



## RECOGNITION OF ARTIFICIAL INTELLIGENCE AS AN INVENTOR: LEGAL APPROACHES IN AUSTRALIA AND SOUTH AFRICA

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**Relevance:** *The recognition of artificial intelligence (AI) as an inventor in patent law is a pressing issue with significant legal, technological, and social implications. As AI increasingly participates in inventive processes, traditional patent frameworks face unprecedented challenges. Addressing this issue is crucial for ensuring fair allocation of intellectual property rights, fostering innovation, and maintaining legal certainty in rapidly evolving technological environments.*

**Abstract:** *This article explores the legal recognition of AI as an inventor in Australia and South Africa. It examines relevant legislation, landmark cases, and procedural approaches to assess whether current frameworks accommodate AI-generated inventions. Using a comparative legal analysis methodology, this study identifies gaps in traditional patent systems and highlights the implications of recognising AI as an inventor. Key findings indicate that while Australia has engaged in detailed judicial deliberation but maintains human-only inventorship, South Africa has formally recognised AI as an inventor under procedural registration. The article concludes with policy recommendations to harmonise innovation incentives with legal accountability.*


**Keywords:** *Artificial intelligence, patent law, inventorship, Australia, South Africa, DABUS, Thaler, innovation, legal recognition, intellectual property.*

**Research Objective:** *To analyze how inventorship is defined and applied in the context of AI-generated inventions in Australia and South Africa. It also aims to identify gaps and inconsistencies in current patent systems and suggest ways to harmonize legislation.*

### **Methods:**

This study employs a comparative legal analysis methodology, including:

- Legislation analysis: Examination of the Patents Act 1990 (Australia) and Patents Act 57 of 1978 (South Africa).
- Case law review: Analysis of Thaler v Commissioner of Patents in Australia and the DABUS registration in South Africa.
- Procedural review: Comparison of formal registration and substantive examination regimes.
- Scholarly literature review: Synthesis of academic articles, commentaries, and research on AI inventorship.



This methodology allows identification of trends, gaps, and policy recommendations for adapting patent law to AI-generated inventions.

### **Main Results**

- In Australia, an inventor must be a human, despite AI's ability to create patentable inventions.
- In South Africa, AI is recognized as an inventor under formal registration procedures.
- Judicial practice in Australia shows openness to discussion, but reforms are deferred.
- Contrasting approaches reveal gaps in international harmonization and inconsistencies in AI recognition.
- Formal registration in South Africa may serve as a transitional model before substantive law reforms.

### **1. Introduction**


For centuries, technological advancement has shaped societal expectations, legal frameworks, and economic development. From early industrial inventions to contemporary digital technologies, legal systems have continually adapted to new forms of innovation. In the 21st century, AI represents a paradigm shift: autonomous systems are increasingly capable of generating inventions without direct human intervention. This development challenges established concepts of inventorship, which traditionally assume that the inventor must be a natural person.

Historically, AI has been used primarily as a tool to support human inventors. However, recent developments demonstrate that AI can autonomously generate patentable inventions, raising questions about whether it can or should be formally recognised as an inventor. Countries such as Australia and South Africa have taken divergent approaches to this question, illustrating the tension between legal tradition, technological progress, and policy priorities.

In Australia, the landmark case of *Thaler v Commissioner of Patents* highlighted the potential for AI to be recognised as an inventor, although appellate courts ultimately maintained the human-only requirement. South Africa, on the other hand, has formally recognised AI as an inventor under its patent registration system, creating a precedent for the legal recognition of non-human inventors. This divergence provides a practical lens to assess how different legal frameworks respond to technological innovation.

The discussion of AI inventorship also raises broader questions about fairness and accountability in intellectual property. If AI can perform tasks traditionally reserved for human inventors, ignoring its contributions could lead to unjust outcomes, allowing parties to claim AI-generated inventions as solely human achievements. Addressing this requires a careful balance between innovation incentives, legal certainty, and public interest.

Finally, this study aims to analyse these contrasting approaches to AI inventorship in Australia and South Africa, to identify gaps in current legislation, and to propose policy



solutions that could reconcile technological progress with established legal principles. Such analysis is essential as AI continues to play a growing role in scientific discovery and commercial innovation.

