

AI and Patents: Key Considerations (Australia)

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A Practice Note discussing key issues concerning patents and AI inventions, including machine learning, neural networks, and deep learning technology, and their applications. This Note discusses recent AI patenting trends, potential types of AI-related inventions, and key issues and best practices for obtaining patent protection for AI-related inventions in Australia. It also discusses AI inventorship, novelty, inventive step, and potential infringement considerations for patents and applications claiming AI-related technology.

AI innovation, including techniques for computation, speech and image recognition, predictive analysis, and their applications in different fields, has become increasingly common and consequential across many technologies. Through vast amounts of data and complex computer algorithms, computers are now able to better recognise objects and make predictions and play an important role in robotics, automated transportation, natural language processing, telecommunication routing, and other areas. For example, AI-related inventions provide tools that promise to improve the efficiency and effectiveness of medical research, and, ultimately, diagnoses and treatments.

Despite the critical importance of AI-related inventions to these and other technological advances, current Australian patent law is still developing, including in areas addressing the patentability of AI-related inventions. This uncertainty risks incentivizing potential patentees to keep certain techniques of important AI-related inventions secret rather than seek patent protection, reducing the open exchange of information that is fundamental to the Australian patent system.

This Note discusses key issues and best practices regarding patents and AI-related technology, including:

- Recent AI patenting trends in Australia.
- Key issues and best practices concerning AI-related technology and patents in Australia, including:
 - patent-eligible subject matter;
 - sufficiency, enablement, best method, claim clarity, and support;

- AI inventorship;
- novelty and inventive step; and
- potential infringement issues.

AI and Patents in Australia

In 2020, Australia was identified as a major international breeding ground for AI patents in a paper assessing countries at the forefront of AI development (Leusin M. E., Günther J, Jindra B, and Moehrle M. G., “Patenting Patterns in Artificial Intelligence: Identifying National and International Breeding Grounds” (2020) 62 World Patent Information 101988). Similarly, the [World Intellectual Property Organization](#) (WIPO) identified Australia in the top ten offices of second filings for AI patents. In particular, Australia is recognised among the top filing offices for natural language processing and probabilistic reasoning patents ([WIPO: WIPO Technology Trends 2019: Artificial Intelligence \(2019\)](#) (WIPO 2019)).

Australia’s AI industry is developing rapidly. According to the [Commonwealth Scientific and Industrial Research Organisation](#) (CSIRO), 396 Australian AI companies (that is, companies whose main business activity is developing and selling AI products and services) opened in the past ten years, and 204 opened in the past five years, with a 7.7% year-on-year growth over the past five years ([CSIRO: Australia’s artificial intelligence ecosystem: Catalysing an AI industry \(December 2023\)](#) (AI Ecosystem Report)).

Of the 544 Australian AI companies identified in 2023, the top three product and service offerings identified were:

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- Data services, including Data as a Service and web-delivered services (73%).
- Finished solutions, including ready-to-use AI applications (65%).
- Consulting services, including assisting with strategy and change processes (44%).

(AI Ecosystem Report at 13.)

An Australian study comparing patenting by AI-hiring and general-hiring firms found:

- On average, companies engaged in AI capacity building (hiring) are more likely to own patents than companies in the general sample.
- Of those companies that own patents, those engaged in AI capacity building own more patents on average than companies in the general sample.
- On average, companies focused on AI capacity building are more focused on patenting in Class G of the International Patent Classification scheme (Physics), including subclasses such as:
 - computing and calculating or counting (G06); and
 - information and communication technology adapted for specific application fields (G16).

(Drivers of AI Investment, IP Australia Economics Research Paper Series 13, July 2023 at 21 and 24.)

Overall, 379 AI patents were identified in Australia in 2022 (AI Ecosystem Report at 39). Of the 225 AI phrases identified by the [Organisation for Economic Co-operation and Development](#) (OECD) as relating to AI technologies, CSIRO identified that the terms “robot”, “image processing”, “machine learning”, “neural network”, and “learning model” were most frequently used in patent descriptions with an Australian inventor (AI Ecosystem Report at 40).

CSIRO’s study also found that Australia is publishing 1.6% of global publishing on AI topics and publishing research in its top three AI application domains at significantly faster rates than the global average, including:

- 4.8 times the global average in AI applications in livestock production.
- 3.8 times the global average in AI applications in medical laboratory technologies.
- 3.2 times the global average in AI applications in horticulture.

(AI Ecosystem Report at 31.)

Despite the above, AI patent applications with an Australian inventor represent only 0.24% of global filings, indicating that Australia is not commercializing its research at the same rate as other countries (AI Ecosystem Report at 41). This may be attributable in part to the uncertainty in Australia concerning AI subject matter eligibility (see AI Subject Matter Eligibility). This uncertainty may also contribute to Australia ranking among the top ten patent offices with the highest number of patent families subject to opposition (WIPO 2019 at 114).

AI Subject Matter Eligibility

To be patentable under section 18 of the Patents Act 1990 (Cth) (PA 1990), a claimed invention in a standard patent must be a manner of manufacture within the meaning of section 6 of the Statute of Monopolies. For information on the different types of patent available in Australia, see [Practice Note, Patents: Types of patent in Australia](#).

