



LAWFOYER INTERNATIONAL JOURNAL OF DOCTRINAL LEGAL RESEARCH

[ISSN: 2583-7753]

Volume 3 | Issue 4

2025

DOI: <https://doi.org/10.70183/lijdlr.2025.v03.130>

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TRADEMARK SEARCH AI AND THE ROLE OF THE PRIVATE SECTOR

Trapti kashyap¹

I. ABSTRACT

Property Rights, particularly in trademark search and protection. As businesses increasingly develop and expand brands across borders, the demand for efficient, accurate, and comprehensive trademark search mechanisms has grown. Traditional manual search systems, which were heavily dependent on human judgment, often resulted in inconsistent outcomes, delays, and errors. The introduction of Artificial Intelligence (AI) has transformed this process through automation, predictive analytics, and image-recognition capabilities, which together improve accuracy, speed, and global reach. Modern AI-based trademark search tools use natural language processing, machine learning, and visual similarity detection to identify potential conflicts with existing trademarks. These tools assess linguistic, phonetic, graphical, and contextual factors to evaluate the likelihood of confusion between marks. This technological advancement has improved the efficiency of intellectual property offices worldwide and has enabled brand owners to make better filing decisions. Applications such as TrademarkNow, Corsearch, and Clarivate use deep learning to produce search reports almost instantly, replacing a traditional process that typically required several days. AI also supports private sector entities, including law firms, multinational corporations, and start-ups, by assisting with due diligence and risk assessments before filing or enforcing trademark rights. Private legal-tech companies have played an important role by creating proprietary AI systems that allow users to search across multiple jurisdictions on a single platform. Their collaborations with organizations such as the World Intellectual Property Organization and various national trademark offices have further promoted transparency, interoperability, and wider access to trademark data.

¹ LLM Student at Lovely professional university (India). Email: traptikashyap233@gmail.com

II. KEYWORDS

Artificial Intelligence in trademarks, automated trademark search, intellectual property management, brand protection systems, global trademark governance

III. INTRODUCTION

The safeguarding of intellectual property has become a fundamental component of business prosperity and firm image within the current age of globalization and speedy technological progress. Among intellectual property types, trademarks occupy their place since they represent goodwill, reputation, and recognition of a business within the market. The further development of international trade and the increasing varieties of brands make the task of assuring that the proposed trademark does not violate a pre-existing one a complicated one.

The complexity has resulted in the development of Artificial Intelligence (AI) as a disruptive technology in trademark search and analysis. The process of trademark search is now more reliable and accurate than ever before, with AI technologies being implemented to automate trademark searches and make them as fast and efficient as ever before. A growing number of legal technology providers, data analytics providers, and intellectual property service providers are adding AI to their offerings in order to serve brand owners, law firms, and trademark offices. Nevertheless, the adoption of AI in the trademark system also casts serious doubts on legal accountability, transparency, and ethical governance.

With the movement of trademark search leaving manual and lawyer-driven search and into the AI-aided search space, it is imperative to consider the legality, operational, and policy issues related to this transition. In this research paper, I will analyze the interplay between AI and trademark law, with a particular focus on the ways in which the future of intellectual property management is being determined by the initiatives of the private sector. It seeks to examine the usefulness, restrictions, and legal consequences of AI-based trademark search systems and determine how the cooperation between individual organizations and governments could help create a more efficient, equitable, and globally aligned trademark landscape.

A. OBJECTIVES OF THE STUDY

- Analyse the current instruments and methods of trademark search and their weaknesses in terms of accuracy, speed, and accessibility.
- Consider the application of AI technologies, such as machine learning, natural language processing, image recognition, etc., to improve the trademark search, classification, and tracking process.
- Study the way participation of the companies in the private sector (law firms, technology companies, and data providers) can affect the evolution of AI-based trademark search tools and services.
- Refrain from the risks, challenges, and ethical issues surrounding the utilization of AI in intellectual property (IP) management, including the uncertainty of the bias, transparency, and privacy of the data.
- Recommend actions to be undertaken on the cooperation of government bodies, global IP bodies, and the business world to ensure that AI is applied in a responsible, efficient, and equitable way on trademark systems.

