INDIAN JOURNAL OF LEGAL REVIEW

VOLUME 6 AND ISSUE 2 OF 2026

INSTITUTE OF LEGAL EDUCATION

INDIAN JOURNAL OF LEGAL REVIEW

APIS – 3920 – 0001 | ISSN - 2583-2344

(Open Access Journal)

Journal's Home Page – https://ijlr.iledu.in/

Journal's Editorial Page - https://ijlr.iledu.in/editorial-board/

Volume 6 and Issue 1 of 2026 (Access Full Issue on - https://ijlr.iledu.in/volume-6-and-issue-1-of-2026/)

Publisher

Prasanna S,

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No. 08, Arul Nagar, Seera Thoppu,

Maudhanda Kurichi, Srirangam,

Tiruchirappalli – 620102

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INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 6 AND ISSUE 2 OF 2026

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

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THE TRANSFORMATION OF DIGITAL EXHAUSTION PRINCIPLES AND OPEN LICENSING REGIMES: STRIKING A BALANCE BETWEEN INNOVATION AND PROPRIETARY CONTROL

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BEST CITATION - SHALINI GIRI & DR. SUKRITI YADAV, THE TRANSFORMATION OF DIGITAL EXHAUSTION PRINCIPLES AND OPEN LICENSING REGIMES: STRIKING A BALANCE BETWEEN INNOVATION AND PROPRIETARY CONTROL, *INDIAN JOURNAL OF LEGAL REVIEW (IJLR),* 6 (2) OF 2026, PG. 157-168, APIS – 3920 – 0001 & ISSN - 2583-2344.

Abstract

This article takes as its premise that the digital economy has changed significantly enough that IP law and doctrine has been altered in some substantial fashion. The article begins with the statement that the first sale doctrine is a fundamental principle of IP law, but then delves into the problems created by the digital economy with respect to the use and dissemination of copyrighted materials and thereby the applicability of the first sale doctrine to digital products. In the analog world, this became an issue with respect to physical copies of movies, music and software and the issue of whether or not purchasing a copy meant that you could resell that copy. The issues in the digital economy are dramatically more complex, however, given the speed at which information can be distributed, the manner in which information and other materials are stored in the cloud, and the manner in which people access materials and pay for goods and services in a subscription based economy. Each of these factors raises significant doctrinal and conceptual issues concerning the first sale doctrine in the context of digital products.

The concept of digital exhaustion has evolved in response to the rapid evolution of technology and the differing judicial approaches to this concept that have been adopted in various Member States. The present article carries out a critical analysis of this evolution. The author analyses the competition between different sets of rules governing the exercise of copyright, focusing specifically on statutory limits on exclusive rights and on the principle of contractual freedom, through the prism of open access licensing, such as the Creative Commons licence. The author illustrates how, by choosing to apply a Creative Commons licence, the author of a work is able to modify on a voluntary basis the terms of authorization and to extend the category of beneficiaries by ensuring that the copyright reserved in respect of that work is fully preserved.

This project aimed at exploring through doctrinal analysis and comparative research the tensions between competing values such as innovation, competition, consumers and the legitimate interests of copyright holders as they are dealt with in the copyright legislation of each country. The project's findings were that the new business models of digital distribution require a revolution in the copyright law on exhaustion and licensing as well as more refined and detailed categorisation of copyright ownership to achieve more transparency in digital transactions and greater harmonisation of copyright law. A calibrated approach is required to balance competing values in the fields of access to knowledge and the digital economy.

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

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Keywords: Digital exhaustion, first sale doctrine, open licensing, Creative Commons, intellectual property in the digital age, digital ownership, licensing versus sale distinction, digital rights management (DRM), interoperability standards, secondary markets for digital goods, AI-generated content and copyright, blockchain and NFTs in intellectual property, international harmonization of IP law, proprietary control, innovation and open access.