While sections 18(2) and 18(3) of the PA 1990 set out matters that are not patentable inventions, including human beings and the biological processes for their generation, claimed inventions that meet the “manner of manufacture” requirement are determined based on a “case-by-case” analysis (*Aristocrat Technologies Australia Pty Ltd v Commissioner of Patents* [2022] HCA 29 at [23]). This case-by-case approach must analyse the claimed invention as a matter of substance, rather than form (*D’Arcy v Myriad Genetics Inc* [2015] HCA 35 at [144]). In a widely cited case, the High Court of Australia set out some broad principles for the manner of manufacture requirement where an invention must result in an “artificially created state of affairs” of economic significance (*National Research Development Corp v Commissioner of Patents* [1959] HCA 67).

Although the PA 1990 does not exclude patenting of AI-related inventions or computerimplemented inventions, claims to a mere scheme, plan or discovery, or mere abstract ideas or information, are not directed to patent-eligible subject matter (*Aristocrat Technologies Australia Pty Ltd v Commissioner of Patents* [2022] HCA 29 at [21]).

In addition, the Federal Court of Australia has only upheld the patent eligibility of computerimplemented inventions in very few cases, such as:

- *International Business Machines Corporation v Commissioner of Patents* (1991) 33 FCR 218, which concerns a curve drawing algorithm.
- *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 51 FCR 260, which concerns use of an English language keyboard to generate Chinese characters.

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While the Federal Court of Australia has also found a feature game on an electronic gaming machine (*Aristocrat Technologies Australia Pty Ltd v Konami Australia Pty Ltd* [2015] FCA 735) and a method for awarding a jackpot on an electronic gaming machine (*Neurizon Pty Ltd v LTH Consulting and Marketing Services Pty Ltd* [2002] FCA 1547) eligible for patent protection, the Full Court of the Federal Court of Australia has refused to follow those decisions, including on the basis that they do not reflect more recent case law or did not address the question of computer-implemented inventions (*Commissioner of Patents v Aristocrat Technologies Australia Pty Ltd* [2021] FCAFC 202 at [66] and [80]).

Further, the Federal Court of Australia has found that mere business schemes or methods implemented by a computer are not patent-eligible subject matter, even where there is a presence of computing hardware or processing steps within the claimed method or system (see *Research Affiliates LLC v Commissioner of Patents* [2014] FCAFC 150; *Commissioner of Patents v RPL Central Pty Ltd* [2015] FCAFC 177; *Encompass Corporation Pty Ltd v InfoTrack Pty Ltd* (2019) FCAFC 161).

Over the past decade, the patent eligibility of computer-implemented inventions has been a critical and contentious issue in Australian patent law. For example, in 2020, the Full Court of the Federal Court of Australia applied the following test:

- First assess whether, properly construed, the substance of the claimed invention is a mere scheme or business method of the type that is not the proper subject matter of a granted patent.
- If so, determine whether the computer-implemented method is one where the invention lay in the computerisation of the method or whether the language of the claim involves “merely plugging an unpatentable scheme into a computer”. If the invention does not lay in the computerisation of the method, it is not patent-eligible subject matter.

(*Commissioner of Patents v Rokt Pte Ltd* [2020] FCAFC 86.)

Then, in 2021 the Full Court of the Federal Court of Australia proposed the following alternative approach:

- First assess whether the claimed invention is a computer-implemented invention.
- If so, assess whether the claimed invention can broadly be described as an advance in computer technology. If the claimed invention cannot broadly be described as an advance in computer technology, it is not patent-eligible subject matter.

(*Commissioner of Patents v Aristocrat Technologies Australia Pty Ltd* [2021] FCAFC 202.)

In 2022, the correctness of this test was appealed to the High Court of Appeal in *Aristocrat v Commissioner of Patents* (2022) 274 CLR 115. In a highly unusual outcome, when issuing its decision, the High Court evenly split three to three. Pursuant to section 23(2)(a) of the Judiciary Act 1903 (Cth), the appeal was interpreted as being dismissed by the split decision. While the court’s two sets of reasons reached different conclusions, both cast doubt on the correctness of the approach taken by the Full Court.

Following the split decision of the High Court, the approach of the Full Court in *Commissioner of Patents v Aristocrat Technologies Australia Pty Ltd* [2021] FCAFC 202 has been found to be binding on a single judge in the Federal Court of Australia and applied in *Motorola Solutions, Inc v Hytera Communications Corp Ltd (Liability)* [2022] FCA 1585 and *Aristocrat Technologies Australia Pty Limited v Commissioner of Patents (No 3)* [2024] FCA 212.

For more information on patent subject matter eligibility generally, see [Practice Note, Patents: Inventions which are patentable](#).

Australian Patent Office Guidance

The [Australian patent office](#) (IP Australia) has published a guide on its website, which confirms that:

- Computer software or a related product can only be patented if the substance of the invention has a technical character.
- Apps generally are not eligible for patent protection unless the substance of the invention is a technical improvement (for example, a messaging app that implements a new encryption for improving security).

(See [IP Australia: What computer-related inventions can be patented](#).)

