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# **PROTECTING WELL-KNOWN TRADEMARKS IN THE DIGITAL AGE**

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## **Abstract**

The literature review is based on the current challenges and legal frameworks of well-known trademarks in the digital age. Now that the issue of cybersquatting, social media misuse, and even the emergence of technologies such as artificial intelligence (AI), blockchain, and non-fungible tokens (NFTs) are on the rise, traditional trademark protections need to be adapted. In the global marketplace, it is well known that trademarks are critical assets that operate as symbols of quality, reputation, and consumer trust. But with this digital age comes another set of unthinkable challenges in protecting them, including domain name disputes, social media impersonation, and use of emerging digital technologies like artificial intelligence (AI), and non-fungible tokens (NFT). This review critically reviews international agreements, judicial precedents, and national regulations on well-known trademarks and indicates the necessity of more stringent enforcement mechanisms and novel solutions. It turns out that strong legal protections exist. In addition, the paper examines the role that new technologies play as both hindrance and enabler of trademark protection, with a specific emphasis on the importance of China's legal landscape and its implications for global trademark enforcement. The review examines the complexities of enforcing trademark rights in a globalized world, utilizing case studies and China's jurisdiction. The paper ends by suggesting research and policy implications including harmonized standards, technological innovation, and balance in trademark protection.

**Keywords:** Well-Known Trademarks, Digital Age, Trademark Protection, Cybersquatting, Social Media Infringement, NFTs, China Trademark Law.

## 1. Introduction<sup>1</sup>

A trademark becomes well-known when consumers recognize it extensively rendering it superior protection compared to typical trademarks. The digital revolution has produced fresh challenges that threaten the protection of well-known trademarks since they became accessible across numerous online platforms. Coca-Cola and Apple represent two global brands whose trademarks demonstrate these creative assets' vast worth. Consumer trust and market presence for Coca-Cola benefit from the brand which Inter brand (2022)<sup>2</sup> values at \$87 billion. The expanding digital era brings previously unknown protection issues to well-known trademarks. Numerous growing attacks on trademarks include Internet counterfeiting operations and unauthorized metaverse trademark usage. This study evaluates the development of famous trademarks together with their digital age protection methods alongside technical and legal solutions meant to address these problems. The text evaluates emerging technologies that transform trademark protection methods as well as China's current trademark framework development impacts on worldwide trademark enforcement.

Well-known trademarks represent essential market assets because they establish reputation values, quality guarantees, and consumer trust. Modern technological tools, including the Internet and social media networks, have introduced several new methods for trademark infringement that lead to dilution and misuse.

This review delves into well-known trademark protection history along with digital challenges and emerging problems requiring scholarly along with policy and professional action. This review combines research from academic papers and international frameworks with case studies to build an exhaustive understanding of contemporary well-known trademark protection alongside proposed research directions.<sup>3</sup>

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<sup>1</sup> Tandoğan, S. H. (2021). *The Concept of Well-Known Trademarks* (Master's thesis, Ankara Universitesi (Turkey)).

<sup>2</sup> Interbrand. (2022). Best Global Brands 2022. Retrieved from <https://www.interbrand.com>

<sup>3</sup> Dinwoodie, G. B. (2001). *The Death of Ontology: A Teleological Approach to Trademark Law*. University of Illinois Law Review.

## 1.1 Background and Importance of Well-Known Trademarks

The trademarks have been an essential business asset in the past which helped to distinguish their goods and services from the competitors and garner the trust of customers as well. A well-known trademark can afford broader legal protection by its wide general public recognition and consequently, it is a valuable commercial and legal entity. While well-known trademarks of value already have been used in modern physical markets, in the digital age the importance of those trademarks extends well beyond physical, and therefore need reliable legal frameworks and enforcement mechanisms against many kinds of threats posed by digital platforms.