Introduction

A range of intellectual property doctrines[359], the exhaustion principle and even open licensing under Creative Commons[360] are being threatened in the digital era. The exhaustion principle, also known as the first sale doctrine in relation to copyright, is a principle which deprives the rights holder of exclusive rights over the copy of the protected subject matter when the copy has been lawfully put into circulation. The principle served to protect secondary trade, individual property and the free movement of products on the market in order to preclude the rights holder from maintaining a permanent monopoly on specific copies of the product. The principle is now however no longer straightforward to apply in a material world which has become increasingly digital. The concepts of "sale", "ownership rights" and "copy" are no longer clear-cut.

In recent years, Creative Commons-style open licensing schemes have become a ubiquitous part of the digital environment. Open licenses can be viewed as a form of contract between authors and creators and subsequent users of their work, by reserving certain rights (for example, the right of attribution) and at the same time granting other rights, and thereby allowing the work to be adapted and used in some form. Open licensing is a hallmark of open educational resources (OERs), open access publishing, open source software and other phenomena in the digital culture. Open licensing schemes create a whole range of opportunities and challenges, including issues of legal effect and standardisation, jurisdiction and conflict of laws, contract interpretation, and author economic entitlements.

The digital exhaust, or trail of data created when users engage with online applications, is a product of the changing nature of online engagement. This paper, Digital Exhaustion: A Study on the Evolving Relationship Between Digital Exhaustion and Open Licensing through the Law, examines the changing relationship between digital exhaustion and open licensing, the courts' and policy makers' responses to technological change and whether the current IP laws adequately balance the rights of IP owners and the public good. The study proposes to develop a principle-based framework that will provide a balance between the creative and innovative aspects of IP markets in the digital age, and the underlying moral and ethical principles of the IP system. The internet offers users the opportunity to connect to a wealth of information through numerous online mediums. This has led to an evolution in the way we interact online. A reflection of this evolution is the concept of digital exhaustion.

1. The Doctrine of Exhaustion in the Digital Age

1.1 Origins of Exhaustion

The doctrine of exhaustion is a judicial and statutory limitation on the wide-ranging intellectual property rights that have been accorded to proprietors in recent years. It is a principle based on the rules of free trade and the circulation of goods, which deny the right holder the possibility of exercising his exclusive distribution rights in relation to subsequent sales of the product, except in so far as such rights are exercised in relation to the initial sale authorized by him. This principle in relation to copyrights is known as the "first sale doctrine" of

[359] Fisher, William. "Theories of intellectual property." (2001).
[360] Katz, Zachary. "Pitfalls of open licensing: An analysis of Creative Commons licensing." Idea 46 (2005): 391.

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

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copyright. The first sale doctrine of copyright permits the purchaser of a legitimate copy of a copyrighted work to resell or transfer it to others, to lend it or otherwise to dispose of it as he or she sees fit. Such secondary disposals are often carried out by libraries, bookstores and online resellers. The first sale doctrine of copyright is designed to protect these entities from the exercise of intellectual property rights which could otherwise inhibit or restrict the sale and circulation of copyrighted goods.

The doctrine of exhaustion (also known as the principle of exhaustion or resale price maintenance rule) states that the patentee's rights[361] are exhausted upon the sale of a patented product with the patentee's consent. This means that once a patented product is sold, the patentee will not be able to prevent further use or resale of the product. The doctrine of exhaustion serves to maintain a balance between the exclusive rights of the patent holder and competition law and the protection of the consumer's right of choice. The patent holder should not be allowed to have a second monopoly on a product; the doctrine of exhaustion provides legal certainty for the exercise of economic activities. The principle of exhaustion was established in relation to the sale of tangible products, in a context where it was always clear when the owner, the person who physically possesses the product and who is responsible for its transfer, exercised their rights. The principle was based on the assumption that copies would always be tangible objects, an assumption which has been destroyed by the advent of digital technology.