For computer-implemented inventions, IP Australia’s guidance indicates that essentially the substance of the claimed invention determines patent eligibility so that:

- A technical innovation is eligible for patent protection.
- A business innovation is not eligible for patent protection.

The guide indicates that broadly the invention must be more than “what” the computer is doing, and instead be directed more to “how” the computer is actually operating to improve the computer itself. For example, an invention directed to a way for a computer to process data in a faster

way, or store data more efficiently than previously known, may be patentable.

IP Australia's [Patent Manual of Practice and Procedure](#) also sets out several considerations that may be relevant to whether a computer-implemented invention is in substance a manner of manufacture, citing *Aristocrat Technologies Australia Pty Limited* [2016] APO 49 at [35], including whether:

- The claimed invention's contribution is technical in nature.
- The claimed invention solves a technical problem within the computer or outside the computer.
- The claimed invention results in improvement in the functioning of the computer, irrespective of the data being processed.
- The application of the method produces a practical and useful result.
- The claimed invention can be broadly described as an improvement in or adaptation to computer technology.
- The method requires generic computer implementation.
- The computer is merely an intermediary or tool for performing the method while adding nothing of substance to the idea.
- There is ingenuity in the way in which the computer is utilised.
- The claimed invention involves steps that are foreign to the normal use of computers.
- The claimed invention lies in the generation, presentation, or arrangement of intellectual information.

(Section 5.6.8.6, [Patent Manual of Practice and Procedure](#).)

IP Australia has also:

- Undertaken a discovery process to better understand the potential impact of generative AI on the IP system and encourages interested stakeholders to consider a set of provocations and scenarios published on its [Generative AI and the IP System webpage](#).
- Published [Artificial intelligence patent analytics](#) outlining trends, innovators, filing destinations, commercial players, and collaborators across the global artificial intelligence sector.

Illustrative Case Law and Examples

Since the decision of the High Court in *Aristocrat v Commissioner of Patents* (2022) 274 CLR 115, the Federal Court of Australia has issued two decisions in respect of computer-implemented inventions:

- *Motorola Solutions, Inc v Hytera Communications Corp Ltd (Liability)* [2022] FCA 1585, in which the Federal Court of Australia concluded that two patents for a computer-implemented invention disclosed a manner of manufacture since they:
 - improved the way a particular class of computers scan frequencies;
 - are plainly an improvement; and
 - involve an advance in computer technology.(See *Motorola Solutions, Inc v Hytera Communications Corp Ltd* at [358], [581].)
- *Aristocrat Technologies Australia Pty Limited v Commissioner of Patents (No 3)* [2024] FCA 212, in which the Federal Court of Australia determined that:
 - the decision of the Full Court in *Commissioner of Patents v Aristocrat Technologies Australia Pty Ltd* [2021] FCAFC 202 was binding; and
 - four patents for electronic gaming machines did not disclose a manner of manufacture.

There has also been a significant rise in IP Australia decisions regarding the patent eligibility of computer-implemented inventions. Of 28 such decisions, only one resulted in the Delegate of the Commissioner of Patents (Delegate) finding that the patent application under review disclosed patent-eligible subject matter and, even then, the finding was limited to two of 19 claims, directed to the use of biometrics to reveal otherwise redacted information (see *Apple Inc.* [2022] APO 83). In that decision, the Delegate found that the patentable claims amounted to technical effects that elevated the invention to something more than a business innovation (see *Apple Inc.* [2022] APO 83 at [72]).

In relation to AI-related patents, Accenture Global Solutions Limited has challenged several of its rejected patent applications before IP Australia. In 2022 alone, the Delegate found that each of the following inventions was not directed to patent-eligible subject matter:

- A method for undertaking system or error analysis in computer-based systems used to carry out a process (*Accenture Global Solutions Limited* [2022] APO 18 (24 March 2022)).
- A scheme of generating program code based on metadata to analyse clinical data and create artefacts (*Accenture Global Solutions Limited* [2022] APO 19 (25 March 2022)).
- Methods of re-configuring a tour of a facility, based on certain events that may occur or user preferences

concerning the tour and which used different computer-based systems and sensors (*Accenture Global Solutions Limited* [2022] APO 22 (29 March 2022)).

- A method for managing accumulated value with block chain technology for insurance providers (*Accenture Global Solutions Limited* [2022] APO 23 (29 March 2022)).

PayPal's patent application for a system for generating more accurate recommendations using AI machine learning was also recently refused by IP Australia. PayPal sought to overturn the examiner's decision by seeking an internal review before a Delegate (*PayPal Inc.* [2023] APO 54). The Delegate found that the claimed invention addressed a business problem and was a business innovation rather than a technical innovation. There was no suggestion that the contribution made by the applicant was a new machine learning technique. While the specific combination defined in the claims was new, the Delegate noted a distinction between an invention allowing a computer to do something it could not do previously, which may be patentable, and an invention allowing a computer to do something it had not done previously, which may not be patentable (*PayPal Inc.* [2023] APO 54 at [49]-[53]). The Delegate commented:

"It is not apparent that there is anything 'foreign' or unconventional in the provision and extraction of relevant data from these models, or in the computing arrangement allowing for the implementation of the system/method. That is, while multiple machine learning models are used, they are simply put together such that the recommendation scores from the first and second models are the input to the ensemble model. While this may be a complicated arrangement for data processing, it remains to my mind simply a scheme for processing data, with no improvement or adaptation to computer function which might afford patentability. For completeness, I do not consider that an application of machine learning must inevitably lead to an invention that is technical in substance simply because of the requirement for technical elements. All inventions implemented on computers inherently require technical elements, but the outcomes in Rokt, Encompass, etc., clearly demonstrate that this is not sufficient to found patentability; something more is required."

