AI AS A TOOL, NOT AN INVENTOR: THE DABUS CASE AND THE LEGAL LIMITS OF AUTONOMOUS INVENTORSHIP

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Abstract. The rapid development of artificial intelligence has challenged one of the fundamental assumptions of patent law: the idea that inventorship is inherently linked to human intellectual activity. As AI systems become increasingly capable of generating technical solutions, questions arise regarding the adequacy of traditional patent concepts in the context of AI-generated innovation.

This paper examines the DABUS case as the first global legal attempt to test the possibility of autonomous inventorship. Through a comparative analysis of decisions adopted by patent offices and courts in the United States, the United Kingdom, the European Patent Office, Australia, Germany, South Africa, and several other jurisdictions, the study identifies the principal legal approaches developed in response to AI-generated inventions.

The analysis demonstrates that despite differences in legal reasoning and procedural frameworks, most jurisdictions continue to associate inventorship with human intellect, intention, and legal responsibility. Three principal regulatory models can be identified: strict human inventorship, human-attribution approaches, and procedural acceptance approaches. Although these models differ in their treatment of AI-generated inventions, none recognizes artificial intelligence as an autonomous inventor.

The paper argues that the significance of DABUS extends beyond the formal question of whether an AI system may be designated as an inventor. The case exposed a deeper tension between rapidly evolving technological capabilities and legal concepts developed within a human-centered framework of innovation. In this sense, DABUS case should be understood not merely as a patent dispute, but as a legal test of whether the traditional doctrine of inventorship can withstand the challenges posed by AI-generated innovation.

Keywords: inventorship, patent law, artificial intelligence, DABUS, AI-generated inventions, intellectual property.

JEL Classification: K11, K24, O34, O38

INTRODUCTION

For centuries, intellectual property law has been built around the assumption that creativity and invention are inherently human activities. The legal concept of inventorship emerged in a technological environment where the inventor was naturally understood as a human being capable of intellectual effort, intention, and creative judgment. As a result, patent law evolved around a fundamentally anthropocentric model in which inventorship, ownership, and legal responsibility were inseparable from human agency.

Recent advances in artificial intelligence have challenged this traditional paradigm. Contemporary AI systems are increasingly capable of generating technical solutions, optimizing engineering designs, discovering new compounds, and producing innovative outputs with varying degrees of human involvement. While these developments have created significant opportunities for technological progress, they have also generated uncertainty regarding the applicability of existing intellectual property frameworks to AI-generated innovation.

The legal debate surrounding artificial intelligence is no longer limited to questions of technological capability. Instead, attention has shifted toward the legal consequences of algorithmically generated outputs and the adequacy of existing regulatory mechanisms. Within patent law, one of the most controversial issues concerns inventorship: if an invention is generated by an artificial intelligence system, who should be recognized as the inventor?

This question became the subject of global attention through the DABUS case. Developed by Dr. Stephen Thaler, DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) was presented as an artificial intelligence system capable of generating patentable inventions without direct human conception of the inventive idea (*Ryan Abbott, 2020*). Patent applications filed in multiple jurisdictions identified DABUS itself as the inventor, thereby challenging one of the most deeply rooted assumptions of patent law (*Ryan Abbott, 2020*).

The significance of the DABUS litigation extends beyond the fate of a particular patent application. The case became the first large-scale legal experiment testing whether existing patent systems are capable of accommodating AI-generated innovation without fundamentally altering the traditional concept of inventorship *(Wenting Cheng, 2024).* Responses from patent offices and courts around the world revealed significant differences in legal reasoning while simultaneously demonstrating a remarkable consistency in preserving the human-centered foundations of patent law.

Against this background, the present paper examines the DABUS case as a legal test of autonomous inventorship. Through a comparative analysis of major jurisdictions, including the United States, the United Kingdom, the European Patent Office, Germany, Australia, and South Africa, the study seeks to identify the principal legal approaches that have emerged in response to AI-generated inventions and to evaluate their implications for the future development of patent law *(Zahra Shakeri, Zohreh Gheisari Atrabi, 2024).*

The paper argues that the importance of DABUS lies not in the possibility of recognizing artificial intelligence as an inventor, but in exposing the legal limits of existing inventorship doctrine in the era of AI-assisted innovation.

MATERIALS AND METHODS

This study employs a comparative legal research methodology to examine the legal treatment of AI-generated inventions through the lens of the DABUS litigation. The research is based on the analysis of judicial decisions, patent office determinations, international patent procedures, and academic literature addressing the relationship between artificial intelligence and patent law.