1.2 Digital Copies and Infinite Replicability

In my last post on author's rights in respect of lawful copies, I discussed the impact of the copyright digital revolution on the principle of exhaustion. I noted, in respect of the copyright in the lawful copy, that there are now three important differences with respect to digital files: (a) an infinite number of perfect copies of the file can be made from each other copy; (b) these copies are not made or stored in the same way that a copy is, because they are generated electronically; and (c) therefore when a file is 'resold' the "sale" is not a sale and purchase of an object in the same way that the sale and purchase of a physical copy is a sale and purchase of an object. When the file is "resold" it is simply copied and retransmitted from one device to another in the same way as when it was first "sold" and this is not a sale and purchase of an object in the same way as the original "sale" and purchase of a physical object.

Another factor in play is that a great deal of digital content is licensed rather than sold. And often the End User Licence Agreements (EULAs)[362] contain provisions that restrict the transferability of the licensed digital content and thus the exhaustion of the copyrighted work. In other words, the consumer is not buying the digital content. They are only licensed to use it, under the terms and conditions as stipulated in the licence agreement.

The exercise of such exclusive rights by the copyright owner may be made more difficult where technological protection measures (TPMs)[363] are used, such as through the use of digital rights management (DRM)[364] technology which can be used to prevent the reproduction, adaptation or communication to the public of the copyrighted work and/or to prevent the work from being accessed (despite the work having been licensed lawfully to a consumer and paid for by that consumer). The control retained by the copyright owner over their copyrighted works enables them to continue to exercise control over their works notwithstanding that they have exercised the exclusive rights conferred by copyright and the

[361] Putnam, Jonathon Douglas. The value of international patent rights. Yale University, 1996.

[362] Zmurchyk, Renée. "Contractual Validity of End User Licence Agreements." Appeal: Rev. Current L. & L. Reform 11 (2006): 55.

[363] Kerr, Ian R. "Technological Protection Measures: Part I-Trends in Technical Protection Measures and Circumvention Technologies." Department of Canadian Heritage, Copyright Policy Branch, Online (2004).

[364] Subramanya, S. R., and Byung K. Yi. "Digital rights management." IEEE potentials 25.2 (2006): 31-34.

copyright works have fallen into the public domain. This aspect of copyright law and its operation is also currently the subject of ongoing judicial review and therefore it is not yet possible to provide any degree of certainty as to the extent to which the principle of exhaustion will be held to apply to copyright works in the digital age.

1.3 Jurisdictional Approaches

- **United States:** The first sale doctrine under 17 U.S.C. § 109 has generally been confined to physical copies, with courts resistant to extending it to purely digital downloads. A notable dispute centers on whether digital "ownership" exists at all if the consumer only receives a license.
- **European Union:** The Court of Justice of the EU (CJEU) has recognized exhaustion for digital works under specific conditions (e.g., *UsedSoft GmbH v. Oracle*), allowing resale of downloaded software licenses.

1.4 Legal and Policy Implications

Controversies surrounding digital exhaustion are currently at the centre of the debate on copyright law and policy. Rights holders and consumers' interests are at the heart of the dispute. In general, in an ordinary market exchange of copyrighted items such as books or films for money confers on the buyer the rights as owner to do with that item what any owner would normally do, in particular to give it away, to lend it or to sell it. In the digital environment, however, many buyers have been astonished to discover that the digital item they have paid for is not one that they can pass on, withdraw from circulation at any moment by the copyright holder or which they can only keep as long as they use the services of the seller. In this way the rights of the owner are fundamentally altered in the digital market.

From a competition viewpoint, not taking account of the exhaustion of intellectual property rights in digital markets could allow rights holders to perpetuate their market power over subsequent activities and price levels, to the detriment of consumers through higher prices for secondary distribution and the prohibition of resale. On the other hand, overextending the principle of exhaustion could have the adverse effect of curtailing innovation in content creation, and of being incompatible with new emerging business models in the digital economy such as subscription-based services and new streaming models.