(*PayPal Inc.* [2023] APO 54 at [51].)

IP Australia also refused *Paige.AI, Inc.*'s patent application for systems and methods for processing and classification of pathology images (*Paige.AI, Inc.* [2023] APO 44). The

patent application described several machine learning based tools to address or alleviate issues associated with categorising pathology images. Ultimately, the Delegate found the substance of the invention lay in implementing quality assurance of pathology samples with a machine learning model. This involved essentially generating abstract, intellectual information about a target image and utilising that information to replicate the existing administrative quality assurance scheme. As such, the substance of the claimed invention was merely using the computer to perform an administrative quality assurance process and was thus not eligible for patent protection (see *Paige.AI, Inc.* [2023] APO 44 at [92], [96]).

AI Subject Matter Eligibility Best Practices

To minimise any adverse subject matter eligibility determinations for AI-related inventions, it is critical to clearly demonstrate that the substance of the claimed invention:

- Has a technical character.
- Results in a technical improvement with a practical and useful result.
- Is more than generic computer implementation.

It is not enough to demonstrate that the claimed invention involves technical elements, even where the arrangement is complex.

Patent Disclosure Requirements

A complete standard patent specification and its claim or claims must comply with the requirements of section 40 of the PA 1990. The current form of section 40 of the PA 1990 was introduced by the *Intellectual Property Laws Amendment (Raising the Bar) Act 2012* (Cth) and applies to standard patent applications with an examination request filed on or after 15 April 2013.

The complete specification must:

- Disclose the invention in a manner which is sufficiently clear and complete for a person skilled in the relevant art to perform the invention (see Sufficiency and Level of Ordinary Skill in the Art).
- Disclose the best method known to the applicant of performing the invention (see Best Method).
- Include a claim or claims defining the invention that must:
 - be clear and succinct and supported by matter disclosed in the specification;

- not rely on references to descriptions, drawings, graphics, or photographs unless absolutely necessary to define the invention; and
- relate to only one invention.

(See Claim Clarity and Support.)

For more information on patent specification requirements generally, see [Practice Note, Patents: Internal requirements for validity](#).

Level of Ordinary Skill in the Art

The level of ordinary skill in the art is assessed by reference to the person skilled in the relevant art (PSA), sometimes otherwise referred to as the notional skilled addressee or non-inventive hypothetical skilled addressee.

The PSA is the hypothetical person (or team of persons) to whom the specification is addressed. The PSA is broadly assumed to be a skilled but non-inventive worker in the relevant field of the invention and likely to have a practical interest in the subject matter of the invention (see, for example, *Root Quality Pty Ltd v Root Control Technologies Pty Ltd* [2000] FCA 980 at [70]-[72]).

As the Federal Court of Australia set out in *Root Quality Pty Ltd v Root Control Technologies Pty Ltd* at [70], the PSA, or the judge adopting the mantle of the PSA, is relevant for a variety of purposes in patent law, including construction, novelty, and inventive step. As construction of the patent is required for assessing various disclosure requirements (for example, sufficiency), the PSA is critical to these enquiries.

For many enquiries, the PSA is treated as having the common general knowledge, which is the background knowledge and experience available to those in the relevant trade for making new products or improvements in old products (*Minnesota Mining & Manufacturing Co v Beiersdorf (Australia) Ltd* (1980) 144 CLR 253 at 292; *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd (No 2)* (2007) 235 CLR 173 at [55]). Knowledge is not common general knowledge unless it is sufficiently widely known or used to become generally accepted by PSAs (*ToolGen Incorporated v Fisher (No 2)* [2023] FCA 794 at [97]; *Gilead Sciences Pty Ltd v Idenix Pharmaceuticals LLC* [2016] FCA 169 at [210]-[214]).

Sufficiency

Section 40(2)(a) of the PA 1990 requires that a complete specification must disclose the invention in a manner which is clear enough and complete enough for the

invention to be performed by a PSA. This is referred to as the sufficiency requirement. This requirement must be met as of the filing date of the complete specification, which the applicant cannot supplement later to seek to remedy an insufficient disclosure (section 102(1), PA 1990).

Whilst post-filing date evidence may be used to establish the common general knowledge at the filing date (*BASF Corporation* [2019] APO 34), sufficiency is based on the complete specification's disclosure as filed. As such, the analysis is based on the PSA reading the disclosure in light of the common general knowledge but not using that knowledge to supplement or add to the disclosed features.

In considering the sufficiency requirement:

- The claims must be construed to determine the scope of the invention.
- The description must be evaluated through the eyes of the PSA who has the common general knowledge.

