021. This follows a marked 329.9% increase the previous year. Following Brexit, from 1 January 2021, applicants have been required to register designs directly with the United Kingdom Intellectual Property Office (UKIPO), rather than with the EUIPO, to obtain protection within the UK.⁸⁹ This change in requirements likely explains the recent volatility in Australia’s UK filings.

Figure 5.6 | Annual volume of Australian design applications in leading destinations, 2012 – 2022

					
	United States of America	European Union IP Office	United Kingdom	China	New Zealand
Applications in 2022	569	428	371	298	276
Share of total applications	21.7%	16.3%	14.1%	11.4%	10.6%
Change in applications, 2021-22	-12.9%	-10.5%	-47.4%	13.3%	-16.7%



Source: WIPO

TAKING IP GLOBAL: THE HAGUE AGREEMENT

The Hague Agreement on Industrial Designs allows design applicants to seek registration in multiple countries through a single international application. First adopted in 1925, the Agreement covers 96 countries. The European Union became a member in 2006, the US in 2015 and China in 2022. In principle, Australia has agreed to make all reasonable efforts to join the Hague Agreement as part of a free trade agreement (FTA) between Australia and the UK. The agreement allows time to consider legislative and system changes after the FTA's entry into force.

End notes

⁸² For details about the Locarno System, see <https://www.wipo.int/classifications/locarno/en/>.

⁸³ High volume classes are defined as classes above the mean for total applications received in 2023.

⁸⁴ IBISWorld. (2023). *Hardware and Building Supplies Retailing in Australia, Industry Report*. <https://www.ibisworld.com/au/industry/hardware-building-supplies-retailing/1877/>.

⁸⁵ IBISWorld. (2023) *Online Hardware and Tool Sales in Australia, Industry Report*. <https://www.ibisworld.com/au/industry/online-hardware-tool-sales/5118/>.

⁸⁶ High volume locations are defined as classes above the mean for total applications received in 2023.

⁸⁷ See Kollmann, T., Koswatta, A., Palangkaraya, A. & Webster, E. (2020). *The impact of design rights on Australian firms* [IP Australia Economic Research Paper 09]. Commonwealth of Australia. <https://apo.org.au/sites/default/files/resource-files/2020-04/apo-nid313935.pdf>. Design-intensive industries are defined as firms within industries above the 95th percentile when ranked by the number of design rights filed by the industries members between 2002-2016, divided by the number of FTE employees in the industry in the same period.

⁸⁸ Changes to EU and international designs and trade mark protection, GOV.UK (2020)

6

Plant breeder's rights





Applications for plant breeder's rights in 2023 remained relatively stable for the second consecutive year. While there was a decline in applications for fruit crops, the first since 2019, this was countered by an increase in applications for ornamentals, marking the first increase in this class since 2019. Registrations also continued to grow steadily, following the resumption of field examinations halted by the COVID-19 pandemic.

PBR applications and registrations

In 2023, applications in Australia fell by 1.7%, from 301 in 2022 to 296 in 2023 (Figure 6.1). Resident filings increased significantly, by 22.9%, from 118 applications to 145. Non-resident filings fell by 17.5%, from 183 to 151.

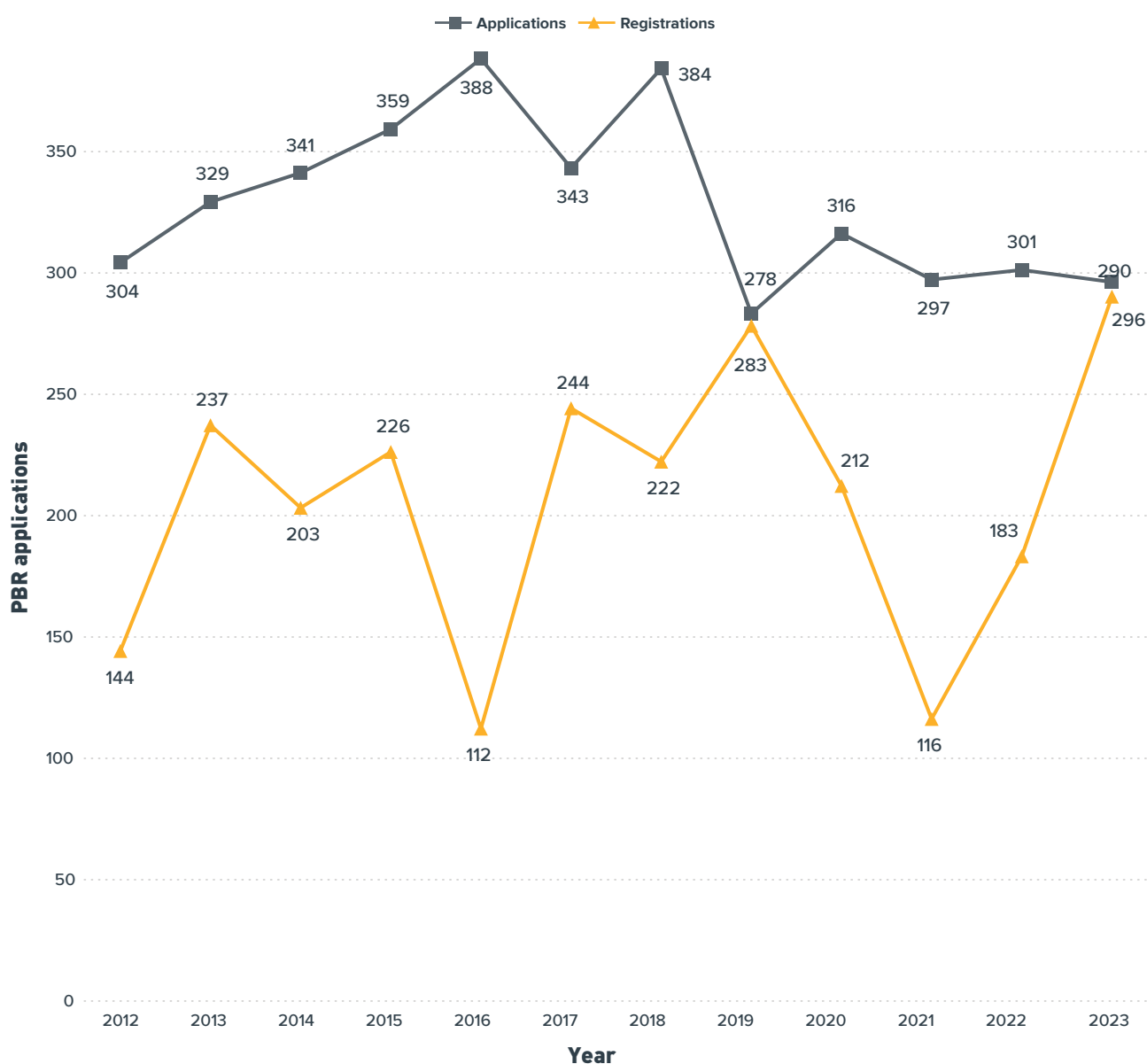
WHAT ARE PLANT BREEDER'S RIGHTS?

Plant breeder's rights (PBRs) provide legal protection for new plant varieties to encourage private investment in plant breeding and commercialisation. To be eligible for protection, a plant variety must be clearly identifiable and distinguishable from other varieties, uniform and stable upon propagation.

PBRs grant their owners an exclusive right to commercialise their new varieties for up to 25 years. They enhance their rights owners' ability to collect royalties in directing the production, sale and distribution of varieties, to increase investment in research, development and commercialisation.



Figure 6.1 | PBR applications and registrations in Australia, 2012 to 2023



PBR registrations increased by 58.5% in 2023 – marking the highest level in a decade (see Figure 6.1). Registrations by residents more than doubled their level in 2022, rising from 72 to 155. Registrations by non-residents grew by 17.1%, from 111 to 135.