The recent tax on digital applied to hundreds of products and services represents a balance that should not be disturbed to the detriment of any specific group. Rules on the digital tax on exhaustion[365] should not depress demand for innovation and at the same time avoid strengthening overly the exclusive rights that make up IP[366]. In short, the taxation of the digital economy will need a global and complete solution that takes into account all forms of economic and fiscal practices[367], and that bears in mind the different elements that make up the relations between companies and between companies and consumers (rules governing contractual relations, technology and the distribution of the global taxable base and the rules that ensure an equitable allocation of the tax base). The digital economy should operate with the same degree of fiscal responsibility and justice as the rest of the economy, and the consumer should still benefit from low prices.

2. Open Licensing Regimes: Creative Commons and Beyond

2.1 What Are Open Licenses?

Open licenses are a set of rules that authors may use to modify the IP rights they granted to their work. Instead of leaving the protection of their rights to the exceptions provided in IP laws (such as the fair use clause in copyright law or the exhaustion rule), authors can give specific authorization for the use of their work under

[365] Mammadli, Aydan. "Digital Exhaustion." Baku St. UL Rev. 7 (2021): 81.
[366] Samuelson, Pamela. "Intellectual property and the digital economy: Why the anti-circumvention regulations need to be revised." Berkeley Tech. LJ 14 (1999): 519.
[367] Asher, Mukul G. "Fiscal System and Practices in." Fiscal Systems and Practices in ASEAN: Trends, Impact, and Evaluation (1989): 103.

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particular conditions. Open licenses allow authors to keep the IP rights they have granted to their work, while also making it possible for others to use it, in accordance with the terms and conditions agreed upon. Most open licenses are Creative Commons (CC) licenses[368]. They are a set of standard, royalty-free, flexible licenses that un-bundle copyright restrictions from the actual work. In this way, authors and other rights holders can keep the copyright on the work they release, while making their work accessible and reusable by others. Creative Commons licenses are global, flexible, versionable, machine-readable, human-readable and can be combined with other licenses.

Creative Commons (CC) licenses are formed by combining four elements – attribution (BY), non-commercial (NC), no derivatives (ND) and share alike (SA). At one end of the spectrum are the so-called 'free access' licences, specifically the CC BY license. At the other end of the spectrum are licenses such as CC BY-NC-ND, which retain the characteristics of the CC BY license but in addition prohibit commercial use and the derivative use of a work. Creative Commons licenses are legally binding copyright licenses that are worded in plain human language that is easy to read and understand. At the same time, they are drafted in a form that can be read by computers, which allows a work to be dynamically shared electronically.

This is not the first time Creative Commons has been in the spotlight when it comes to intellectual property law. Open-source software licenses (which include a variety of copyleft versions) have made a huge impact on how software is made. What we have here are open software licenses that allow for some rights to be retained, while at the same time others remain open. We are no longer used to the default "all rights reserved", but rather "some rights reserved". These open licenses are examples of a new form of private ordering where creators are given the choice of how they would like to license their works, and have the opportunity to balance openness and exclusive rights.

2.2 Objectives of Open Licensing

Open licensing regimes are underpinned by normative commitments to access, collaboration, and innovation. First, they promote the democratization of knowledge by lowering legal barriers to access and reuse. In educational and research contexts, open licenses enable students, scholars, and institutions to share materials without navigating complex permission structures. This has been particularly transformative in the development of open educational resources (OER), which reduce costs and expand global learning opportunities.

Second, open licenses facilitate derivative innovation. By permitting adaptation, remixing, and redistribution, these frameworks encourage cumulative creativity—a foundational principle of intellectual property theory. Cultural production in the digital age frequently relies on sampling, remix culture, and collaborative authorship. Open licensing legitimizes these practices within defined boundaries, fostering experimentation and technological advancement.

Third, open licensing supports collaborative production models. Open-source software communities exemplify how distributed contributors can collectively build and refine complex projects. Such models rely on legal certainty to ensure that contributions remain accessible and that proprietary enclosure does not undermine communal effort.