As part of the sufficiency inquiry:

- The specification must provide an enabling disclosure of "all the things" that fall within the scope of the claims, which ostensibly means that the invention can be performed across the full scope of the claims without undue experimentation (*TCT Group Pty Ltd v Polaris IP Pty Ltd* [2022] FCA 1493 at [154]; *Jusand Nominees Pty Ltd v Rattlejack Innovations Pty Ltd* [2022] FCA 540 at [376]-[377], citing *Cytec Industries Inc v Nalco Company* [2021] FCA 970 at [143]-[144]; see Enablement).
- It must be plausible that the claimed invention can be worked across the full scope of the invention (see Plausibility).

For AI-related inventions, the Australian courts have not yet considered whether, for example, training data sets must be disclosed to meet the sufficiency requirement. Australia may first look to other jurisdictions in this regard. For example, the [European Patent Office](#) (EPO) has recently updated its Guidelines for Examination in the EPO (EPC Guidelines) (G-II-3.3.1 Artificial Intelligence and machine learning) to note (in relation to inventive step) that:

"The technical effect that a machine learning algorithm achieves may be readily apparent or established by explanations, mathematical proof, experimental data or the like. While mere allegations are not enough, comprehensive proof is not required either. If the technical effect is dependent on particular characteristics of the training dataset used, those characteristics that are required to reproduce the technical effect must be disclosed unless the skilled person

can determine them without undue burden using common general knowledge. However, in general, there is no need to disclose the specific training dataset itself.”

The EPC Guidelines also state that:

“Another example [of insufficient disclosure] can be found in the field of artificial intelligence if the mathematical methods and the training datasets are disclosed in insufficient detail to reproduce the technical effect over the whole range claimed.”

Enablement

As set out above, the sufficiency requirement includes consideration of whether the specification provides an enabling disclosure of all the things that fall within the scope of the claims (see Sufficiency). There is no separate or additional enablement requirement.

The critical question is whether the non-inventive PSA could perform the invention across the full scope of the claims without undue experimentation and without needing inventive skill or ingenuity (*Jusand Nominees Pty Ltd v Rattlejack Innovations Pty Ltd* [2022] FCA 540 at [460]). The *Explanatory Memorandum of the Intellectual Property Laws Amendment (Raising the Bar) Bill 2011* similarly says that sufficient information must be provided to enable the whole width of the claimed invention to be performed by the PSA without undue burden, or the need for further invention.

As AI-related inventions often produce less predictable results than traditional computer-related inventions, AI may present unique challenges in providing an enabling disclosure of all things that fall within the scope of the claims. Australian courts are yet to consider these unique issues. Considering the EPC Guidelines, it appears critical to ensure that all elements required to produce the technical effect over the whole range claimed are disclosed in sufficient detail.

Plausibility

While the question of plausibility (that is, whether the claimed invention is achievable) was raised in *Cytec Industries Inc v Nalco Company*, the appropriate test has not been settled in Australia. The standard adopted by IP Australia is that:

- Plausibility is a technical consideration and assertions must be based on a reasonably credible technical or scientific basis derivable from the specification as understood by the PSA (*Gary B Cox v MacroGenics, Inc.* [2019] APO 13 at [61]).

- The specification’s disclosure, supplemented by common general knowledge, must make the effect or purpose plausible. A mere speculative assertion is not sufficient (*Gliknik Inc v CSL Behring Lengnau AG* [2020] APO 46 at [81]).

Plausibility arises under the sufficiency requirement and is not a separate or additional requirement.

As AI-related inventions are rapidly evolving, AI may present challenges in assessing the scope of what is reasonably achievable. It may be important to ensure that the specification discloses a clear basis for achieving the claimed invention.

Best Method

Section 40(2)(aa) of the PA 1990 requires that a complete specification disclose the best method known to the applicant of performing the invention. This is referred to as the best method requirement and is additional to the sufficiency requirement (see *Les Laboratoires Servier v Apotex Pty Ltd* [2016] FCAFC 27 at [109]).

In determining whether the best method requirement is met, the following must be considered:

- The invention for which a best method must be provided.
- The method described in the specification.
- Whether the applicant was aware of a better method.

(*Kineta, Inc* [2017] APO 45.)

The specification must include enough information about the best method of carrying out the invention known to the applicant at the filing date to enable the PSA to carry out that method (see, for example, *Pfizer Overseas Pharmaceuticals v Eli Lilly & Co* [2005] FCAFC 224 at [379]). Where a patent application is a divisional application, the relevant date is the filing of the divisional application.

To establish invalidity based on the lack of best method, the adverse party must establish that, as at the filing date of the complete specification, the patentee was aware of a specific “best method” of performing the invention that was not included in the specification (*PhotoCure ASA v Queen’s University at Kingston* [2005] FCA 344 at [116] citing *Rescare Ltd v Anaesthetic Supplies Pty Ltd* (1992) 111 ALR 205 at 220-222).

In the context of best method, the “invention” is not as defined by the claims but rather the nature of the invention as described in the specification as a whole

(*Sandvik Intellectual Property AB v Quarry Mining & Construction Equipment Pty Ltd* [2017] FCAFC 138 at [115] citing *Les Laboratoires Servier v Apotex Pty Ltd* [2016] FCAFC 27 at [124]).