The primary sources include decisions and official positions adopted by the United States Patent and Trademark Office (USPTO), the United Kingdom Intellectual Property Office (UKIPO), the European Patent Office (EPO), the Federal Court of Australia, the German Federal Court of Justice (Bundesgerichtshof), and other national authorities involved in the examination of DABUS-related patent applications. The study further considers international developments within the framework of the World Intellectual Property Organization (WIPO) and the Patent Cooperation Treaty (PCT) system. Relevant scholarly literature concerning inventorship, artificial intelligence, patentability, and intellectual property theory is also reviewed.

The research combines doctrinal legal analysis with comparative legal methodology. The doctrinal approach is used to examine statutory provisions and judicial reasoning regarding inventorship requirements. The comparative approach allows for the identification of similarities and differences among national legal systems when addressing AI-generated inventions.

The objective of the analysis is not merely to describe individual judicial decisions but to identify broader legal patterns and emerging regulatory approaches concerning autonomous inventorship and AI-assisted innovation.

1. Inventorship as a Human-Centered Legal Concept

The concept of inventorship occupies a central position within patent law. Traditionally, patent systems have been built upon the assumption that inventions originate from human intellectual activity and that only a human being can be recognized as the source of inventive contribution. Consequently, inventorship has never been understood merely as a technical or procedural designation. Rather, it functions as a legal institution connecting creativity, the identification of the inventor, the allocation of patent rights and legal responsibility.

Historically, the inventor has been perceived as an individual capable of conceiving an inventive idea through intellectual effort and purposeful activity. Patent legislation in most jurisdictions reflects this understanding either explicitly or implicitly by linking inventorship to natural persons *(The U.S. Copyright Office (USCO)report, 2025)*. Although patent laws rarely provide a detailed philosophical definition of invention, they consistently presuppose the existence of a human actor responsible for the inventive process.

This human-centered approach is rooted in several elements. At its core, the traditional doctrine of inventorship continues to rest on three interconnected assumptions: human intellect, intention, and intellectual effort. Together, these elements explain why inventorship has historically been associated not only with creativity, but also with rights, obligations, and legal responsibility. First, inventorship traditionally requires intellectual contribution. The inventor is expected to participate in the conception of the inventive idea rather than merely execute technical instructions. Second, inventorship presupposes intention. The inventive process is commonly associated with conscious decision-making directed toward solving a technical problem. Third, inventorship is linked to legal responsibility, including the ability to transfer rights, claim ownership, and participate in legal proceedings related to patent protection.

For decades, these assumptions remained largely uncontested because technological tools were regarded as instruments operating under human control. Even highly sophisticated technologies assisted inventors without challenging the legal status of the human inventor. The emergence of artificial intelligence has significantly altered this situation. Contemporary AI systems are capable of identifying patterns, generating solutions, optimizing designs, and producing outputs that may satisfy traditional patentability requirements (*Ryan Abbott, 2020*). As a result, determining the nature and extent of human intellectual contribution in the inventive process has become increasingly complex.

Nevertheless, the growing technical capabilities of artificial intelligence do not automatically resolve the legal question of inventorship. The issue is not solely whether an AI system can generate a novel and useful solution. Rather, the question concerns whether existing patent law is prepared to separate inventorship from the concepts of human intellect, intention, and legal accountability upon which the institution has historically been constructed.

This tension between technological capability and legal doctrine forms the background against which the DABUS litigation emerged. The case did not simply challenge administrative patent procedures; it challenged one of the fundamental assumptions underlying contemporary patent law: that inventorship is inseparable from human agency.

2. The DABUS Case as a Legal Challenge

The DABUS case represents the first large-scale attempt to challenge the traditional understanding of inventorship within contemporary patent law. Unlike previous discussions concerning the role of artificial intelligence in innovation, the case directly confronted patent offices and courts with a fundamental legal question: can an artificial intelligence system be recognized as an inventor under existing patent legislation?

DABUS (Device for the Autonomous Bootstrapping of Unified Sentience) is an artificial intelligence system developed by Dr. Stephen Thaler (*Ryan Abbott, 2020*). According to its developer, the system was capable of generating inventive concepts autonomously, without direct human conception of the inventive idea. Seeking to test the legal implications of such technological developments, Thaler filed patent applications identifying DABUS itself as the inventor *(Application IL268604 - DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION).*

The applications concerned two inventions allegedly generated by the AI system. The first involved a fractal-shaped food container designed to improve grip efficiency and heat retention. The second related to an emergency beacon employing pulsating light patterns intended to attract attention in emergency situations. Although neither invention was particularly revolutionary from a technological perspective, both became legally significant because of the manner in which inventorship was claimed.