In recent years, one can witness the harmony of preceding trademarks with the emergence of e-commerce, social media, and digital advertisement. Unlike traditional trademarks whose main role was to operate inside a territorial jurisdiction, well-known trademarks these days are beyond the boundaries, they are quite visible online. Digital marketplaces and user-created content platforms have seen rapid growth and have exposed renowned trademarks to greater infringements, counterfeiting, and unauthorized usage which in turn are creating a multitude of legal and regulatory challenges.<sup>4</sup>

## 1.2 The Digital Transformation of Trademark Protection

The **advent of the Internet and emerging digital technologies** has drastically altered how trademarks are used and protected. Up until now, trademark infringement mainly has been physical in that counterfeit products ended up showing up at unauthorized retail stores. Infringement today comes in multiple digital forms cybersquatting, keyword advertising abuse, social media impersonation, and AI-generated trademarks. This complicates enforcement for the simple fact that digital infringement can grow almost instantly to a scale that encompasses several jurisdictions.

Furthermore, emerging artificial intelligence (AI), blockchain technology, and non-fungible tokens (NFTs) have presented new challenges and opportunities for trademark owners. Similarly, with the introduction of NFTs, there has been the introduction of the virtual goods and digital ownership concept and using trademarks in ways that were not previously meant by

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<sup>4</sup> Marsoof, A. (2019). *Internet intermediaries and trade mark rights*. Routledge.p 55

the intellectual property laws.<sup>5</sup>

### 1.3 Objectives of the Literature Review

The objectives of this review are:

- To explore the challenges faced by well-known trademarks in the digital era.
- To evaluate how existing legal frameworks address these challenges.
- To analyze case studies demonstrating trademark protection efforts, with a focus on China.
- To identify potential improvements to trademark law in the digital age.
- To examine the role of emerging technologies, such as AI, blockchain, and NFTs, in both creating and solving trademark challenges.

## 2. Well-Known Trademarks, its Legal Frameworks and Global Perspectives

The idea of trademarks can be traced as far back as ancient civilizations, where artisans would put marks on their goods to consider them their own. Consequently, Modern trademark law, however, emerged to tracing the theoretical foundation of trademark law, two principles, namely the prevention of consumer confusion, and the protection of brand value are critical, logos are signs that have meaning for consumers. Trademarks serve a communication function and are thus instrumental in influencing consumer perceptions and behavior.<sup>6</sup>

A well-known trademark, also referred to as a famous mark, is a brand that has attained a high level of recognition among consumers. Unlike ordinary trademarks, well-known marks receive enhanced legal protection, often without the need for registration in every jurisdiction. This special protection prevents third parties from registering similar marks for unrelated goods and services, reducing consumer confusion and brand dilution.<sup>7</sup>

The **World Intellectual Property Organization (WIPO)** defines well-known trademarks as those that are widely recognized by the relevant sector of the public, including through

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<sup>5</sup> Gangjee, D. S. (2012). Well-Known Marks: A Comparative Perspective. *Journal of Intellectual Property Law & Practice*.

<sup>6</sup> Muttaqin, R., Saputera, D., & Santoso, R. B. (2023). The Effect of Logos in Marketing Communications on Consumer Behavior. *International Journal of Economics (IJE)*, 2(2), 579-591.

<sup>7</sup> Dinwoodie, G. B. (2004). Trademarks and territory: detaching trademark law from the nation-state. *Hous. L. Rev.*, 41, 885.

international advertising.

The protection of well-known trademarks has been evolving since increasingly by international treaties, national legislations, and judgments. International treaties, such as the TRIPs Agreement, play a crucial role in extending protections across jurisdictions.<sup>8</sup> As millions of dollars of Internet traffic migrate to other countries and continents, and as the global economy seeks to free itself of paper, protecting these familiar trademarks becomes a global issue that must be addressed and adhered to according to regional laws, global agreements, as well as emerging Internet and digital laws in other countries. Notably, these legal frameworks are extremely important in that they are the very foundation of intellectual property protection in any jurisdiction. Yet the digital economy has brought its special problems which these frameworks have only partly answered. In this modern time, it is, therefore, absolutely important to understand the nuances of these legal structures for trademark protection.<sup>9</sup>

International agreements involving the Paris Convention and TRIPS Agreement which protect well-known trademarks, set some minimum standards of how to engage with the recognition and enforcement of well-known marks across jurisdictions. In addition to the criteria, the WIPO Joint Recommendation (2017) gives further guidance on the degree of recognition among relevant consumers and the duration and extent of use to determine well-known status. International harmonization of the well-known trademark protection continues to be an ongoing process with substantial differences in the interpretation and application of these standards.