For example, in *Alistair Mann v Electronic Pain Assessment Technologies (epat) Pty Ltd* [2023] APO 1, an opposition succeeded on the ground of lack of best method. In this case, one of the inventors (Dr. Hughes) described in evidence that he and his coinventors conceptualized and designed the invention described in the patent application as a point-of-care pain assessment tool in the form of a mobile device incorporating AI and smart automation, including automated facial recognition. From Dr. Hughes' evidence, the Delegate concluded that the applicant (and inventors) had, before the priority date of the application, possession of a valid prototype app which contained checklists for inputting indicators and knew that mobile camera devices should be moved into the plane of the face. The Delegate found that given a validated prototype existed, the specific facial features identified by the prototype and other matters, including moving camera devices into the plane of the face, should have been disclosed, and the best method requirement was not satisfied.

Claim Clarity

Section 40(3) of the PA 1990 requires that the claim or claims must be clear and succinct. This is referred to as the clarity requirement.

Broadly, a claim lacks clarity if a PSA cannot ascertain the precise scope of the claims. A claim is clear if there is no ambiguity or any ambiguity can be resolved by properly construing the claim. However, the claim lacks clarity if no reasonably certain construction can be given to it (*Meat & Livestock Australia Limited v Cargill, Inc* [2018] FCA 51 at [932]-[934]). The question is whether, read in its context, the claim is so ambiguous or susceptible of more than one meaning that the PSA is unable to resolve these competing constructions (*Henriksen v Tallon Ltd* [1965] RPC 434).

For example, in *CQMS Pty Ltd v Motion Metrics International Corp* [2023] APO 2, the opponent submitted that the claims lack clarity as to whether certain steps were linked or carried out via an artificial neural network. The Delegate found that the claims did not lack clarity in that they did not define how the relevant analysis was being performed because it could be achieved either by conventional image analysis as would be known to the PSA or further processing in a neural network. As such,

the claims were not limited to determination by neural network, and while broad, they were not ambiguous.

Support

Section 40(3) of the PA 1990 also requires that the claim or claims be supported by matter disclosed in the specification. In many cases, the sufficiency and support requirements tend to be the same and may often be viewed as two sides of the same coin, but nevertheless can differ (*Jusand Nominees Pty Ltd v Rattlejack Innovations Pty Ltd* [2023] FCAFC 178 at [155] citing *Merck Sharp & Dohme Corporation v Wyeth LLC (No 3)* [2020] FCA 1477 at [543]; *Illumina Cambridge Ltd v Latvia MGI Tech SIA* [2021] EWHC 57 (Pat)).

To determine whether a claim or claims are supported by the description, it is necessary to:

- Consider the invention that is claimed.
- Examine the description in the specification to ascertain the technical contribution to the art.
- Compare the two to make sure the technical contribution entitled the patentee to a monopoly extending to the scope of the claims (*Jusand Nominees Pty Ltd v Rattlejack Innovations Pty Ltd* [2022] FCA 540 at [483]; *Merck Sharpe & Dohme Corporation v Wyeth LLC (No 3)* [2020] FCA 1477 at [546]-[547]).

Broadly, for a claim to be supported, it must correspond to the technical contribution to the art. For example, a claim may impermissibly exceed the technical contribution to the art if it covers ways of achieving the desired result which owe nothing to the patent or any principle that it discloses (*Jusand Nominees Pty Ltd v Rattlejack Innovations Pty Ltd* [2022] FCA 540 at [482]).

For example, in *CQMS Pty Ltd v Motion Metrics International Corp* [2023] APO 2, the Delegate considered that the invention claimed was directed to a stepwise method for locating a wear part and determining its condition, including using a neural network to determine if the image of an operating implement with wear members meets the matching criterion for a wear part being present. The technical contribution to the art was the combination of preliminary steps to reduce the portion of the image that must be analysed by the neural network, therefore making it possible to detect and locate the wear part(s) in the image of the operating implement using the neural network. Comparing the claims and the technical contribution to the art, the Delegate was satisfied that the claimed invention was supported.

AI Patent Disclosure and Claim Drafting Best Practices

To minimise adverse disclosure requirement determinations for AI-related inventions, the specification should:

- Focus on the disclosure of the components that are key to the invention.
- Disclose how the computer-implemented features of the invention operate in the context of the invention.
- Disclose, for example, the structure of any AI models used in the invention.
- Disclose the information about any training models the PSA would need to produce the invention (for example, how the model is trained).
- Precisely describe specific training datasets and attributes of features like neural networks, including relevant algorithms.
- Ensure the best method known, including by references to any testing and trials, has been disclosed.

Inventorship

Section 15(1) of the PA 1990 provides that a patent for an invention may only be granted to a person who, among other things, is the inventor.

In *Polwood v Foxworth* (2008) 165 FCR 527, the Full Court of the Federal Court of Australia set out the following two-part test for determining inventorship:

- Determine the invention or inventive concept from the whole of the specification, including the claims. While there may only be one invention, there may be more than one inventive concept.
- Determine the person or persons who materially contributed to the inventive concept or concepts. If the final concept of the invention would not have come about without a particular person's involvement, then that person has entitlement to the invention.