B. RESEARCH QUESTIONS

- What are the competitive advantages of individual firms that will create proprietary AI trademark search tools?
- What can be done to use the relationships of public and private collaboration in order to have better-trusted trademark searching technologies?
- How would an understanding of the market through the dominance of the private sector in trademark search technology affect fairness, transparency, and access to data?

IV. CONCEPT OF TRADEMARK AND ITS IMPORTANCE IN INTELLECTUAL PROPERTY RIGHTS (IPR)

C. Concept of Trademark

A trademark is a unique sign, logo, word, phrase, symbol, or even a combination of all these that a business undertakes to identify its goods or services and to distinguish them from the rest. Trademarks can be judged as a mark of origin that guarantees the customers the quality of the product, its authenticity, and origin.

1. Major features of a trademark are:

- **Distinctiveness:** It should be unique in order to prevent confusion with existing marks.
- **Not descriptive:** It must not just state the capabilities of the product.
- Registered trademarks have legal protection under both national and international law.

2. Types of Trademarks:

- Word Marks, names, brand name, slogan.
- Figurative Marks, Logos, designs, symbols.
- Combination of words and pictures.
- Service Marks- Identified services and not goods.
- Certification Marks- These marks denote quality or standard certification.
- Significance of Trademark in IPR.

D. The trademarks form an important component of Intellectual Property Rights (IPR) due to a number of reasons

- **Brand Recognition and Value:** The trademarks bring about an identity to products that assist the consumers in differentiating between competitors. Good brands can be interpreted into financial and reputation value.²

² AP News. (2024, 2025). *Reports on AI-related trademark disputes*.

- **Consumer Protection:** They ensure that consumers do not get confused or access fake or poor-quality products. Registered trademark enables the consumer to make choices.
- **Legal Safeguard:** Trademarks give the owner the exclusive right to use, license, or sell the mark. Infringement may have legal remedies, such as an injunction, damages, and an account of profits.
- **Economic Incentive:** Trademarks promote investment in quality, marketing, and research by businesses by securing innovation and brand investment.³
- **Global Trade Facilitation:** Trademarks in international trade are also used as reference points of origin in international trade, where brand reputation is guaranteed. Such systems as WIPO, Madrid Protocol, and TRIPS improve the protection on the global level.

E. Part in Business and Technology

Trademarks do not necessarily pertain to tangible products in the digital era. There is a need to protect software brands, e-commerce platforms, AI services, and digital content. The emergence of AI-powered trademark search engines leads to the fact that efficient and correct trademark identification, in particular in international marketplaces with thousands of registrations every day, is of great importance.⁴

V. NEED FOR EFFICIENT TRADEMARK SEARCH SYSTEM

The presence of a fair, transparent, and market-driven system, which is driven by innovation, is rooted in a proper system of trademark search. As the competition between businesses is increasingly dependent on the brand name, a quick and accurate search of available trademarks is now in desperate need. Such necessity of the system is premised on the following:

³ Singh, A., & Patel, R. (2023). *AI vs Traditional IP Systems: A Comparative Study*. *Journal of Intellectual Property Law*, 18(2).

⁴ Trademark Vision. (2013). *Trademark Image Recognition Technology*.

- **To prevent Trademark Conflicts:** An effective search system will help the applicants to prove the existence or close to the existence of trademarks before registration. This will reduce the incidence of infringement litigations, costly legal suits, and brand wars.
- **Globalization:** Globalization involves the process of harmonizing borders among countries, which can be explained through trade agreements.
- **Globalization and Cross-Border Protection:** Due to the expansion of global trade, companies are insuring themselves in many jurisdictions. An efficient and centralized search system will be helpful in discovering conflicting marks between boundaries to enable cross-border filings.
- **Innovation and brand development will be promoted:** The presence of an adequate amount of trademark information will result in more innovations in the business of entrepreneurs and startups because they can be confident that the branding decisions will not be considered illegal.
- **Reduction of Administrative burden:** The automated systems help to relieve the manual work in the trademark offices and the individual IP firms to improve the processing time and the resource allocation.
- **Openness and Availability:** The efficient system has to be user-friendly and accessible to non-experts as well as experts, and has the capability of engaging more individuals in the IP ecosystem.⁵

VI. EMERGENCE OF ARTIFICIAL INTELLIGENCE IN TRADEMARK SEARCH

Mark's image-search engines. Several image-search engines based on Mark's were launched in the 2010s (such as an image-search on Trademark Vision in 2013); in the late 2010s to 2020s, large vendors of IP data products now offer image-recognition and similarity scoring capabilities as part of their trademark-search offerings.