Though timeframes vary by plant type, the process of registering a PBR typically takes around 2.5 years. This is because the application must pass a substantive examination process and a comparative growing trial. The significant rise in registrations

in 2023 may reflect the resumption of field examinations after the COVID-19 pandemic, when travel restrictions made growing trials harder to organise and attend.

In 2023 IP Australia introduced changes that have moved customers to progress their applications toward an outcome (e.g., grant or withdrawal) where the applicant was overdue in providing a detailed description of their plant variety. The change has likely contributed to the increase in registrations.

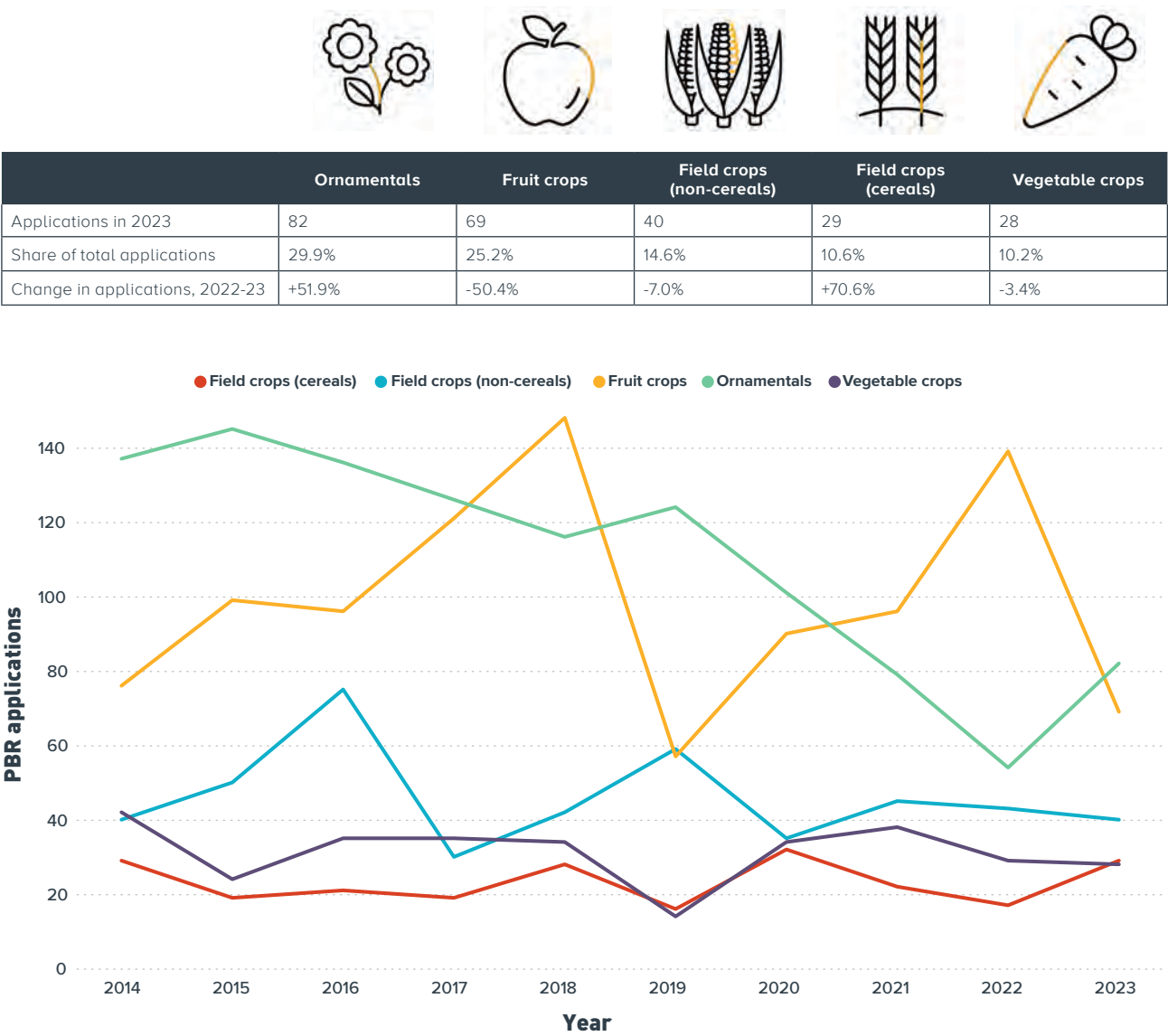
Plant varieties

Most PBR applications in 2023 were for ornamentals (29.9% of total filings), fruit crops (25.2%) and non-cereal field crops (14.6%), as shown in Figure 6.2.

Ornamentals saw a significant increase in filings in 2023 (+51.9% from their level in 2022). While filings in this class have declined in recent years, they

saw the greatest share of applications in 7 of the past 10 years and a strong recovery in 2023. New ornamental varieties are predominantly developed by the nurseries sector. Often several plant generations can be produced within a short period and trialled quickly, efficiently and with less space and resources than is required for other plant types.⁹⁰

Figure 6.2 | Top 5 plant varieties for volume of PBR filings in 2023, and high-volume varieties with the greatest relative growth and decline in 2023



THE PBR REFORM PROGRAM

In late 2021 IP Australia set up a dedicated program to explore Australia's plant breeding ecosystem and the role of PBR. We published some initial research findings in 2022 and have since published further reports and findings, all available on our website. Read the reports and what we learnt from the research.

We have continued researching the landscape, challenges and opportunities associated with PBR, including through economic studies, qualitative research interviews and series of workshops with stakeholders. As of March 2024, the research Program is winding down, but the PBR reform agenda remains a priority for IP Australia. The research findings are feeding directly into IP Australia's explorations of policy reform and ongoing work to improve IT systems, administrative processes, information and education materials, and forms/paperwork.

Economic research is a cornerstone of this program's work to ensure that the PBR system is fit-for-purpose, supporting plant breeding industries and connecting with the government's priorities for agriculture and growth.

In 2023, in partnership with the Centre for Transformative Innovation (CTI) at Swinburne University of Technology, we published the most comprehensive research survey yet undertaken with Australian applicants and agents that use the PBR system (the CTI study). The survey received 130 responses, representing 37% of the estimated population of 350 active Australian PBR-using organisations. Read more about the survey.

We have published this report alongside the earlier economic impact analysis providing estimates of the PBR system's contribution to the Australian economy. Thank you to all stakeholders who have participated in and engaged with our PBR research work over the last few years. We are looking forward to further engagement as the reform agenda continues to evolve.

Domestic PBR activity in Australia

Research for IP Australia has found a positive correlation between the use of PBR protection and the likelihood that a new plant variety will be commercialised: based on survey data, 96% of varieties protected by PBRs have been commercialised compared to 74% of commercial-ready varieties without PBR protection.⁹¹

The same research found that varieties protected in the last 5 years generated an average estimated revenue of \$793,000. This is likely to be an underestimate, as 5 years in many cases will comprise only part of the variety's commercial life. For more than a third of Australian organisations that use PBRs, revenue generated from plant breeding funds ongoing breeding activities.⁹²

Recovery in domestic filings

For the past 4 years there has been year-on-year decline in the number of PBR applications filed by residents – by an average 8.9% between 2019 and 2022. The recent decline in resident filings is likely a result of economic losses from Australia's devastating bushfires in 2019-20, and the severe droughts across Eastern Australia from 2017 to 2019.

In 2023, resident applications rebounded by 22.9% from their level in 2022, to 145. The resident share of applications increased by 10 percentage points, from 39.2% to 49.0% – the highest share since 2019.