## 2. Research Objectives

The objectives of this study are to:

- Examine the legal frameworks governing inventorship in Australia and South Africa.
- Analyse landmark cases related to AI-generated inventions, including the Thaler/DABUS applications.
- Compare procedural and substantive differences in recognising AI as an inventor.
- Identify gaps in current patent systems and propose policy recommendations for harmonisation.

## 3. Methodology


This study uses a **comparative legal analysis** methodology, including:

- **Statutory and Regulatory Analysis:** Examination of the Australian *Patents Act 1990* and South African *Patents Act 57 of 1978*.
- **Case Law Review:** Detailed analysis of *Thaler v Commissioner of Patents* (Australia) and the DABUS patent registration in South Africa.
- **Procedural Analysis:** Review of registration versus substantive examination regimes in both jurisdictions.
- **Scholarly Literature Review:** Synthesis of academic commentary on AI inventorship, policy debates, and international implications.

This approach allows for the identification of trends, legislative gaps, and the potential impact of recognising AI as an inventor in patent law.

## 4. Comparative Legal Analysis

### 4.1 Australia




Australia has actively engaged with the question of AI inventorship through the Thaler case. The **Patents Act 1990** governs patents and defines the inventor as the “actual deviser of the invention”, without expressly limiting this to a natural person. At first instance, the Federal Court (Justice Beach) ruled that AI could be recognised as an inventor, citing the absence of statutory prohibition and the need for law to adapt to technological advancements (*Thaler v Commissioner of Patents [2021] FCA 879*).

However, the Full Court of the Federal Court overturned this decision, asserting that only humans can hold legal rights necessary for patent ownership and enforcement (*Commissioner of Patents v Thaler [2022] FCAFC 62*). This illustrates a tension between **technological capability** and **legal personality**, leaving AI inventorship within the remit of future legislative reform rather than judicial recognition.

#### Key points:

- AI contributions can produce patentable inventions but lack legal capacity.

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- Australian courts recognise the potential for AI-generated inventions but adhere to human-only inventorship.
  - Legislative flexibility exists but has not yet been exercised to formally recognise AI inventors.

#### 4.2 South Africa

South Africa presents a contrasting approach. The **Patents Act 57 of 1978** allows applications to be filed by “the inventor or any other person”, providing interpretive flexibility. In 2021, South Africa granted a patent naming the AI system DABUS as the inventor, with Dr Stephen Thaler as its creator. This patent was processed under a **formal registration system**, which does not examine novelty or inventive step, unlike the substantive examination systems in Australia, the UK, and the US.

This decision demonstrates a pragmatic approach to AI inventorship, enabling innovation while circumventing legal constraints associated with AI lacking legal personality. It also positions South Africa as a potential leader in recognising AI contributions in patent law.

#### Key points:


- AI can be named as an inventor under procedural registration.
- Legal flexibility allows formal recognition without extensive legislative reform.
- The approach promotes technological leadership and attracts innovation investment.

#### 5. Key Findings

1. Recognition of AI as an inventor is limited by **legal personality**, not technological ability.
2. **Procedural registration systems** can enable formal recognition of AI inventorship without altering substantive patent law.
3. **Judicial approaches differ**: Australia’s courts engage with AI inventorship but ultimately defer to legislation, while South Africa grants recognition within existing procedural rules.
4. **International harmonisation is lacking**, leading to potential conflicts in patent protection for AI-generated inventions.
5. AI inventorship raises broader issues of **accountability, ownership, and intellectual property rights**, requiring coordinated legislative and policy responses.
6. Early judicial recognition, as in Australia’s first-instance ruling, can influence future legislative reform even if overturned on appeal.

#### 6. Conclusions and Policy Recommendations

The recognition of AI as an inventor is increasingly relevant in modern patent law. Australia’s conservative approach and South Africa’s pragmatic registration-based recognition illustrate divergent strategies in addressing AI contributions. Legislative



adaptation, rather than judicial intervention alone, is essential for legal certainty and innovation promotion.

**Policy Recommendations:**

- Introduce statutory recognition of AI inventorship, potentially as **co-inventor alongside humans**.
- Establish a separate category of **AI-generated patents** with tailored criteria for inventive step and novelty.
- Harmonise procedural and substantive examination standards internationally to reduce cross-border conflicts.
- Clarify legal accountability and assignment of rights for AI-generated inventions.
- Encourage research and consultation on economic and technological implications before legislative reform.
- Consider transitional measures such as **formal registration recognition** (as in South Africa) while substantive reforms are debated.

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