At a policy level, open licensing aligns with broader goals of innovation policy, competition, and human development. However, these objectives must coexist with sustainable economic models for creators. The challenge lies in ensuring that openness enhances, rather than erodes, long-term creative incentives.

[368] Margoni, Thomas, and Diane M. Peters. "Creative Commons Licenses: empowering open access." Editorial Office News 9.2 (2016).

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2.3 Enforcement Challenges in Digital Contexts

Despite their aspirational goals, open licenses encounter significant enforcement challenges in digital environments. One primary difficulty concerns attribution. While many CC licenses require proper credit, tracking attribution across multiple online platforms, social media reposts, and derivative adaptations can be practically complex. Automated content-sharing mechanisms often strip metadata, undermining compliance with license terms.

International enforceability further complicates matters. Although Creative Commons licenses are drafted to function globally, differences in national copyright doctrines, moral rights protections, and contract interpretation can affect judicial outcomes. Cross-border disputes may raise questions of applicable law and jurisdiction, creating uncertainty for licensors and users alike.

Another challenge lies in user misunderstanding. Many individuals interpret "open" as synonymous with "public domain," failing to appreciate restrictions such as non-commercial use or share-alike obligations. This can result in inadvertent infringement, blurring the boundary between authorized reuse and violation. Enforcement, therefore, often relies on community norms, platform governance, or voluntary compliance rather than formal litigation.

These challenges highlight that open licensing, while flexible and innovation-friendly, does not eliminate the need for doctrinal clarity and institutional support in the digital ecosystem.

3. Intersection of Digital Exhaustion and Open Licensing

3.1 Where the Doctrines Meet

Digital exhaustion and open licensing intersect at the juncture of distribution, access, and post-transfer control. Both frameworks address the extent to which rights holders retain authority over copies of their works once they enter circulation. However, they operate through distinct legal mechanisms—exhaustion as a statutory limitation and open licensing as a contractual grant of permission.

Consider a Creative Commons-licensed work made available online without monetary exchange. If no "sale" occurs, traditional exhaustion may not be triggered, as exhaustion historically presupposes a transfer of ownership for consideration. In such contexts, access is governed entirely by license terms rather than statutory limitations. This raises theoretical questions about whether exhaustion retains relevance in open-access environments or whether licensing supersedes it.

Further complexities arise where licenses are terminated due to breach. Creative Commons licenses are generally irrevocable provided compliance continues, yet breaches may result in termination of rights. If users have already downloaded copies, questions emerge regarding the status of those copies and the scope of continued use. Thus, the intersection of exhaustion and open licensing tests the boundaries between statutory rights, contractual autonomy, and digital permanence.

3.2 Practical Conflicts

Several practical conflicts illustrate the tension between exhaustion principles and open licensing frameworks. First, revocability differs in conceptual foundation. Exhaustion operates automatically upon authorized sale and is not subject to unilateral withdrawal. In contrast, open licenses are conditional grants: non-compliance may terminate rights, though compliant uses remain protected. This distinction complicates the legal status of copies in cases of breach or modification.

Second, digital platforms frequently employ DRM or other technological controls that restrict sharing, copying, or modification. Such controls may undermine both exhaustion—by preventing lawful resale—and open licensing—by imposing technical barriers inconsistent with granted freedoms. The coexistence of contractual permissions and technological constraints

raises normative concerns regarding over-enforcement.

Third, evolving marketplace dynamics, including digital resale platforms and tokenized assets, intensify these tensions. Where original licensing terms prohibit resale, consumers may argue that exhaustion should override contractual limitations. Courts must then determine whether contractual structuring can nullify statutory doctrines.

Ultimately, these conflicts underscore the need for doctrinal coherence. A harmonized approach must clarify the relationship between statutory exhaustion, private licensing autonomy, and technological enforcement to ensure fairness, predictability, and innovation in digital markets.