International PBR activity in Australia

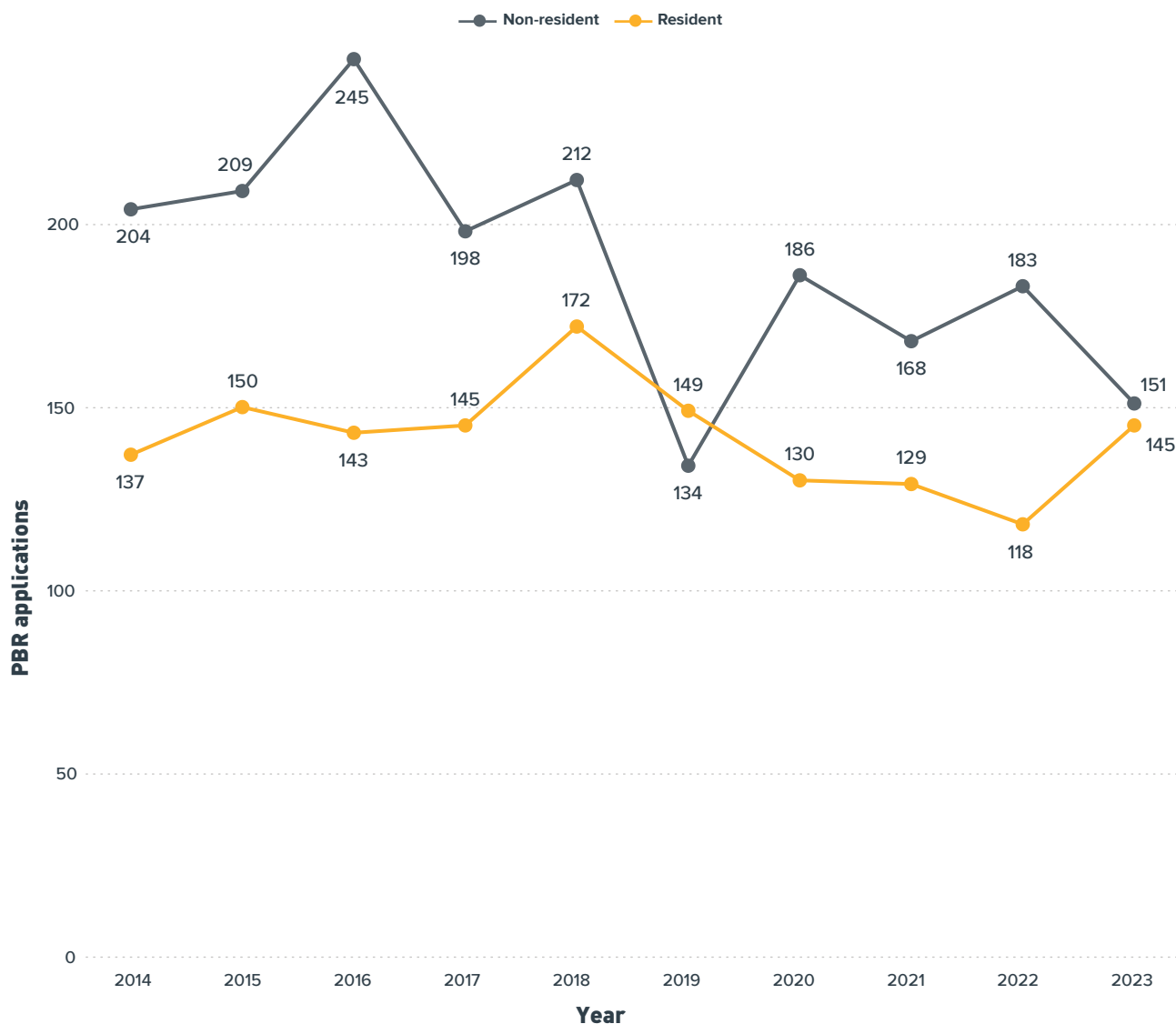
Many industries rely on foreign-sourced germplasm – living genetic material such as seeds, plants or plant parts – brought into Australia to improve plant varieties. PBRs help facilitate the international transfer of varieties into Australia and the local investments needed to adapt varieties for Australia's environment.⁹³

Volatile international filings

A total of 151 non-resident applications were filed in 2023, down by 17.5% from their level in 2022. As overall PBR application volumes in Australia are relatively small, they are volatile and strongly influenced by the behaviour of individual applicants. Nevertheless, the non-resident share of applications has consistently declined from 2018, calculated as a 5-year moving average.



Figure 6.3 | Volume of PBR applications by domicile, 2014 to 2023



Locations of origin

The US is the leading location of origin for PBR filings in Australia, with 41 applications in 2023. The US has remained the lead origin over the past 10 years, with the exception of 2021 when the Netherlands led. In 2023, the US was followed by the Netherlands (31 applications), Switzerland (17), France (13), Denmark (8) and the United Kingdom (8).

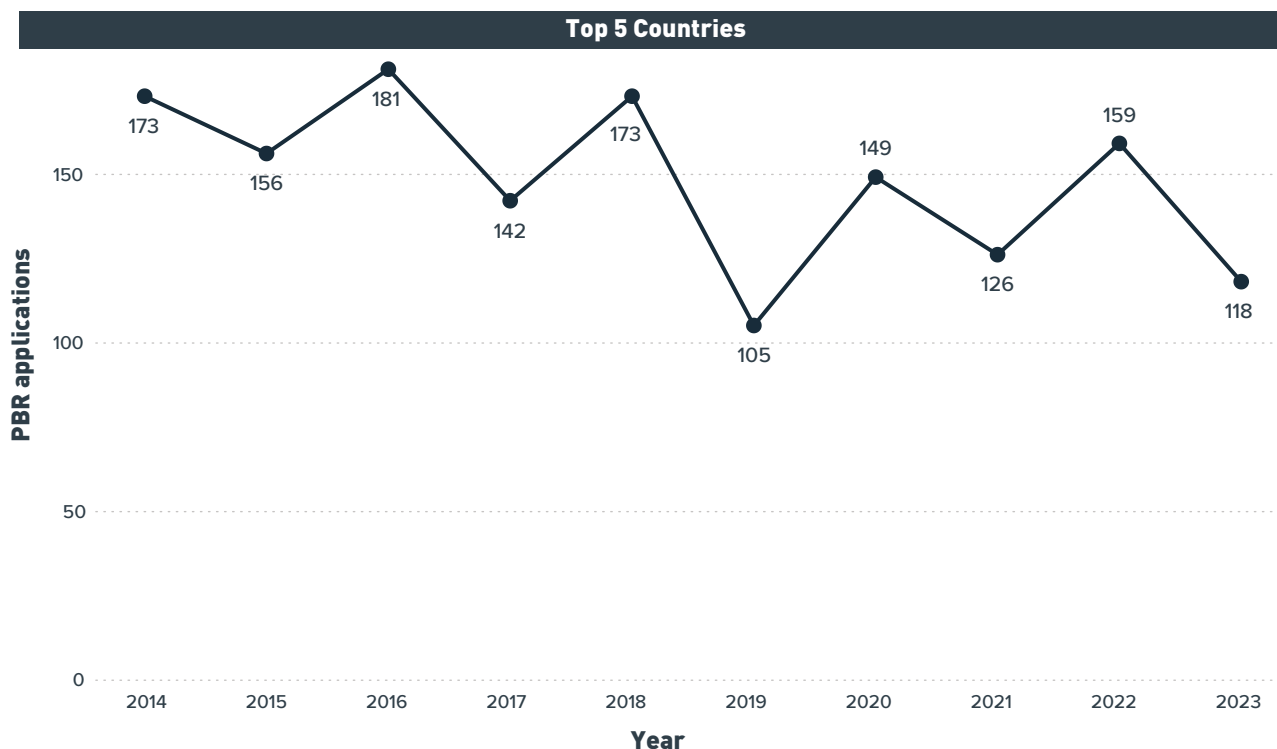
Applications fell from the US (–25.5%), Switzerland (–10.5%) and France (–71.7%) in 2023. By contrast, filings from the Netherlands grew by 29.2%, those from Denmark increased seven-fold and UK filings doubled.