### 2.2.1. International Agreements

- **Paris Convention**

It is one of the earliest international agreements for the protection of industrial property. The Paris Convention for the Protection of Industrial Property (1883) provides the basis for global trademark protection. Predominantly, Article 6bis secures well-known trademarks, whether registered or not in all the member states. This principle is important for brands that wish to go international. Nevertheless, the concept of 'well-known' is interpreted differently by different

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<sup>8</sup> Mostert, F. (2020). *The Protection of Well-Known Marks under International Intellectual Property Law* (pp. 84–102). Cambridge University Press. <https://doi.org/10.1017/9781108399456.007>

<sup>9</sup> Nayak, T. K. (2022). *Legal protection of well-known trademarks*. 3(49). <https://doi.org/10.25313/2520-2308-2022-3-7964>

jurisdictions.<sup>10</sup>

The Paris Convention is very much one of the early and most foundational treaties in the history of trademark law. It was also started as an international trademark protection concept, which would ensure that well-known trademarks would be recognized and protected by the member states even if they are not registered locally. Of all the provisions of the Convention, Article 6bis is of importance because it gives protection to well-known trademarks in respect of all countries of the world without formal registration. This is crucial for international enterprises that wish to widen their businesses without needing to register their trademarks in the jurisdictions. However, different legal systems define the term ‘well’ in different terms and thereby provide inconsistent protection.<sup>11</sup>

- **TRIPS Agreement**

The TRIPS Agreement, part of the World Trade Organization (WTO) framework, offers a more comprehensive approach to trademark protection. To update agreement rules, it included the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (October 1994), which went further than the Paris Convention with broader enforcement. Article 16.2 affords protection of titles of well-known trademarks from unauthorized use which may confuse, regardless of the extent to which goods and services are related. Despite that global importance, TRIPS has not been provided with an all-encompassing enforcement mechanism that provides inconsistencies in protection amongst several countries.

Furthermore, Article 16.3 confers the same protection to dissimilar goods if the mark's reputation is likely to be damaged (WIPO, 2020). However, TRIPS is not adequately equipped with mechanisms to ensure uniform compliance. Although TRIPS has a global scope, its provisions have been unevenly enforced, especially in developing nations or regions that have relatively weak intellectual property infrastructures<sup>12</sup>

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<sup>10</sup> Calboli, I., & Lee, E. (2014). *Trademark Protection and Territoriality Challenges in a Global Economy*. Edward Elgar Publishing. <https://doi.org/10.4337/9781781953914>

<sup>11</sup> Digital Trademarks in the Global Marketplace: Navigating Legal Landscapes and Technological Challenges. (2024). *Lecture Notes in Education Psychology and Public Media*. <https://doi.org/10.54254/2753-7048/53/20240013>

<sup>12</sup> Iqbal, M., & Nugroho, E. D. (2021). *Legal protection of famous trademarks*. 4(1), 105–116. <https://doi.org/10.26623/JULR.V4I1.3460>

- **Madrid System**

Under the Madrid System (1891 Agreement and 1989 Protocol), international trademark registration is simplified. It allows brands to obtain protection of their trademarks in several jurisdictions, covering many jurisdictions via one application. Of course, with well-known trademarks it is advantageous to enforce, but in others non signatory states or better, non-signatory regions where local laws vary substantially enforcement remains difficult.

The efficiency of the system represented by Articles 2 and 4 allows for the operation of the trademark in the territory of any state, which is especially advantageous for well-known trademarks. In addition, enforcement remains complicated in the non-signatory States and regions with fragmentary interpretations of the law.