Figure 1. Timeline of the DABUS Litigation and Major Legal Developments

Source: *Developed by the author based on DABUS-related judicial decisions, patent office determinations, and WIPO proceedings.*

As illustrated in Figure 1, the DABUS applications gradually evolved from an individual patent dispute into a broader debate concerning the legal meaning of inventorship. Although different jurisdictions adopted different legal arguments, the overall trajectory of the litigation reveals a common reluctance to detach inventorship from human agency.

The first applications were submitted in 2018 before the United Kingdom Intellectual Property Office (UKIPO). Subsequently, corresponding applications were filed internationally through the Patent Cooperation Treaty (PCT) system administered by the World Intellectual Property Organization (WIPO), leading to examination procedures in multiple jurisdictions *(WIPO, KIPO, & KIPA, 2021)*.

The controversy surrounding DABUS was not technological but legal. Patent offices were not primarily asked to evaluate whether the inventions were novel, inventive, or industrially applicable. Instead, they were required to determine whether an entity lacking legal personality, consciousness in the legal sense, and the capacity to hold rights and obligations could satisfy the statutory requirements associated with inventorship.

As a result, the DABUS applications triggered an unprecedented global legal debate. Courts and patent authorities across different jurisdictions were compelled to examine concepts that had long been taken for granted within patent law. Questions concerning the relationship between creativity and legal personhood, the role of human contribution in the inventive process, and the allocation of rights arising from AI-generated outputs moved from theoretical discussions into practical adjudication.

The significance of the DABUS litigation therefore extends far beyond the fate of a particular patent application. The case became a legal stress test for the traditional doctrine of inventorship, exposing the tensions between rapidly evolving technological capabilities and legal frameworks developed in an era when invention was assumed to be an exclusively human activity.

3. Comparative Jurisdictional Responses to AI Inventorship

The DABUS applications generated one of the most extensive comparative legal debates in the history of patent law. As the applications progressed through national and regional patent systems, authorities were required to determine whether existing legal frameworks could accommodate an artificial intelligence system as an inventor.

Although the factual circumstances of the applications remained essentially identical across jurisdictions, the legal responses varied significantly *(Sanjana, 2021)*. Nevertheless, a common tendency can be observed: most patent offices and courts ultimately rejected the possibility of recognizing artificial intelligence as an inventor under current legislation.



Figure 2. Jurisdictional Approaches to AI Inventorship in the DABUS Litigation

Source: *Compiled by the author based on national patent office decisions, judicial rulings, and DABUS-related proceedings.*

The United States adopted one of the clearest positions on the issue. The United States Patent and Trademark Office (USPTO) and subsequently the Federal Circuit concluded that the term "inventor" under U.S. patent law refers exclusively to a natural person (*SUPREME COURT OF THE UNITED STATES. Petition DENIED, 2023*). The courts emphasized that inventorship is inseparable

from legal personhood and that existing statutory provisions provide no basis for extending inventor status to artificial intelligence systems.

A similar approach was adopted in the United Kingdom. The UK Intellectual Property Office rejected the DABUS applications on the grounds that an inventor must be a natural person capable of possessing and transferring legal rights. This interpretation was ultimately confirmed by the UK Supreme Court, which held that current patent legislation does not permit the designation of an artificial intelligence system as an inventor *(United Kingdom.Supreme Court (UKSC) Decision, 2023).*

The European Patent Office reached a comparable conclusion. According to the EPO, the inventor designated in a patent application must possess legal capacity, which presupposes natural or legal personhood. Since artificial intelligence systems do not possess independent legal status, DABUS could not be recognized as an inventor under the European Patent Convention *(European Patent Office Decision, 2020)*.

Not all jurisdictions approached the issue in exactly the same manner. In Australia, an initial decision of the Federal Court suggested that patent law might be interpreted flexibly enough to accommodate AI inventorship. However, this position was subsequently overturned on appeal and restoring the traditional requirement that inventorship be attributed to a human being (*The High Court of Australia, 2022*).

Germany adopted a more nuanced position. While rejecting the possibility of recognizing artificial intelligence as an inventor in its own right, German courts indicated that patent protection may still be available for inventions generated with the assistance of AI, provided that a human inventor is designated *(Federal Court of Justice, Germany, 2024).* This approach seeks to preserve the existing legal framework while acknowledging the growing role of artificial intelligence in the inventive process.