Figure 6.4 | Leading locations of origin for PBR filings in 2023, and high-volume locations with the greatest relative growth or decline in 2023⁹⁴



	United States of America	Netherlands	Switzerland	France	Denmark	United Kingdom
Applications in 2023	41	31	17	13	8	8
Share of total applications	13.9%	10.5%	5.7%	4.4%	2.7%	2.7%
Change in applications, 2022-23	-25.5%	+29.2%	-10.5%	-71.7%	+700.0%	+100.0%



Note: The top six locations are shown rather than the top five because the UK and Denmark were tied with in 5th place with both having eight applications.

Leading applicants

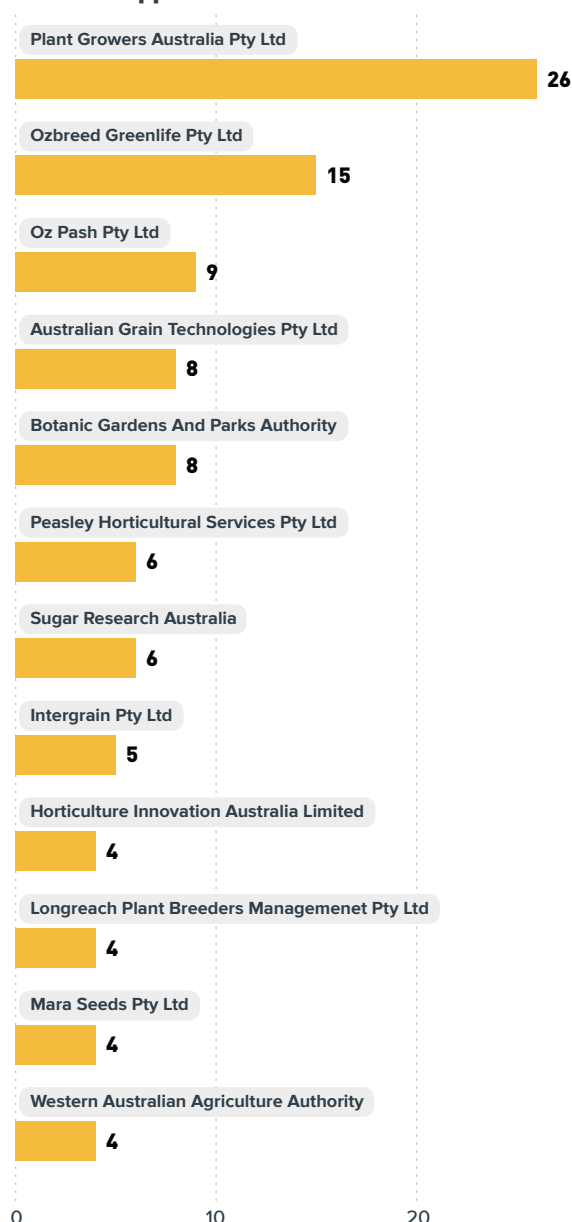
Domestic filers

The lead domestic filer in 2023 was Plant Growers Australia Pty Ltd, a wholesale production nursery based in Victoria. Their 26 applications were mainly in Ornamentals. The nursery was also the lead domestic filer in 2022, with 16 applications.

Second-ranked among domestic filers was Ozbreed Greenlife, with 15 applications in 2023. Ozbreed specialises in the breeding of landscape gardening plants. Third-ranked was Oz Pash Pty Ltd, a NSW-based fruit grower, with several applications for new varieties of passionfruit.

Figure 6.5 | Top domestic and international applicants for PBRs in Australia, 2023

Domestic applicants



International applicants



Note: There are 12 international applicants displayed due to four applicants being joint in 10th place.

International filers

Among international applicants, Syngenta Crop Protection AG led with 17 applications in 2023. Syngenta is a Switzerland-based agri-tech company owned by ChemChina, a Chinese state-owned enterprise.

The second ranked international applicant was Driscolls Inc, with 9 applications in 2023. Driscolls is

a US producer of berries who re-entered the ranks of lead filers following absences over the previous two years.

Third-ranked was Knud Jepsen AS (8 applications), a Danish flower grower and genetics company, and the world's largest producer of Kalanchoe, a popular house plant.

End notes

⁹⁰ Hegarty, S., Thomson, R., & Webster, E. (2023). *Understanding the economic impact of plant breeder's rights in Australia*. IP Australia, Commonwealth of Australia.

⁹¹ Hegarty, S., Thomson, R., & Webster, E. (2023). *Understanding the economic impact of plant breeder's rights in Australia*. IP Australia, Commonwealth of Australia.

⁹² Hegarty, S., Thomson, R., & Webster, E. (2023). *Understanding the economic impact of plant breeder's rights in Australia*. IP Australia, Commonwealth of Australia.

⁹³ Hegarty, S., Thomson, R. & Webster, E. (2022). The economic impact of plant breeder's rights in Australia. IP Australia, Commonwealth of Australia.

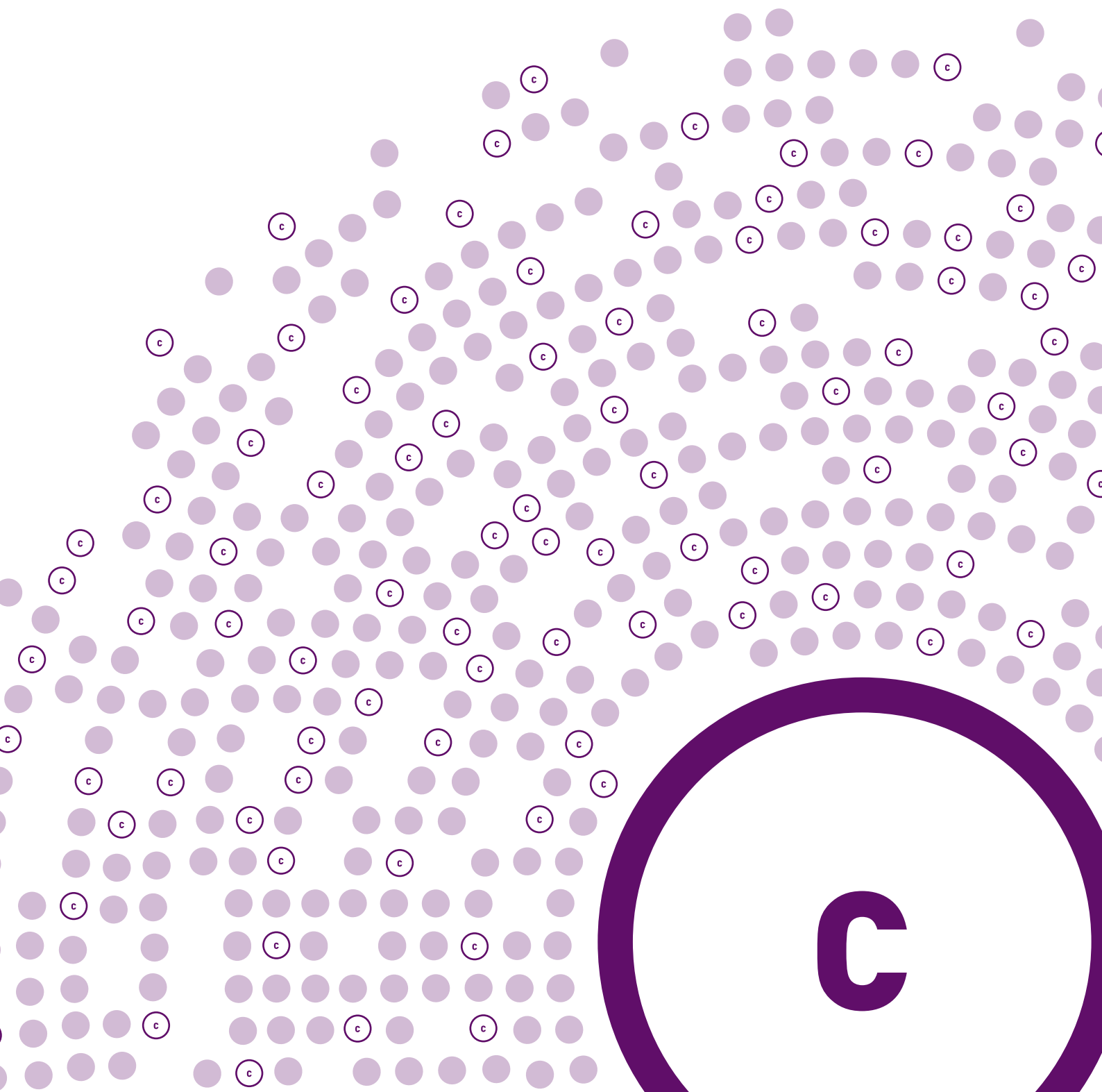
⁹⁴ High volume locations are defined as those above the mean for total applications in 2023.