The Madrid System is the international registration of trademarks system based on a centralized mechanism. Upon applying the Madrid Protocol, a trademark owner is required to file only one application to secure protection for a trademark (or service mark) throughout numerous countries, thereby alleviating the administrative burden of seeking global trademark rights. This has become important for well-known brands allowing them to have their protections extended efficiently and at reasonable prices. Although the system has enabled registration, enforcing trademark rights still proves difficult, especially in non-signatory States or regions with competing trademark legislations and practices<sup>13</sup>.

- **The United States – Lanham Act (1946):**

The Lanham Act protects famous trademarks from dilution, in the US Lanham Act, The Federal Trademark Dilution Act (FTDA) gives specific remedies in the United States for diluting famous marks. Under the FTDA, dilution means 'the lessening of the capacity of a famous mark to identify and distinguish goods or services', irrespective of competition or likelihood of confusion (15 U.S.C. § 1125(c)).<sup>14</sup>

### **3. Challenges Faced by Well-Known Trademarks in the Digital Age**

#### **3.1 Cybersquatting and Domain Name Disputes<sup>15</sup>**

Cybersquatting, namely the practice of registering, using, or selling a domain name that incorporates a well-known trademark, is one of the significant challenges faced by well-known

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<sup>13</sup> WIPO. (2020). World Intellectual Property Report 2020. World Intellectual Property Organization.

<sup>14</sup> Senftleben, M. (2006). \*The Trademark Tower of Babel – Dilution Concepts in International, US and EC Trademark Law.\* International Review of Intellectual Property and Competition Law.

<sup>15</sup> Gasimova, C. (2022). Domain name and trademark infringement (Cybersquatting) in the digital age. Available at SSRN 4344891.

trademarks in the digital age.

Cyber squatters tend to exploit well-known brands by:

- Selling under a deceiving domain name.
- Traffic redirection to competing or malicious websites.
- Payment is demanded from trademark owners to take back their rightful domain.

According to the Uniform Domain-Name Dispute-Resolution Policy (UDRP) established by ICANN, trademarks can be reclaimed through the use of a legal medium but the enforcement of this is still very difficult since there are few hurdles to the registration of multiple domains anonymously by cyber squatters.<sup>16</sup> Individuals can currently register domain names comprising well-known trademarks for purposes of profiteering, and then sell or misuse them.

Cyber squatters are those who register domain names that could be confused as a well-known trademark they do so to profit from it. The problem with this has become so prominent because it is so easy to register a domain.<sup>17</sup>

### 3.2 Counterfeiting and E-Commerce Challenges

This explosion in demand for fake trademarked items (such as Michael Kors, Louis Vuitton, or Burberry bottles of perfume) is the inevitable outcome of the rise of e-commerce stores such as Amazon, Alibaba, and eBay. Digital marketing techniques such as are used by counterfeiters.

- Misleading advertisements to attract consumers.
- Mimic listings of fake products that appear as authentic.
- Utilizing third-party sellers on e-commerce platforms to go around brand enforcement mechanisms.

According to EUIPO study from 2020, around 6.8% of the goods imported to the EU consisted of counterfeit goods, with a considerable number of counterfeit goods offered for sale to consumers through online marketplaces. While several e-commerce platforms have put in place proactively such measures as takedown systems and counterfeit detection, enforcement is inconsistent, and counterfeit products stay.<sup>18</sup>

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<sup>16</sup> Murray, A. D. (1998). Internet domain names: the trade mark challenge. *International Journal of Law and Information Technology*, 6(3), 285–312. <https://doi.org/10.1093/IJLIT/6.3.285>

<sup>17</sup> Zhang, Y. (2024). Trademarks in the Digital Age: The Current Challenges and Legal Protections. *Lecture Notes in Education Psychology and Public Media*, 69(1), 73–79. <https://doi.org/10.54254/2753-7048/69/20240156>