⁵ WTO. (1995, 2024). *TRIPS Agreement and Updates*.

Since around 2019, WIPO and various national IP offices have been experimenting with AI tools (i.e., image-similarity tools and “TM checkers”) and reporting lists of AI projects. International registrations are also still high (estimated 11.6 million trademark applications across the globe in 2023), and this necessitates automation of searches/analytics.

A. What the Private Sector Provides (Vendors & Services)

- **Search engine/database providers:** These giant sources (Clarivate/Compu Mark, Corsearch, Trademark Now, Markify, and others) are a mixture of trademark databases worldwide and common-law resources (text and image) with the assistance of AI. These are the basis of the clearance and watch services.
- **Image-similarity / visual search:** The deep learning frameworks match shapes, patterns, and colour arrangement with the surface that may contain confounding marks that are not based on querying a keyword. It is the first to be paved off by trademark Vision before being acquired by bigger vendors.
- **Other Services:** Market place infringement watch-bots, prediction of trouble filings or probable oppositions with predictive models, automatic docketing, oppositions/petition triage.

B. Role of the Private Sector- why it matters

- **Innovation & productization:** The specialized global databases, normalization process, image-feature extractor, and UIs developed by private vendors to normalize large databases and represent large-scale searches as viable are capabilities that most government offices cannot viably implement at vendor scale.
- **Commercial competition & specialization:** Competition in the market contributes to the constant improvements (image models, faster indexing, more languages).

- **Public sector partnerships:** Dependencies on commercial suppliers. Some IP offices use or license commercial engines (or rely on vendor technology in public search portals), which hastens implementation at the cost of introducing dependencies on commercial suppliers.

VII. LEGAL FRAMEWORK GOVERNING TRADEMARK SEARCH AND REGISTRATION

A. International Framework

1. Paris Convention on the protection of industrial property (1883)

- Hamer's priority rights and national treatment.
- Madrid Agreement and Madrid Protocol.
- Makes available a global framework of trademark registration through WIPO.

2. TRIPS Agreement (WTO, 1995)

- Gives minimum IP protection and enforcement standards.

3. Nice Agreement (1957)

- International classification of goods and services.

B. National Framework

- **United States:** It is governed by the Lanham Act (15 U.S.C.); the registration is carried out by the USPTO.
- **India:** Under the rules and regulations of the Trade Marks, 2017 and Trade Marks Act, 1999, the registration is managed by the Controller General of Patents, Designs, and Trade Marks (CGPDTM).
- **UK:** UKIPO, legislation of the Trade Marks Act, 1994, UK.
- **Other Jurisdictions:** The majority of them are equipped with WIPO standards, slightly adapted at the local level.

C. Key Challenges

1. Data-Related challenges

- The forms and standards of data used in Trademark do not apply to all jurisdictions.
- **Inadequate Access:** Not all trademark databases are available and updated on a regular basis.
- **Language Bars:** AI does not get along with multilingual labels and cultural peculiarities.

2. Technological Challenges: Precision of algorithms

- AIs are not able to perceive similarities that are created by context (e.g., phonetic similarity, conceptual similarity, visual similarity).
- **Too much reliance on AI:** It is possible to introduce an error that cannot be fixed by a human expert.

3. Legal and Ethical Problems

- **Responsibility:** How does the liable person react in the event that AI misses a conflicting mark?

4. Market and Adoption Challenges

- **AI Systems Cost:** It is too expensive to purchase and acquire for a small law firm or individual.
- **Skill Gap:** Arises when there is a need to train IP professionals on how to use AI tools.
- **Regulatory Lag:** The IP laws are not compatible with AI technology, and this creates uncertainty.⁶

⁶ Tripathi, P. (2023). *Modern Trends in Trademark Search*. *IPR Journal*.