7

Copyright





Copyright continues to play an important role in Australia's creative and cultural industries. Licensing of copyright material is a significant driver of economic returns for artists, musicians, writers and screen industry workers, with over \$700 million paid through collecting societies alone in 2022-23. Collaboration across copyright-based industries

is a significant driver of value, with Australia's games industry seeing a 59% increase in revenue in 2021-22, due to increased collaboration between games developers and music workers. Over 70% of Australians consume copyright material online, and around three in five of those that do so use only sources that appear to be lawful.

WHAT IS COPYRIGHT?

Copyright is an unregistered form of IP founded on a person's creative skill and labour. It protects the original expression of an idea or information. Copyright material generally includes items such as books, artwork, software, film and sound recordings.

Copyright provides exclusive economic rights that allow the copyright owner to do certain acts with their copyright material. These acts may include copying, publishing, publicly performing or otherwise communicating the copyright material (e.g., broadcasting it or making it available online). Copyright owners may also licence another person to do some or all of those acts.

Copyright law also provides non-economic rights, known as moral rights. These are designed to protect the creative integrity of copyright creators.

In Australia, copyright is granted automatically from the time an original work is created and does not need to be registered. With no formalities and low barriers to protection, copyright is easily accessible to different sectors, including SMEs.

The Attorney-General's Department is responsible for managing the *Copyright Act 1968*. The department develops Australian copyright policy and represents Australia's interests in relation to international copyright issues.

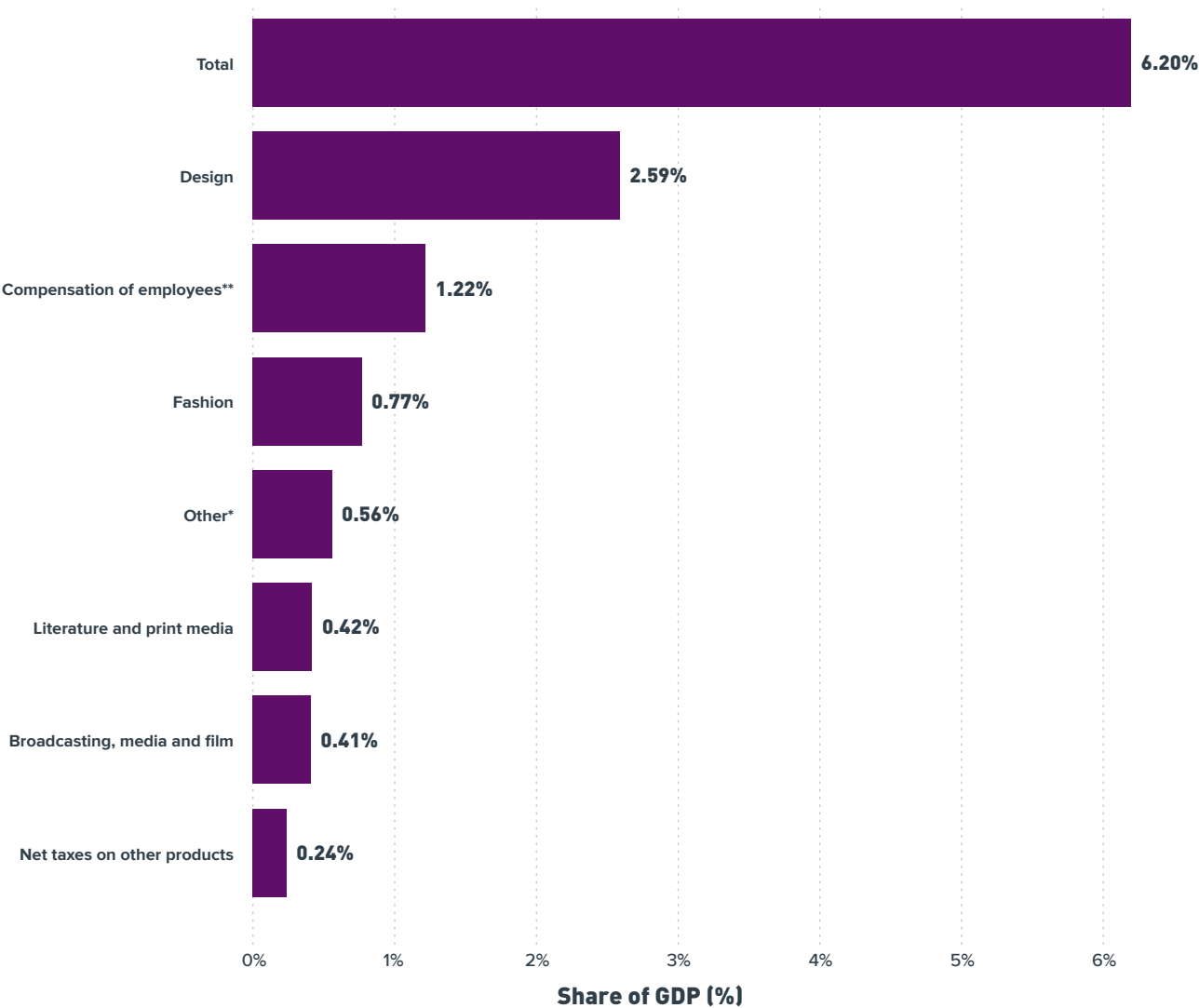
The contribution of copyright to Australia

Copyright has a central role in content-based industries as a driver of economic value. Collectively, these industries are sometimes referred to as the ‘creative economy’ – a way of recognising the economic value of creativity and innovation underpinned by IP rights.⁹⁵

The Department of Infrastructure, Transport, Regional Development Communication and the

Arts has estimated that in 2019 –2020 ‘cultural and creative activity’ contributed \$122.3 billion to the Australian economy (see Figure 5.1).⁹⁶ This was 27.1% higher than in 2010–11, and was equivalent to 6.2% of Australia’s GDP.⁹⁷ While this research does not specifically relate to the economic value of copyright – for example, it includes some smaller sectors such as zoological and botanical garden operations not directly underpinned by copyright – it illustrates the significant economic impact of copyright-related sectors.

Figure 7.1 | Cultural and creative activity (value, 2019-20)



Source: DITRDCA, Cultural and Creative Activity in Australia 2010-11 to 2019-20. Retrieved 14 March 2023. Notes: ‘Other’ includes museums, libraries and archives, performing arts, environmental heritage, music composition and publishing, visual arts and crafts, cultural goods manufacturing and sales and supporting activities. ** ‘Compensation of employees’ is income received by individuals working in cultural and creative occupations outside industries identified as cultural and creative.

The publication found that industries with the greatest contribution to cultural and creative activity included:

- design (\$50.9 billion)
- fashion (\$15.1 billion)
- literature and print media (\$8.3 billion)
- broadcasting, electronic or digital media and film (\$8.1 billion).