4. Balancing Innovation and Proprietary Control

4.1 Policy Considerations

The recalibration of digital exhaustion and open licensing regimes must be guided by coherent policy objectives that reflect the foundational purposes of intellectual property law. At its core, IP seeks to incentivize creativity and innovation by granting limited exclusivity, while simultaneously ensuring that such exclusivity does not stifle competition, access, or cumulative knowledge production. In the digital environment, this balance becomes particularly delicate due to the scale, speed, and replicability of digital dissemination.

First, any balanced framework must preserve economic incentives for creators and rights holders. Digital markets often rely on licensing models, subscription services, and platform-based distribution systems that generate revenue streams essential for sustainable creative industries. If digital exhaustion were applied too broadly, it could undermine these business models by enabling uncontrolled secondary markets, potentially diminishing primary sales and reducing returns on investment. Therefore, policy reform must carefully assess the economic impact on content creators, software developers, and digital distributors.

Second, access to knowledge remains a central normative goal. Excessive proprietary control over digital works risks restricting cultural participation, educational advancement, and technological experimentation. The digital sphere has democratized content creation and distribution; however, rigid enforcement mechanisms and perpetual licensing restrictions may reverse these gains. A balanced approach should therefore ensure that legal doctrines do not create artificial scarcity in environments where replication costs are negligible.

Third, promoting technological innovation requires avoiding anti-competitive restrictions embedded in licensing agreements or technological protection measures. Interoperability, consumer mobility, and fair market competition are essential to preventing dominant platforms from leveraging IP rights to entrench market power. Thus, public policy must integrate competition law principles with IP doctrine to prevent regulatory fragmentation. Ultimately, the objective is not to dilute proprietary rights, but to harmonize them with the dynamic, innovation-driven character of digital economies.

4.2 Proposed Legal Frameworks

A sustainable balance between innovation and proprietary control demands targeted legal reforms capable of adapting traditional doctrines to digital realities. Rather than dismantling established principles, the objective should be to refine them through conditional safeguards, transparency mandates, technological standards, and international coordination. The following proposals aim to reconcile doctrinal coherence with practical feasibility.

4.2.1 Conditional Digital Exhaustion

One viable reform is the introduction of conditional digital exhaustion. Under this model, exhaustion would apply only where a

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Published by
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transaction substantively resembles a sale rather than a limited license. Courts and legislatures could evaluate factors such as the duration of access, payment structure, and degree of control retained by the rights holder. Where a consumer pays a one-time fee for indefinite access and receives a transferable interest, the transaction may be treated as a sale triggering exhaustion.

To address concerns regarding unauthorized duplication, technical standards could be integrated into this framework. For example, blockchain-based verification systems or secure digital registries could confirm authenticity and ensure that only one operative copy exists following a transfer. Such mechanisms would preserve the economic logic of exhaustion while mitigating risks associated with infinite replicability. Conditional digital exhaustion thus offers a calibrated solution that protects ownership expectations without enabling uncontrolled reproduction.

4.2.2 Mandatory Transparency in Licenses

A significant challenge in digital markets lies in the opacity of licensing agreements. Consumers frequently encounter complex end-user license agreements (EULAs) that obscure the distinction between ownership and mere access rights. To address this asymmetry, mandatory transparency requirements could be introduced, compelling digital distributors to clearly disclose whether a transaction constitutes a sale or a non-transferable license.

Such disclosure obligations should explicitly state whether exhaustion applies, whether resale is permitted, and under what conditions access may be terminated. Standardized labeling systems—similar to consumer protection disclosures—could enhance clarity and reduce litigation. Transparent classification would not only protect consumers but also foster market efficiency by aligning expectations with legal reality.

Moreover, transparency strengthens contractual legitimacy. When users are fully informed of the legal character of digital transactions, the risk of misrepresentation or unfair contractual terms diminishes. This approach preserves freedom of contract while safeguarding consumer autonomy and legal certainty in digital commerce.

4.2.3 Interoperability Standards

Technological protection measures, including DRM systems, often function as practical barriers to exhaustion and open licensing freedoms. Even where legal doctrine permits transfer or reuse, technical restrictions may render such rights ineffective. To reconcile legal entitlements with technological realities, policymakers could promote interoperability standards that limit anti-competitive DRM practices.