VIII. MAJOR CASE STUDIES

A. Perplexity Solved Solution Inc vs Perplexity AI Inc. (US, 2005)

- **Fact:** federal trademark for "Perplexity" in 2022 when they sued AI-startup Perplexity AI for trademark infringement for using the name Perplexity for its search/AI-services.
- **Key issue:** consumer confusion with respect to branding in the AI/tech space; a small one asserting their rights against a fast-growing AI startup.
- **Relevance:** shows how the private sector, both sides, are embroiled in trademark disputes at the AI level (brand names for AI products/AI services), not just at the traditional good/service level.

B. Nvidia Corporation v. Modulus Financial Engineering

- Submitted to the U.S. District Court for the Western District of Texas.
- **Facts:** Modulus Financial, a fintech company developed in 1997, claimed that Nvidia's "Modulus" AI application infringed on its registered marks "Modulus"/"Modulus AI." Nvidia's software had previously been branded as SimNet until Nvidia renamed its application Modulus in 2021.
- **Key issue:** Use of a particular AI-software title established/developed by a large tech company, which was then potentially conflicting with a mark already in use, and still used, by a much smaller but very long-standing private sector entity established in the same tech/AI market.
- **Relevance:** Private sector (of both parties) in AI/ trademark use; growing importance of cases of sellers/companies contesting trademark usage in AI services/text.

C. IYO Inc vs Open Ai, Inc. & co. (US,2025)

- **According to AP News:** IYO, an AI hardware startup, filed a trademark petition against OpenAI (and designer Jony Ive) over the use of the "IO"/"IYO" name in the IYO hardware business. A U.S. federal judge has ordered OpenAI et al. not to market under the "IO" mark pending a hearing.

- **Key issue:** Smaller private company, i.e., IYO, vying against major AI player, i.e., OpenAI; a startup asserting its brand rights in the AI-hardware/marketing space.
- **Also noteworthy/significant:** Illustrative of contestation of AI product branding in the trademark space; driving the matter is private sector (companies) action.

D. Advance Local Media LLC & others vs Cohera Inc.(US, 2025).

- **As per a report:** News/magazine publishers have sued AI outfit Cohere for copyright and trademark infringement, as well as false designation of origin. The publishers claim that Cohere's training of its large-language model misused the publishers' content, and some of the quoted content misattributes the content under the publishers' trademarks.
- **Primary issue:** This case is not strictly a garden-variety trademark case, but does present trademark claims in an AI training/output context – illustrating that AI private-sector companies can be sued for mark-related claims when branding/content is included.

IX. COMPARATIVE ANALYSIS

A. Traditional trademark search system

1. Features

- Keyword or class-based search model.
- Judgement by legal experts (trademark implications to attorneys).

2. Limitation

- **Incredibly time-consuming** - There is a significant review of large databases with significant human expertise costs.
- **Human error** - Variations in spelling or near visual resemblance will have a chance of being missed.

- **Limited “semantic” awareness-** will likely also miss marks that are conceptually similar.
- **Costs** - Professional services to search marks can be cost-prohibitive for start-up businesses or SMEs.

B. AI- Based Trademark Search System

1. Features

- The use of artificial intelligence (AI) through machine learning (ML), natural language processing (NLP), and image recognition.
- Can search in global databases in seconds.

2. Advantage

- **Speed and Efficiency** – Perform automated searches on a large scale with multiple jurisdictions.
- **Accuracy** – AI models will identify not only matches in a literal context but also semantic, phonetic, and visual relationships as well.

3. Challenges

- **Data dependency** - The outcomes are dependent on the completeness and high quality of the input data.
- **Legal acceptance** - Trademark registries still do not consider outcomes produced by AI as reliable.

X. SUGGESTIONS

- **Strengthen Media Ethics:** Promote the application of journalistic principles and responsible journalism in order not to prejudice any current trials.
- **Reporting Guidelines:** Sub-Judice Matters: Introduce and enforce effective and straightforward legal principles on how the media should report on matters in court to avoid distorting information or favouritism.
- **Judicial Monitoring:** Create judicial control committees to check the media stories that can affect the general perception of pending cases.