Findings from earlier research commissioned by the Australian Copyright Council in 2020 demonstrated that these industries are supported by copyright to some degree.⁹⁸

Other recent research commissioned by Creative Australia sheds further light on the economic impact of the creative economy and specific creative industries sectors. Research based on 2021 census data found that the creative economy provided employment to 714,632 people in Australia. This figure – which includes specialist creatives and support workers in the creative industries, as well as embedded creatives in other industries – equated to 5.9% of the total workforce in Australia, up from 5.5% in 2016.⁹⁹

Looking more closely at a particular copyright-dependent industry, research commissioned by Creative Australia found that in 2021-22 the Australian games industry generated \$284.4 million in revenue and employed 2,104 full-time equivalent workers. This was a 59% increase from the previous year, and a 250% increase since 2015.¹⁰⁰ This growth in value was due to the collaboration between Australian game developers and Australian game music workers who are having global critical and commercial success. It demonstrates the importance of interconnectedness across Australian copyright-dependent industries to generate economic value.

Use of copyright content

Copyright law provides mechanisms by which creators and other copyright owners can maintain control over their work. The system is designed to provide creators with adequate incentives to create and disseminate new content. It also facilitates various uses of copyright material. These include collective licensing arrangements that are voluntary or, in some public interest circumstances, mandatory. In addition, public interest exceptions enable some uses of copyright material without the copyright owner's permission.

The value of licensing through collecting societies

A significant portion of the economic contribution attributable to copyright takes the form of direct licensing arrangements between copyright owners and users.

Australia's copyright arrangements also include collecting societies. These bodies collect fees from licensing arrangements that allow large volumes of copyright material to be put to various uses and distribute the fees to the owners of the creative works.

For users and owners of creative content, negotiating individual licences can be a burdensome and costly process that diminishes their value. Educational institutions, governments and businesses commonly rely on collective licensing to access copyright material and reduce licensing costs.

The annual reports of collecting societies provide insight into the scale at which copyright material is used. In 2022–23:

- \$474 million in Australian royalties were paid to music industry rights-holders by the Australasian Performing Right Association and Australasian Mechanical Copyright Owners Society, together known as APRA AMCOS;¹⁰¹

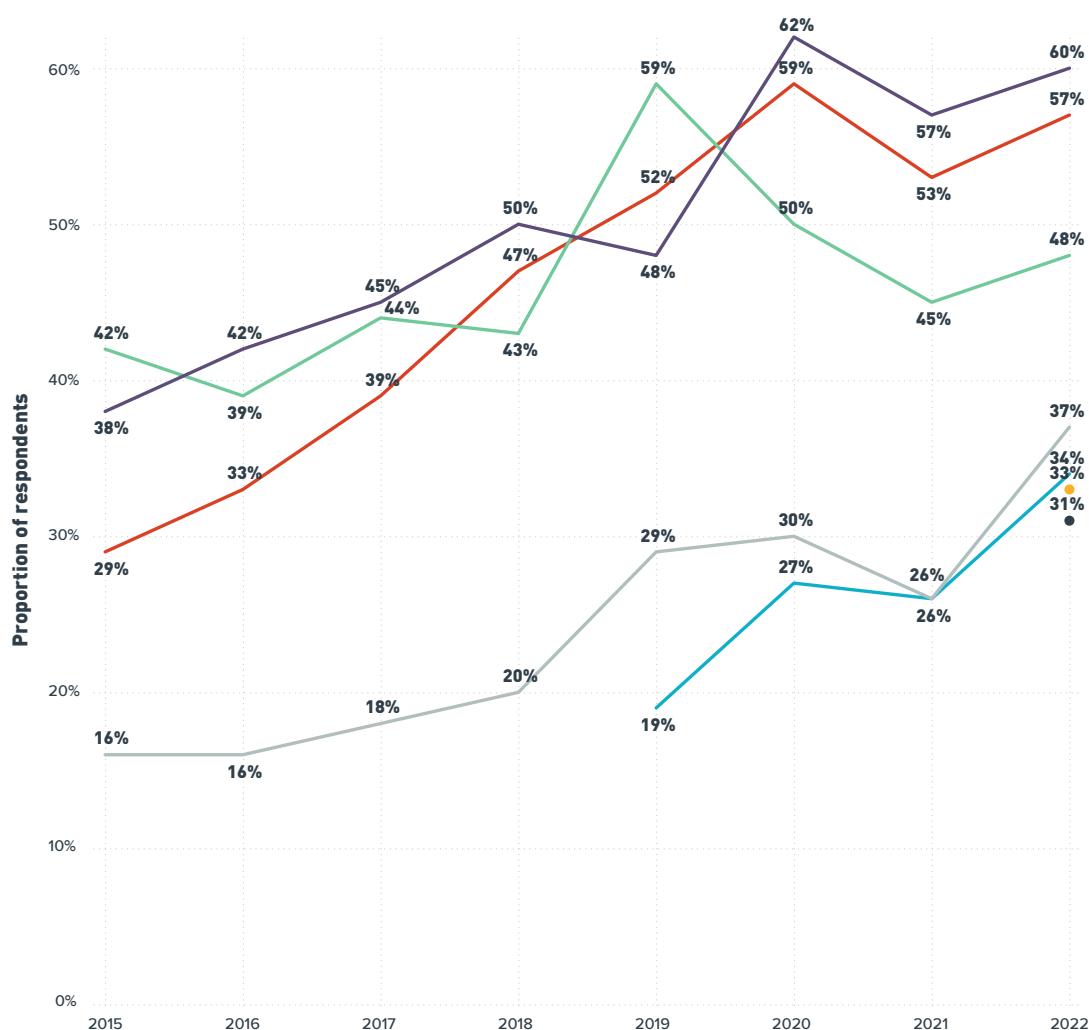
- \$142 million was allocated to more than 36,000 rights-holders, including writers, artists, publishers and agents, by Copyright Agency Limited (CAL). Collective licensing by CAL also indirectly benefits other creative industries workers, such as writers and illustrators working in-house or with contractual entitlements to a share of Copyright Agency payments;¹⁰²
- \$48.7 million was distributed to registered artists and licensors by the Phonographic Performance Company of Australia (PPCA);¹⁰³
- Screenrights distributed \$40.3 million to its members and saw an increase in its membership to over 5,100 copyright owners in the audio-visual sector – such as producers, writers, directors, broadcasters and agents.¹⁰⁴

Consumption of online copyright content

A large number of Australians consume copyright content online. The Consumer Survey on Online Copyright Infringement (the 'Consumer Survey') commissioned by the Attorney General's Department provides insight into consumption. The survey analyses current trends in online copyright content consumption and copyright infringement (discussed below).¹⁰⁵

According to the 2022 Consumer Survey, almost three-quarters (72%) of respondents surveyed had consumed some form of online content (music, movies/films, TV programs, video games or live sport) in the past three months. Broadly, the proportion of respondents consuming each content type has increased over time (see Figure 7.2).

Figure 7.2 | Proportion of respondents who consumed each content type (either lawfully or unlawfully) 2015 to 2022



Copyright infringement (unlawful access to copyright content)

The 2022 Consumer Survey indicated that the overall proportion of respondents who had consumed some online copyright content unlawfully increased to 39% in 2022, compared to 30% in 2021). However, rates of unlawful consumption increased only marginally or declined for individual content types.