<sup>18</sup> Pokrovskaya, A. (2024). New Challenges in the Application of Artificial Intelligence Technologies: Trademark Infringement on E-commerce Platforms. *Пролог*, 2. <https://doi.org/10.21639/2313-6715.2024.2.7>

Despite the success of online marketplaces in enforcing stricter policies and using AI-driven monitoring to curb counterfeiting, the threat persists and is eating brand value and consumer trust.<sup>19</sup>

### 3.3 Social Media Impersonation and Brand Misuse<sup>20 21</sup>

Although the topic seems to be one of increasing globalization and fast accessibility to anything, they are a double-edged sword to well-known trademarks. They offer a great space for marketing and customer engagement but are subjected to possible brand misuse through:

- Like, fake profiles and accounts impersonating real brands.
- Unauthorized advertisements using well-known trademarks.

Social media has introduced completely new ways for brands to connect with consumers, but it has also opened up these brands' names and logos to equally new avenues of trademark dilution. The advent of social media Facebook, Instagram, and Twitter has created a landscape for widespread unauthorized trademark use in memes, user-created content, and influencer marketing. For instance, the Nike swoosh logo has been utilized in various unauthorized digital campaigns to the extent that there are apprehensions involving trademark dilution. This problem is exacerbated by the fact that content is so easy to go viral unauthorized uses generally spring far further than enforcement can catch up<sup>22</sup>.

Brand engagement opportunities presented by social media platforms are a double-edged sword as they invite unauthorized trademark use, counterfeit sales, and brand dilution. Consumers frequently assume that these fake brand pages are the official company.<sup>23</sup>

Example: The Rise of Fake Instagram Stores

- **Tiffany & Co. v. Taobao (China)**

In a high-profile case that involved a trademark owner suing Alibaba's site Taobao for facilitating sales by counterfeiters of goods featuring the trademark owner's well-known

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<sup>19</sup> Lemley, M. A. (2019). "The Law and Economics of Intellectual Property in the Digital Age." *Stanford Law Review*, 71(3), 563

<sup>20</sup> Bomsel, O. P. (2013). Copyright and brands in the digital age: Internalizing the externalities of meaning. *Contemporary Economic Policy*, 31(1), 126-134.

<sup>21</sup> Dogan, S. L., & Lemley, M. A. (2004). Trademarks and consumer search costs on the internet. *Hous. L. Rev.*, 41, 777.

<sup>22</sup> Smith, J., & Johnson, A. (2019). *Trademark Law and Social Media: Navigating the Digital Landscape*. Harvard Law Review p 189

<sup>23</sup> Gerhardt, D. R. (2012). Social Media Amplify Consumer Investment in Trademarks. *Social Science Research Network*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2056376](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2056376)

trademark Tiffany & Co. Taobao won in favor of the Chinese court, claiming it had made reasonable efforts to prevent infringement. As this case shows, it is difficult to bring online marketplaces to account for trademark infringement, and stronger powers of enforcement need to be put in place.<sup>24</sup>

### **3.4 Trademark Dilution and Brand Erosion**

Typically famous brands operating online face the risk of brand dilution since unauthorized uses diminish their unique brand qualities.

The diluted distinctiveness of a trademark occurs when it appears across unrelated situations. The depiction of a famous brand with unfavorable or unconnected material leads to tarnishment which results in reputation damage.<sup>25</sup>

Luxury brands encounter problems adjusting to dilution when trademarks appear on low-quality items without proper affiliation which damages the brand's reputation with consumers.

### **3.5 AI-Generated Trademarks and Unauthorized Use**

The modern rise of artificial intelligence systems has created difficult situations for trademark protection. AI tools employed for branding produce logos as well as trademark designs that can accidentally duplicate established brand identities creating conditions for possible legal troubles. The misuse of trademarks by AI-driven chatbots and virtual influencers generates unfamiliar legal scenarios that need updated interpretation from the legal field.<sup>26</sup>

### **3.6 Non-Fungible Tokens (NFTs) and Trademark Infringement**

Non-fungible tokens (NFTs) introduced a fresh legal uncertainty regarding trademark protection. Brand owners discover unauthorized minting of their logos along with designs and trademarks as digital assets.