Under current Australian patent law, an AI system cannot be an inventor.

In *Thaler* [2021] APO 5, an application for an invention autonomously generated by AI listed the AI system (DABUS) as the inventor. The Deputy Commissioner of Patents held that the application did not meet the formal requirements under regulation 3.2C(2)(aa) of the *Patent Regulations 1991* (Cth) and section 15(1) of the PA 1990, as it did not list a human inventor.

On appeal to the Federal Court of Australia in *Thaler v Commissioner of Patents* (2021) FCA 879, the Deputy Commissioner of Patents' decision was overturned by Beach J, who found that a named inventor can be a non-human, including an AI system or device. For more information on this decision, see [Legal Update, World first: Australia says "yes" to AI inventors](#).

The Commissioner of Patents appealed the decision of Beach J to the Full Court of the Federal Court of Australia. In *Commissioner of Patents v Thaler* [2022] FCAFC 62, the Full Court held that an inventor named on a patent application must be a natural person and such an inventor must be identified for any person to be entitled to a grant of a patent. For more information on this decision, see [Legal Update, The Full Court of the Federal Court of Australia says "no" to AI inventors](#).

The High Court subsequently dismissed an application for special leave to appeal the decision of the Full Court of the Federal Court of Australia on the basis that the Thaler case was not the appropriate vehicle to consider the questions of principle sought to be agitated (*Thaler v Commissioner of Patents* [2022] HCATrans 199).

As the parties to the Thaler litigation agreed that the inventor of the relevant invention was DABUS, no Australian court has addressed the question of how to determine if AI is the true inventor of AI-generated inventions. In contemplating what factual matters the court would need to address to answer this question had it been raised, Edelman J and senior counsel for the Commissioner identified that it should consider, for example, which entity:

- Created the source code for the AI.
- Was responsible for maintaining the AI system.
- Was responsible for programming the computer.
- Was responsible for inputting instructions into the system.

For more information on inventorship generally, see [Practice Note, Patents: Inventorship](#).

Novelty and Inventive Step

In addition to the manner of manufacture requirements (see AI Subject Matter Eligibility), to be patentable, a claimed invention, when compared with the prior art, must both:

- Be novel.
- Involve an inventive step.

(Section 18, PA 1990.)

Novelty

The test for determining novelty has broadly been expressed in two ways, under:

- *Meyers Taylor Pty Ltd v Vicarr Industries Ltd* [1977] HCA 19, the basic test for anticipation or want of novelty is the same as that for infringement so that an alleged anticipatory prior art would, if the patent were valid, constitute an infringement.
- *Nicaró Holdings Pty Ltd v Martin Engineering Co* (1990) 16 IPR 545, where the alleged anticipatory prior art discloses all the essential integers of the relevant claim, the claim lacks novelty.

A prior disclosure must supply sufficient information to enable a PSA to produce the invention claimed, based on construction of the disclosure in light of the common general knowledge, and carrying out of routine trial and error, but without further experimentation (*H Lundbeck A/S v Alphapharm Pty Ltd* (2009) 177 FCR 151 at [69], [173]).

If following instructions in a prior disclosure would inevitably lead to the invention as claimed, the claimed invention may also lack novelty (*Novosymes A/S v Danisco A/S* [2013] FCAFC 6).

The above tests apply in respect of AI-related inventions as in traditional patent cases. For example, in *ACN 004 552 363 Pty Ltd v ICM Airport Technics Australia Pty Ltd* [2022] APO 68, the claimed invention was an airport luggage processing station, including the use of sensors (cameras) to assess the dimensions of a given piece of luggage (defined as a “tub”) on a scale or belt. Importantly, the cameras, used in conjunction with a controller capable of 3D pattern recognition, would form a “virtual box” around the piece of luggage to detect any intrusions on the luggage scale. The Delegate conducted an orthodox review of the disclosures relied on by the opponent, ultimately finding that none of them disclosed the feature of capturing an image of a tub and comparing it to a database of tubs.

In *Alistair Mann v Electronic Pain Assessment Technologies (epat) Pty Ltd* [2023] APO 1, the claimed invention was for a multi-factorial automated assessment of pain, which in some implementations used detectors, processors, and software programs, including those utilising machine learning. The Delegate conducted an orthodox review to determine whether the invention was disclosed in a single piece of prior art, relying on the “reverse infringement” test set out in *Meyers Taylor Pty Ltd v Vicarr Industries Ltd* [1977] HCA 19. In comparing the disclosure of the prior art device and the patent application, the Delegate noted

that an aspect of the algorithm used to undertake the pain assessment was not contained in the prior art disclosure, and so the Australian patent examiner did not establish a lack of novelty.

For more information on novelty generally, see [Practice Note, Patents: Novelty](#).

Inventive Step

An invention involves an inventive step if, when compared with the prior art, the invention would not have been obvious to the PSA in light of the common general knowledge, either separately or combined with the prior art, as it existed before the filing or earlier priority date (effective filing date) of the relevant claim (section 7(2), PA 1990).