Interoperability requirements would ensure that digital content can be transferred across compatible platforms without unlawful duplication. Additionally, open license compliance mechanisms—such as metadata preservation and automated attribution tools—could facilitate adherence to Creative Commons conditions across digital ecosystems. By embedding compliance within technological architecture, enforcement becomes more efficient and less adversarial.

Importantly, interoperability promotes competition by preventing vendor lock-in and reducing dependency on dominant platforms. It aligns intellectual property policy with broader digital market regulation, ensuring that proprietary control does not translate into structural market dominance. Thus, technological neutrality and openness can coexist within a carefully regulated framework.

4.2.4 International Harmonization

Given the borderless nature of digital distribution, fragmented national approaches to exhaustion and open licensing create uncertainty and forum shopping. International harmonization is therefore essential. Multilateral agreements or coordinated policy guidelines could clarify the application of exhaustion

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principles to digital goods, reducing inconsistencies between jurisdictions.

Harmonization efforts might be advanced through forums such as World Intellectual Property Organization, which facilitates dialogue on global IP standards. Coordinated guidelines could address minimum transparency requirements, mutual recognition of digital exhaustion under specified conditions, and standardized enforcement of open licensing terms.

Uniformity would enhance predictability for creators, consumers, and digital platforms operating across borders. It would also prevent regulatory arbitrage, where entities exploit disparities between legal systems. While complete uniformity may be unrealistic, incremental convergence can mitigate fragmentation and foster a stable global digital marketplace. In an interconnected economy, balanced reform must transcend domestic boundaries to ensure equitable and innovation-friendly governance.

5. Case Studies

5.1 UsedSoft GmbH v. Oracle International Corp.

UsedSoft GmbH v Oracle International Corp (Case C-128/11)[369] is a landmark 2012 Court of Justice of the European Union (CJEU) ruling establishing that the first sale of a perpetual software license exhausts the copyright holder's distribution right within the EU. The Court of Justice of the European Union made a decision in UsedSoft GmbH v. Oracle International Corp. Back in 2012[370]. This case was very important for the way we think about exhaustion in the European Union. UsedSoft was reselling software licenses that they had originally bought from Oracle. Oracle said that they had only licensed the software not sold it and that UsedSoft did not have the right to resell it. The main question for the Court was whether the idea of exhaustion applied to software that people downloaded from the internet under a license that lasted forever.

The Court said that if someone gives a license for a long time and gets a fee that is like the value of the copy then it is like a sale. So the right to distribute the software is used up after the sale even if the person got it by downloading it from the internet. It is also important that the person who is reselling the software has to make their own copy unusable when they sell it so that there are not two copies.

This decision was a change in the way we think about digital sales. It said that downloading software can be like buying a physical copy.. It only applies to software in the European Union not to other things like music or e-books. The UsedSoft case shows that courts are willing to adapt rules to new digital markets while still protecting peoples economic interests and stopping unauthorized copying.

5.2 Drauglis v. Kappa Map Group (US)

Drauglis versus Kappa Map Group, LLC in 2015[371] was decided by a court in Washington D.C.. Talked about Creative Commons licenses in business.

A photographer named Art Drauglis put a U.S. Capitol photo on Flickr with a Creative Commons license that said anyone can use it for business if they give credit and share terms. Kappa Map Group used the photo on a street atlas cover. Gave credit inside.The photographer sued for copyright issues saying business use broke the license and credit was not enough.The court agreed with Kappa Map Group. They said the license clearly allows business use and Kappa Map Group gave credit.The court also said the atlas was a collection of works not a work made from the

[369] Grigoriadis, Lazaros G. "The Distribution of Software in the European Union After the Decision of the CJEU â€ œUsedSoft GmbH V. Oracle International Corp. â€(â€ œUsedSoftâ€)." Journal of International Commercial Law and Technology 8.3 (2013): 28670.