Adjustments to the 2022 Consumer Survey made it more sensitive to emerging methods of unlawful consumption. As such, an increase in overall infringement is likely partly due to the survey's increased ability to detect infringing behaviours.¹⁰⁶

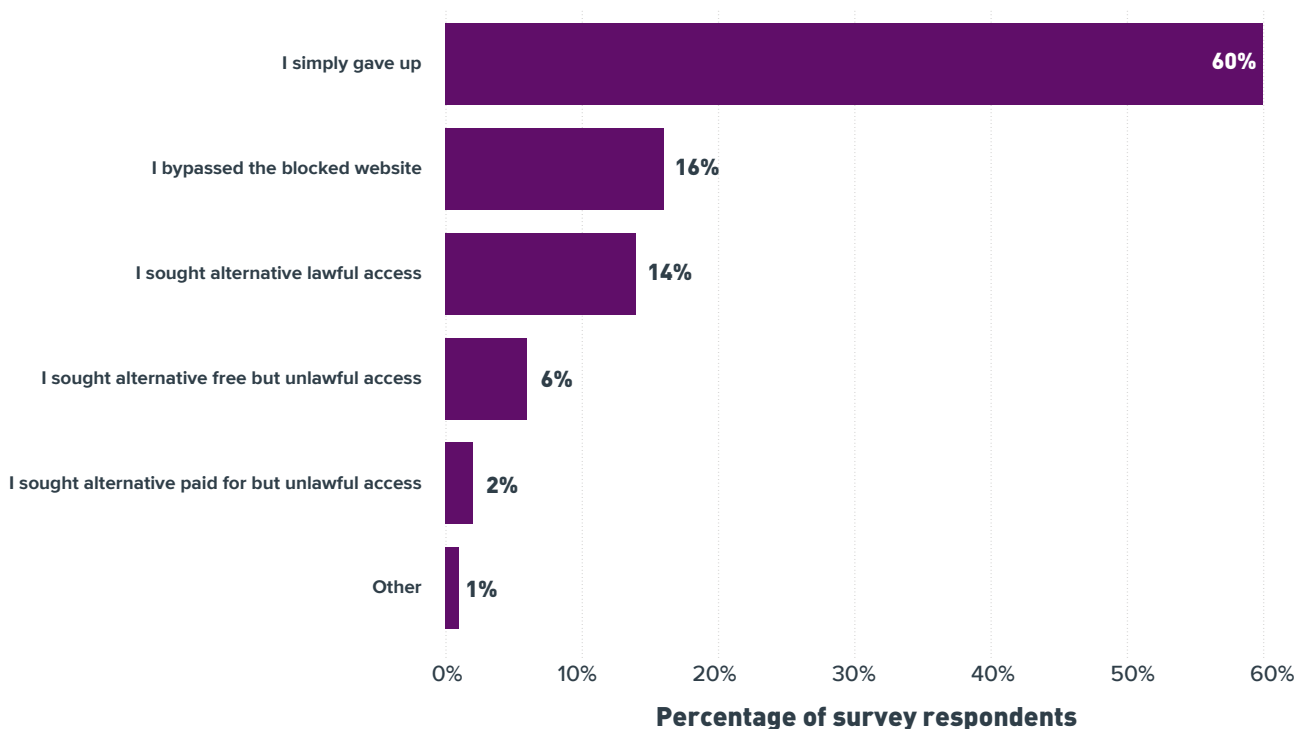
Australia's website blocking scheme

Australia's website blocking scheme allows copyright owners to apply to the Federal Court of Australia to block an online site that operates outside Australia and infringes copyright material.

Around 2,000 websites have been blocked between 2015 and 2023. Orders issued under the scheme in 2023 predominantly extended existing blocks on websites, rather than blocking new websites.

The 2022 Consumer Survey indicates that the scheme has reduced the extent to which consumers access content through websites that infringe copyright. Around three-quarters of respondents who encountered a website blocked by the scheme reported that they either 'gave up' or sought lawful access (see Figure 7.3)

Figure 7.3 | Actions taken when encountering a blocked website



End notes

⁹⁵ World Intellectual Property Organization. (2015). *Guide on surveying the economic contribution of the copyright-based industries*. <https://www.wipo.int/publications/en/details.jsp?id=259>.

⁹⁶ Bureau of Communications, Arts and Regional Research. (2022). *BCARR—Visual summary: Cultural and creative activity in Australia 2010-11 to 2019-20*, Department of Infrastructure, Transport, Regional Development, Communication and the Arts. <https://www.infrastructure.gov.au/sites/default/files/documents/bcarr-visual-summary-cultural-and-creative-activity-in-australia-2010-11-to-2019-20-october2022.pdf>

⁹⁷ The analysis uses the same approach taken by the Australian Bureau of Statistics in their Cultural and Creative Activity Satellite Account and includes a broad range of industries where cultural and creative activity occurs.

⁹⁸ *The economic contribution of Australia's copyright industries – 2006-2018*, PricewaterhouseCoopers, commissioned by The Australian Copyright Council, (2020).

⁹⁹ Dr. Marion McCutcheon and Stuart Cunningham, 'The Creative Economy in Australia: What census 2021 tells us' (Briefing paper, 8 March 2023).

¹⁰⁰ Report commissioned by Creative Australia, Dr. Brendan Keogh and Dan Golding and Taylor Hardwick, 'Australian Music and Games 2023 Benchmark' (Queensland University of Technology and Swinburne University of Technology, 2023).

¹⁰¹ Figure provided by APRA AMCOS based on royalties paid for the year ended 30 June 2023.

¹⁰² Copyright Agency Limited. (2023). *Copyright Agency annual report 2022-23*.

¹⁰³ Phonographic Performance Company of Australia. (2023). *PPCA annual report 2023*.

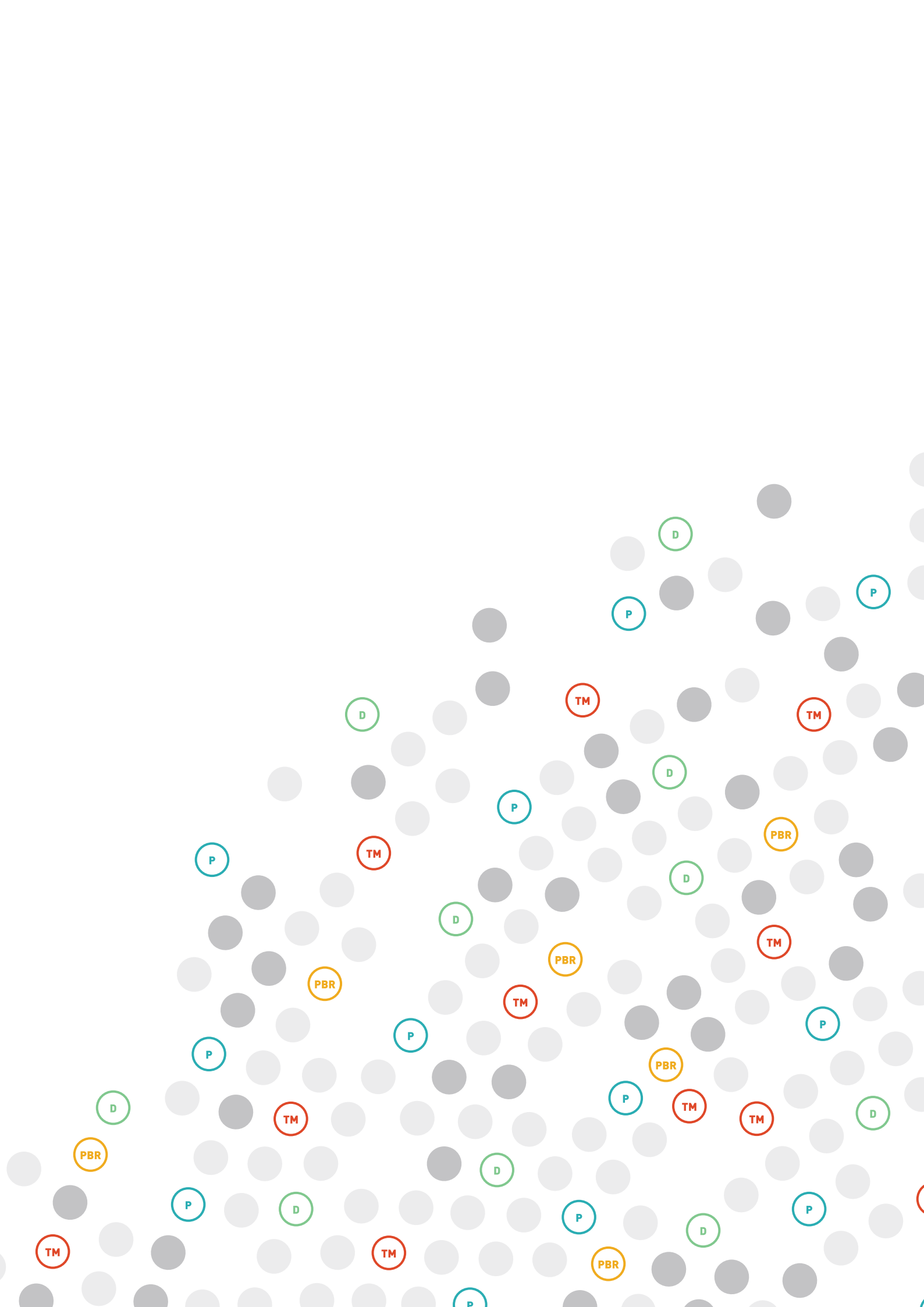
¹⁰⁴ Screenrights. (2023). *Year in review 2022-2023*.