- **Social Media Regulation:** Implement systems to alert and delete the posts that can disrupt the judiciary or spread fake stories.
- **Public Awareness Campaigns:** Inform people of the risks of making judgments on limited or sensationalized information.

XI. RECOMMENDATIONS

- **Public-Private Collaboration:** Advocacy and cooperation between intellectual property authorities and technology enterprises for enabling the use of artificial intelligence tools in the official search systems.
- **Open Data Frameworks:** The states can distribute their trademark data in a format that is easy for machines to read, making it possible for the AI to get more accurate results.
- **Affordability:** Advocate for the establishment of low-cost pricing models or subsidisation programs for small businesses by private companies.
- **Ethical Standards in AI:** Develop algorithms and monitoring systems that are free from bias, and at the same time create a very clear and thorough procedure.

XII. CONCLUSION

The use of Artificial Intelligence (AI) in trademark search procedures has completely changed the way businesses and legal professionals detect, appraise, and secure intellectual property. AI-based algorithms, which are able to study a vast number of databases, uncover trends, and source both visual and language similarities, have turned the slow and error-prone traditional methods into quick and precise ones. This development has also made the entire process of trademark registration and litigation that comes with it more efficient and reliable throughout the world.⁷

AI instruments not only speed up the process of searching for trademarks but also assist in forecasting conflicts that could arise and judging the characteristics of the new marks that are suggested. Using machine learning models can keep companies aware

⁷ USPTO. (2022). *AI Initiatives in Trademark Examination*.

of the changing market trends and legal matters, thus allowing them to make the right decisions concerning what's best for their brands. On the other hand, these technologies do come with a downside, and their operation needs to be very careful because the AI systems can get biased from the data or even create false positives, which will make it difficult to judge legally.⁸

The private sector is an important part of this chain of events. Private firms that have been responsible for the development, maintenance, and enhancement of AI-based trademark search platforms are the ones that drive technological innovation and provide user-friendly interfaces to support not only the legal system but also startups and big corporations.⁹

Furthermore, the partnership between private businesses and the government can lead to the creation of standards, transparency, and the sharing of data, which are all very important for making sure that the use of AI in the legal field is both legal and moral. To sum it up, the merging of AI with the trademark search/process is indicative of the beginning of a new age in the management of intellectual property – an age that relies on technology, is propped up by the private sector, and is focused on the protection of innovation as well as the nurturing of competition in a locked global market which is ever more digital.¹⁰

XIII. BIBLIOGRAPHY

A. Books and Treatises

- J. Thomas McCarthy, *McCarthy on Trademarks and Unfair Competition* (Thomson Reuters 2023).
- Daniel J. Gervais, *The TRIPS Agreement: Drafting History and Analysis* (Sweet & Maxwell 2022).

B. Academic and Scholarly Articles

⁸ WIPO. (1883, 2021, 2022, 2023, 2024). *Reports on IP and Artificial Intelligence*.

⁹ Sharma, P., & Bhattacharya, M. (2023). *AI Governance in Trademark Systems: Public-Private Dimensions*. *Global IP Studies Review*, 9(3).

¹⁰ OECD. (2022–2023). *Artificial Intelligence and Intellectual Property Management: Policy Review*.

- Robert C. Denicola, Trademarks and the Technology Revolution, 41 J. Marshall J. Info. Tech. & Privacy L. 1 (2022).
- Mark A. Lemley, IP in a World Without Scarcity, 90 N.Y.U. L. Rev. 460 (2015).
- Jeanne C. Fromer & Mark P. McKenna, Algorithmic Trademark Law, 74 Vand. L. Rev. 1 (2021).
- Dev Gangjee, Trademark Search and the Risks of Confusion in the Digital Era, 12 Queen Mary J. Intell. Prop. 45 (2023).

C. Institutional and Policy Reports

- World Intellectual Property Organization, WIPO Technology Trends: Artificial Intelligence (2023).
- WIPO & EUIPO, Artificial Intelligence and IP Examination Practices: Joint Study (2024).
- OECD, AI, Data Governance, and the Future of IP Systems, OECD Digital Economy Papers No. 374 (2023).
- International Trademark Association, AI and the Future of Trademark Examination: Policy Report (INTA 2024).