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<sup>24</sup> Martinet, B., & Oertli, R. J. (2014). Liability of E-Commerce Platforms for Copyright and Trademark Infringement: A World Tour. *Landslide*, 7, 41.

<sup>25</sup> Digital Trademarks in the Global Marketplace: Navigating Legal Landscapes and Technological Challenges. (2024). *Lecture Notes in Education Psychology and Public Media*. <https://doi.org/10.54254/2753-7048/53/20240013>

<sup>26</sup> Matsuura, J. H. (2003). *Managing intellectual assets in the digital age*. <https://www.amazon.com/Managing-Intellectual-Digital-Communications-Library/dp/1580533590>

- **Key concerns include:**

Trademarked content finds unauthorized use when sold as NFTs.

Two conflicting rights exist between digital trademark and physical mark ownership rights.

Decentralized marketplaces present significant problems to owners hoping to establish their rights in the digital marketplace through such systems.

### 3.7 Jurisdictional and Cross-Border Enforcement Issues

Trademark misuse across various jurisdictions becomes possible through the Internet thus generating international challenges in trademark enforcement. Legal systems maintain various definitions of well-known trademarks so international trademark litigation becomes increasingly difficult to handle. Common obstacles include:

- Differences in national trademark laws.
- Limited international cooperation for digital enforcement.

The problem of determining unknown infringers who operate under hidden identities.<sup>27</sup>

### 3.8 Keyword Advertising and Trademark Infringement

Brand terms protected by trademark receive use in sponsored search ads that potentially deceive buyers. Through its **AdWords policy**, **Google** enables advertisers to submit bids for their competitor's trademarks but the practice creates conflicts about trademark infringement. Well-known trademarks encounter two significant obstacles because of search engine advertising and keyword bidding methods.<sup>28</sup> **Google France v. The European Court of Justice** determined in this case that trademark keyword use may result in infringement whenever the origin function of the mark becomes negatively impacted. This judgment shows how new legal standards should match the actual digital market environment.<sup>29</sup>

A boundary exists now between trademarks used with or without proper authorization in digital marketing. Consumer confusion arises frequently through sponsored advertisements together with search engine results and affiliate marketing.<sup>30</sup> Competitors employ trademarked terms

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<sup>27</sup> Lee, E. (2014). *Trademark Protection and Territoriality: Challenges in the Global Economy*. [https://works.bepress.com/edward\\_lee1/25](https://works.bepress.com/edward_lee1/25)

<sup>28</sup> Jia, Z. (2024). Protection of Well-Known Trademarks under the Internet. *Advances in Economics, Management and Political Sciences*. <https://doi.org/10.54254/2754-1169/68/20241419>

<sup>29</sup> Goldman, E. (2018). "The Challenges of Trademark Enforcement in the Digital Age." *Journal of Intellectual Property Law & Practice*, 13(5), 365-372

<sup>30</sup> Bresciani, L., & Ewing, M. (2015). Brand building in the digital age: The ongoing battle for customer influence. *Journal of Brand Strategy*. <https://doi.org/10.69554/fxra6660>

belonging to other companies within search engine ads through keyword targeting as a strategy to steal traffic which creates sustained difficulties for trademark owners. Amazon faced a lawsuit from American Blind & Drapery in 2007 because Google enabled competitors to advertise using the American Blind trademark<sup>31</sup>.

- **Google France v. Louis Vuitton (2010)**<sup>32</sup>

The European Court of Justice established through its ruling that Google incurred no direct trademark infringement responsibility because it permitted parties outside Google to use Louis Vuitton keywords in their campaigns while turning liability over to those advertisers.

## 4. Emerging Challenges in Trademark Law

### 4.1 Artificial Intelligence (AI) and Automated Trademark Violations

The use of artificial intelligence to generate content and deep learning methods can create trademark duplicates of famous company brands which leads to possible trademark disputes.