The relevant question is whether the PSA at the relevant date in all the circumstances would be directly led as a matter of course to try the claimed invention in the expectation that it might well produce the desired result (*Aktiebolaget Hassle v Alphapharm Pty Ltd* (2002) 212 CLR 411 at [53]). The starting point for this analysis comes from the common general knowledge or prior art information (*AstraZeneca AB v Apotex Pty Ltd* [2014] FCAFC 99 at [203]).

For example, in *Intuit Inc.* [2023] APO 48, the invention was an algorithmic model utilising machine learning to categorise large numbers of transactions. The Delegate found that a “substantial portion” of the disclosed method was disclosed in a piece of prior art, and a PSA, equipped with the relevant standard machine learning knowledge, would be directly led to the solution disclosed in the patent application.

Based on trends in the EPO, it appears that AI-related inventions may be held to lack an inventive step where the invention merely presents a solution to a known problem using AI. For example, in T 1510/10, the EPO Boards of Appeal found that “no inventive step can derive just from the use of machine learning”.

For more information on inventive step generally, see [Practice Note, Patents: Inventive step](#).

AI Patent Infringement

Section 13 of the PA 1990 provides that a patent gives the patentee exclusive rights, during the term of the patent, to exploit the invention and to authorise another person to exploit the invention.

As set out in schedule 1 of the PA 1990, exploit in relation to an invention includes:

- If the invention is a product, to:
 - make, hire, sell, or otherwise dispose of the product;
 - offer to make, sell, hire, or otherwise dispose of it;
 - use or import it; or
 - keep it for the purpose of doing any of those things.
- If the invention is a method or process, to:
 - use the method or process; or
 - do any act mentioned in respect of a product resulting from such use.

In determining patent infringement, the court must determine:

- The invention as claimed.
- Whether the actions of the infringer fall within the scope of “exploit” in relation to the invention, or authorisation of exploitation of the invention.

Broadly, the court will construe the allegedly infringed claims and determine whether each essential integer of at least one claim is taken by the infringer.

As patent infringement is a statutory tort, a person who has contributed to the infringement may also be found liable for the infringement as a joint tortfeasor.

While claim construction is ultimately a matter for the court, the court may be assisted by expert evidence. As AI-related patents and the implementation of AI systems are not as well understood as other types of patents, expert evidence will be critical in any infringement action.

The Australian courts have not yet considered whether:

- An AI system can infringe a patent.
- A natural person can be liable for patent infringement carried out by an AI system.
- A natural person can be held to have authorised patent infringement carried out by an AI system.
- A natural person can be held to be a joint tortfeasor for patent infringement with an AI system.

For more information on patent infringement generally, see [Practice Note, Patent infringement](#).

Other IP Protection for AI Inventions

Alternative avenues of IP protection available for AI inventions include:

- **Copyright protection for software.** Under the Copyright Act 1968 (Cth), literary work includes

a computer program or compilation of computer programs. Computer program means a set of statements or instructions to be used directly or indirectly in a computer to bring about a certain result. As such, original source code underlying AI systems may be protected by copyright in Australia. Copyright is automatic and does not require registration in Australia. Generally, the creator(s) of an AI system is the author(s) of the source code for that software and retain copyright in it.

In contrast, as a work is only protected by copyright where a human author contributes “independent intellectual effort”, AI-generated works are unlikely to attract copyright protection in Australia.

For more information on AI and copyrights, see [Practice Note, AI and copyright](#).

- **Confidential information.** Software (including AI systems) can also be protected as confidential information if it retains the necessary quality of confidence and is received by persons in circumstances implying an obligation of confidence. Protection of confidential information may arise under contract or in equity.

Practical Considerations

The key issue with AI patents in Australia is the significant question mark over patent subject matter eligibility. Due to the state of the law on patent subject matter eligibility (see AI Patent Subject Matter Eligibility), when applying for, seeking to enforce, or considering freedom to operate in this space, patent counsel must consider whether in fact the patents in issue will ultimately be valid.

Parties seeking to protect inventions must be informed of the issues and factor them into strategic decisions regarding patent application filing. Alternative forms of protection should be part of the consideration.

Before asserting or seeking to enforce patents, clients should obtain clear advice on eligibility, as inevitably it will be raised as a defence. In contrast, clients seeking to develop and exploit technologies in the AI space can proceed with greater confidence that freedom to operate issues may arise more than in other technology fields. Nevertheless, as the law is constantly evolving and there are likely to be significant developments in the next few years, patent advice should be sought and factored into investment decisions and planning.

Given the uncertainty surrounding the validity of AI patents in Australia, when negotiating transactions involving AI patents or applications and acting for

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a licensee, it is important to ensure that the royalty provisions are closely tied to “valid claims” and royalties should only be payable if the patents proceed to grant and are not invalidated. Similarly, from the licensee’s perspective, a patent license for an AI-related patent should include appropriate termination rights for failure of a pending patent application to proceed to grant or following a determination that the granted patent is

invalid because, for example, it does not cover patent-eligible subject matter.

Conversely, when acting for a licensor, counsel should ensure the royalty provisions are tied not just to patents but also to corresponding know-how and copyright in software, so that issues with patent validity do not compromise the royalty stream or allow for the licence to be terminated.

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