¹⁰⁵ ORIMA Research. (2024). *Consumer survey on online copyright infringement 2023: Survey findings report* [commissioned by the Australian Attorney-General's Department]. https://ag.gov.au/system/files/2023-02/consumer-survey-on-online-copyright-infringement-2022_report.pdf

¹⁰⁶ In addition, due to changes to the survey's methodology, comparisons between 2022 and earlier survey results should be made with caution.

8

Research program



Office of the Chief Economist

IP Australia's Office of the Chief Economist (OCE) produces evidence and advice to inform IP policy and increase understanding about the IP system's economic role and impact.

The OCE's research program is organised into 5 thematic streams. These are (1) the economics of IP policy and practice, (2) the response of IP to economic shocks and cycles, (3) the challenges to IP posed by emerging and digital technologies, (4) the drivers of engagement (and under-engagement) with IP, and (5) the value and distributive impacts of IP and innovation. The OCE also oversees the annual production of this report.

A key focus for 2024 is to leverage new data and methods to evaluate patent quality. Earlier this year we published a new study using machine learning to measure patent scope (see chapter 2). As well as providing new insights to inform policy, this work opens new opportunities to benchmark Australian patents and guide examination practice.

Due for completion in 2024, a second study looks at the incentives for different stakeholders to accelerate or delay the patent process and the economic impacts. The study is a collaboration with IP Australia's Patents Examination Group to inform operational decision making, while also deepening understanding of different innovators' needs from the IP system. As next steps for this research it is investigating the effects of patent timing on innovation by applicants' competitors.

In Australia, as in several other countries, there is substantial debate about the optimal role for the patent system in spurring advancement in computing technology and inventions implemented by computers. The debate has gained traction as countries strive for technological leadership in new technology areas such as artificial intelligence and quantum computing. IP Australia has commissioned a study comparing the outcomes for such patents when filed across jurisdictions, to test whether Australian law is aligned with international standards.

These projects are on top of IP Australia's ongoing programs of research to better understand the IP system's role and impact across settings, from firm investment to competition, trade and inventor labour markets. For new publications and reports, visit IP Australia's website. To discuss opportunities for collaboration, email chiefeconomist@ipaaustralia.gov.au

Centre of Data Excellence

The Centre of Data Excellence (CODE) is the central point of contact for cross-cutting questions requiring IP data and analyses from multiple sources across IP Australia and globally. CODE provides a patent analytics service and a data 'front door' service for external stakeholders to answer data-related queries for different IP rights.

The Data Front Door and Analytics (DFDA) team, located within CODE, provides data products and services covering IP filings in Australia. The data is used by university researchers, government departments and agencies, attorneys, and it underpins this report, supporting research and policy decision making. Users can access these services by emailing data@ipaaustralia.gov.au.

In 2023, DFDA released a new open data product, IP RAPID, replacing Intellectual Property Government Open Data (IPGOD). Our open data products are available at data.gov.au.

IP RAPID is a publicly available dataset, refreshed weekly, that provides access to over 100 years of information from IP Australia on IP rights applications. Providing a 'one-stop shop' for administrative data allows users to research the classification of IP rights, linkages between Australian and international IP rights, and IP transfers between parties.

In 2024, DFDA is investigating opportunities to enhance data products and services, with a broad scope that includes geospatial data, customer and technology identification improvements, simplified public reporting datasets, and the

development of external data visualisation products. DFDA's commitment to realise as many of these advancements as possible underscores our dedication to providing greater access to IP Australia's data.

The Patent Analytics Hub, also located within CODE, uses global patent data to derive insights and business intelligence on innovation trends, market profiles, areas of competition and collaboration, and commercial opportunities in specific technology areas. This information is used by policy and decision-makers across government to make informed, data-driven decisions.

In 2023, the Patent Analytics Hub published patent analytics interactive visualisations on artificial intelligence (AI) technologies, a technology field in the Australian Government's Critical Technologies List. Analysing the global patent filing trends, innovators, countries of origin, filing destinations, commercial players and collaborators in each of the technology areas of AI computing, hardware and applications provides critical information for decision-makers as Australia strengthens and consolidates its national capability.

The Patent Analytics Hub's analysis of patent filings in quantum technologies, published in 2023, informed National Quantum Strategy prepared by the Department of Industry, Science and Resources (DISR). We also responded to requests from other federal departments and agencies with patent analytics on various technologies, including semiconductor technologies, battery technologies, medical monitoring and assistive technologies and RNA platforms and therapeutics.

During 2023, we continued to support the Office of the Chief Scientist (OCS) and the DISR Critical Technologies Hub in their work to ensure that Australia's critical technology policies are balanced, effective and evidence-based as part of the Australian Government's Action Plan for Critical Technologies. The Patent Analytics Hub, in collaboration with Defence Science and Technology Group and Commonwealth Scientific and Industrial Research Organisation, prepared research and

commercialisation analyses for seven critical technology fields of national interest.

In 2024, the Patent Analytics Hub will continue to support federal government agencies with patent analyses focussed on the technology areas of national interest. The agencies can request patent analytics services by emailing analytics@ipaaustralia.gov.au

IPAVentures

IPAVentures is IP Australia's innovation capability aimed at supporting the organisation's vision of creating a world-class IP system and promoting prosperity for Australians. IPAVentures applies a rigorous and disciplined methodology to research, ideate, prototype, validate and deliver innovative ventures.

In 2023 IPAVentures undertook an investigation into the potential ramifications of generative AI on the registered IP rights, creating a series of provocations and questions to stimulate discussion. This was followed by an exploration of how or if the IP system could be used to contribute to social priorities as well as contributing to economic growth.

In 2024 IPAVentures has undertaken an investigation into how trends and developments in open source and open innovation might have bearing on the IP rights system. This will soon be followed by exploratory work into the growth territory of 'Protect IP' to explore what, if any, opportunities there might be for supporting the strength of intellectual property rights.

Disclaimer: The results of the studies in this report are based, in part, on ABR data supplied by the Registrar to the ABS under A New Tax System (Australian Business Number) Act 1999 and tax data supplied by the Australian Taxation Office (ATO) to the ABS under the Taxation Administration Act 1953. These require that such data is only used to carry out functions of the ABS. No individual information collected under the Census and Statistics Act 1905 is provided to the Registrar or ATO for administrative or regulatory purposes. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes and is not related to the ability of the data to support the ABR or ATO's core operational requirements. Legislative requirements to ensure the privacy and secrecy of this data have been followed. Only people authorised under the ABS Act 1975 have viewed data about any firm when conducting these analyses. In accordance with the Census and Statistics Act 1905, results have been confidentialised to ensure that they are not likely to enable the identification of a particular person or organisation.