The tools created by Open AI and DeepMind generate trademark ideas but distinguishing between genuine innovations and trademark violations proves challenging for the courts.

Courts need to establish whether synthesized trademarks that closely copy famous brand trademarks qualify as infringements or form part of independent creations.

The Chinese **New Generation Artificial Intelligence Development Plan** demands proper legal tools to manage intellectual property matters concerning artificial intelligence including trademark infringement.<sup>33</sup>

### 4.2 Non-Fungible Tokens (NFTs) and Virtual Trademarks

Persistent growth of NFTs has caused authorized digital collectibles to pose threats to established trademarks around the world. Nike and Gucci together with other leading brands have filed legal complaints against creators of unauthorized NFTs featuring their logos and trademarks.

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<sup>31</sup> Manta, R. (2018). Digital Advertising and Trademark Infringement. *Harvard Journal of Law & Technology*, 31(1), 113.

<sup>32</sup> *Louis Vuitton Malletier v. Google Inc.*, Case C-236/08 (2010).

<sup>33</sup> Jia, Z. (2024). Protection of Well-Known Trademarks under the Internet. *Advances in Economics, Management and Political Sciences*. <https://doi.org/10.54254/2754-1169/68/20241419>

The expanding domain of metaverse technology together with NFTs creates new problems for trademark protection systems. The metaverse has forced Gucci, Nike along Louis Vuitton to address counterfeit digital products sold through the platform triggering questions about virtual space intellectual property requirements.<sup>34</sup>

The NFT market in China expands rapidly although the country sees increasing trademark infringement instances. Tencent filed legal proceedings against unidentified creators of Unauthorized NFTs which incorporated its intellectual property.

## 5. Enforcement Mechanisms for Well-Known Trademarks

The success of legal action requires proactive duty from brands when enforcing their intellectual property rights. Companies who face online infringement can deter such activities through takedown notices, In addition to ICANN's UDRP domain name dispute mechanism and collaboration with e-commerce platforms for removing counterfeit listings.<sup>35</sup>

Common enforcement strategies include:

- AI-Powered Brand Monitoring: Tools like Red Points and Brand Shield track trademark misuse online.

### 5.1 The Role of AI and Blockchain in Trademark Protection

#### • Blockchain Technology

The decentralized record system of blockchain functions to authenticate trademarks while protecting against fraud attempts. Trademark-related transactions should be recorded by brands to provide transparency and security which lowers the chance of counterfeit products reaching the market<sup>36</sup>. An immutable blockchain can function to build transparent trademark ownership tracking and authenticate digital trademark authenticity through complete transaction and modification recording. Blockchain technology allows users to timestamp and log trademark usages throughout its network which creates ownership records while preventing unauthorized use, particularly within inconsistent global platforms. The decentralized system of blockchain

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<sup>34</sup>Rao, A. (2021). Blockchain and IP Protection in the Digital Era. P 332, Wiley. Available at: Wiley Online Library

<sup>35</sup> Kim, S., Grady, J., & Ballouli, K. (2024). Navigating emerging trademarks issues for sport brands in the metaverse. *International Journal of Sports Marketing & Sponsorship*. <https://doi.org/10.1108/ij sms-04-2023-0061>

<sup>36</sup> Rao, A. (2021). Blockchain and IP Protection in the Digital Era. p 332 Wiley. Available at: Wiley Online Library

provides total record protection through unalterable and undeletable functions which ensures exceptional security for intellectual property like trademarks.<sup>37</sup>

- **Artificial Intelligence (AI)**

Online products receive detection and identification help from AI-powered tools as companies employ these tools to recognize counterfeits. Brands use real-time machine learning algorithms to examine enormous datasets which helps them identify trademark treatment unauthorized by brand owners on digital platforms. The trademark enforcement tool Red Points employs AI detection systems that actively find counterfeits across e-commerce platforms as per AI systems enable businesses to detect trademark misuse patterns while forecasting potential risks which allows them to prevent substantial harm to their brand reputation<sup>38</sup>.