South Africa became the first jurisdiction to grant a patent listing DABUS as inventor. However, the significance of this decision should not be overstated. The grant resulted primarily from the formal nature of the South African patent examination system and did not constitute a substantive judicial recognition of AI inventorship *(Desmond Osaretin Oriakhogba, 2021).*

Several other jurisdictions, including China, Canada, the Republic of Korea, Brazil, India, and Singapore, have continued to evaluate the implications of AI-generated inventions through administrative procedures, judicial proceedings, or policy discussions (*Kingsley Egbuonu, 2025*). Although the legal debate remains ongoing, no major jurisdiction has yet established a comprehensive framework recognizing autonomous artificial intelligence as an inventor.

The comparative experience demonstrates that contemporary patent systems remain strongly attached to the traditional concept of human inventorship. While differences exist regarding procedural treatment and attribution mechanisms, the overwhelming majority of jurisdictions continue to regard artificial intelligence as a tool employed within the inventive process rather than as an independent inventor.

4. Emerging Regulatory Models of AI Inventorship

Despite the diversity of national responses presented above, the comparative analysis reveals the emergence of three principal regulatory models concerning AI inventorship. At first glance, the responses to DABUS appear fragmented. A closer examination, however, reveals three broader regulatory approaches that explain how contemporary patent systems respond to claims of AI inventorship.



Figure 3. Emerging Regulatory Models of AI Inventorship

Source: *Developed by the author based on comparative analysis of DABUS-related proceedings.*

The first and currently dominant model may be described as strict human inventorship. Under this approach, inventorship remains exclusively reserved for natural persons. Artificial intelligence systems may contribute to the inventive process, but they cannot acquire the legal status of inventor. This position has been adopted by the United States, the United Kingdom, the European Patent Office, Japan, Israel, Taiwan, and several other jurisdictions.

The second model may be characterized as the human-attribution approach. This model acknowledges the increasing role of artificial intelligence in generating inventive outputs while preserving the requirement that inventorship ultimately be attributed to a human actor. Under this approach, patentability is not necessarily denied merely because AI participated in the inventive process. However, legal recognition remains attached to a human inventor who assumes responsibility for the invention. Germany represents the most developed example of this approach.

The third model may be described as procedural acceptance. South Africa's decision to grant a patent listing DABUS as inventor illustrates how procedural structures may produce outcomes that differ from those observed in jurisdictions conducting substantive patent examinatiits not the same bu legalon. Although this patent did not establish a new legal doctrine of AI inventorship, it showed how patent examination procedures can influence legal results.

The existence of these models indicates that contemporary patent law is not experiencing a complete transformation of inventorship doctrine. Rather, legal systems are attempting to accommodate technological innovation while preserving the fundamental principles upon which patent protection has traditionally been based.

Most importantly, all three approaches continue to treat human agency as the central element of inventorship – ***we can change, but from the legal point is not correct*** - Most, these approaches show that the role of human inventors remains central to patent law. Even where artificial intelligence is recognized as playing a significant role in the inventive process, legal rights, obligations, and accountability remain attached to human actors. Consequently, the DABUS litigation has reinforced rather than displaced the human-centered foundations of patent law.

CONCLUSIONS

The DABUS case became the first global attempt to test the boundaries of traditional inventorship doctrine in the context of artificial intelligence.

The comparative analysis demonstrates that most jurisdictions continue to regard inventorship as a fundamentally human concept. Despite differences in legal reasoning, patent offices and courts consistently associate inventorship with human intellect, intention, and legal responsibility.

The study identifies three principal approaches to AI-generated inventions: strict human inventorship, human-attribution models, and procedural acceptance approaches. However, none of these approaches recognizes artificial intelligence as an autonomous inventor.

The significance of DABUS extends beyond the question of whether an AI system can be listed as an inventor. The case revealed a deeper challenge: contemporary patent law remains largely built upon assumptions developed long before the emergence of autonomous AI systems.

At present, patent law continues to treat artificial intelligence as a tool used within the inventive process rather than as an inventor. At the same time, the growing role of AI in innovation suggests that questions concerning inventorship, responsibility, and rights allocation will remain at the center of future legal debates.

In this sense, DABUS case should be understood not simply as a patent dispute, but as an important test of whether the traditional doctrine of inventorship can withstand the challenges posed by AI-generated innovation.

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