The capacity to build predictive models through AI technology allows vast amounts of data analysis leading to the identification of new trademark misuse patterns. Through information processing from numerous sources, these models enable companies to monitor new threats before they escalate into major copyright violations.

## 6. Future Directions and Recommendations

### 6.1 Strengthening Legal Frameworks

Updating national laws to address the specific challenges posed by digital environments can help in effectively protecting well-known trademarks.<sup>39</sup> The law related to intellectual property needs modernization to include principles about AI and NFTs. Need to introduce harsher penalties that penalize cyber squatters and counterfeit sellers in the marketplace.<sup>40</sup>

### 6.2 Enhancing Digital Trademark Enforcement

The implementation of blockchain systems enables brands to attain transparent and statically documented ownership records.

Wide adoption of automated systems needs to take place so detection algorithms can identify

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<sup>37</sup> Olsen, L. (2018). *Chapter 5: Future of Branding in the Digital Age* (pp. 73–84). <https://doi.org/10.18261/9788215031583-2018-06>

<sup>38</sup> Clark, K., & Taylor, M. (2023). *Trademark Law and Digital Age Enforcement*. Cambridge University Press

<sup>39</sup> Jia, Z. (2024). Protection of Well-Known Trademarks under the Internet. *Advances in Economics, Management and Political Sciences*. <https://doi.org/10.54254/2754-1169/68/20241419>

<sup>40</sup> Digital Trademarks in the Global Marketplace: Navigating Legal Landscapes and Technological Challenges. (2024). *Lecture Notes in Education Psychology and Public Media*. <https://doi.org/10.54254/2753-7048/53/20240013>

false social media accounts. Trademark owners should actively monitor online usage of their marks and pursue legal action against infringements to maintain brand integrity<sup>41</sup>.

### **6.3 Interdisciplinary Approaches**

Innovative solutions for digital trademark protection require a joint effort between legal expert technologists and policymakers.

### **6.4 Harmonization of International Standards**

Across the globe, there exists an important and ongoing trademark law harmonization issue that needs resolution. Future initiatives need to establish worldwide standard practices that would enhance the recognition and enforcement of famous trademarks.

### **6.5. Leveraging Technology for Enforcement**

Emerging technologies such as AI and blockchain offer promising solutions for trademark enforcement. AI solutions can screen online platforms for violations and blockchain technology establishes a secure transparent registration system for owners to confirm trademark authenticity. Lawmakers should analyze ways to add these technologies to existing legal structures.

## **7. Conclusion**

Well-known trademark protection has undergone major changes because of the digital age. Future legal protection of well-known trademarks should face new threats from AI-generated content as well as NFTs and social media infringements because existing international agreements and national laws need ongoing updates. Markets call for proactive brand protection strategies with enhanced enforcement capabilities to keep their market reputation secure as digital trends shift in real time. The expansion of brand visibility through global markets on the internet has brought forth new risks that consist of counterfeiting acts alongside cybersquatting and trademark dilution, in addition to cross-border enforcement problems. While TRIPS and the Paris Convention form the base of international trademark protection systems, their enforcement varies between jurisdictions. The combination of emerging

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<sup>41</sup> Adjie, J. K., & Kansil, C. S. T. (2024). Legal Protection for Owners of Well-Known Trademarks Viewed from the Principle of Well-Known Marks. *Journal of Law, Politics and Humanities*, 5(1), 314–323. <https://doi.org/10.38035/jlph.v5i1.896>

technologies AI, blockchain, and digital watermarking provides stronger methods for trademark enforcement which effectively fights misuse. Digital frameworks need updates to effectively manage the complexities of modern times because blockchain and Artificial Intelligence technologies show potential solutions. Scientific research needs to prioritize the proper combination of technological solutions with current legal systems, together with an examination of the trademark law implications brought by the metaverse and NFT digital environments.

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