[370] Grigoriadis, Lazaros G. "The Distribution of Software in the European Union after the Decision of the CJEU UsedSoft GmbH v. Oracle International Corp.(UsedSoft)." J. Int't Com. L. & Tech. 8 (2013): 198.

[371] Seibert, Heather, Rachel Miles, and Christina Geuther. "Navigating 21st-century digital scholarship: Open educational resources (OERs), Creative Commons, copyright, and library vendor licenses." The Serials Librarian 76.1-4 (2019): 103-109.

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VOLUME 6 AND ISSUE 2 OF 2026

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

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photo so sharing similar terms did not apply to the whole atlas.

This case is important because it confirmed that Creative Commons licenses are real and will be taken as written.This helps make open licensing reliable in U.S. Copyright law.The Drauglis case shows that Creative Commons licenses can be trusted and will be enforced as they are written.The case also shows that businesses can use Creative Commons licensed works if they follow the rules.

The court ruling in Drauglis versus Kappa Map Group, LLC supports the use of Creative Commons licenses, in business.

6. Future Directions

6.1 AI-Generated Content and Licensing

The fast progress of intelligence systems that can create things on their own has caused big problems for the rules that protect peoples ideas and work. These AI systems can now make text, music, pictures. Code all by themselves and they can do it very quickly. This new technology makes us ask some questions about who owns the things that AI systems create and who gets to control what happens to them. If an AI system makes something without any help from a person we have to figure out if it can even be protected by copyright. In some places only people can own copyrights so things made by AI systems might not be protected.

If we do decide that AI-made things can be protected by copyright it gets more complicated. For example if these things are shared through services that you pay for each month or through cloud storage it is hard to say whether they are being sold or just licensed. Also AI systems often make things on the spot rather than just copying old ones, which makes it hard to say what a "copy" even is. The people who make the rules have to decide whether the old rules about copyright still work or if we need ones.

Another big issue is that AI systems often learn from things that people have already made like text and pictures. Some of these things might be protected by copyright. They might be shared under special licenses that say how they can be used. We have to figure out if it's okay to use these things to teach AI systems and whether the people who made them get the credit they deserve. If we do not do this right it could hurt the people who make things and share them with others.

We need to make rules that will help us deal with AI systems and the things they create. These rules should protect the people who make things. Also allow AI systems to be used in new and innovative ways. Generated content is a big part of this and we need to make sure we get it right.

6.2 Tokenization and Digital Ownership

There is a technology called blockchain that might help us figure out who owns digital things like pictures or music. It works by keeping a record of who has owned something and when they owned it on a list that everyone can see. There are also things called -fungible tokens or NFTs that can be used to prove who owns a particular digital thing. This could be a way to solve some of the problems we have with ownership.

When we use blockchain and NFTs[372] we can make a record of who owns something. We can even set up rules for how it can be used or sold. For example we could say that if someone sells an NFT, the person who originally made the thing gets an amount of money. This could be a way to make sure that people who make things get paid for their work even if someone else is selling it. Tokenization is a way to make digital ownership more clear. It could help us deal with some of the problems we have now.

However there are also some problems with tokenization. For one thing just because someone buys an NFT it does not mean they own the copyright to the thing. This can be very confusing for people who do not understand

[372] AlKhader, Walaa, et al. "Leveraging blockchain and NFTs for quality 4.0 implementation in digital manufacturing." Journal of Manufacturing Technology Management 34.7 (2023): 1208-1234.

how it works. Also sometimes people make NFTs without getting permission from the person who made the thing, which can cause problems with copyright. The fact that blockchain is decentralized meaning that it is not controlled by any one person or group can also make it hard to enforce the rules[373].

We also have to think about the fact that making and trading NFTs can be bad for the environment and that it can be used for speculation or betting on what things will be worth in the future. We need to be careful when we are making rules, about tokenization and make sure that we are protecting the people who make things and also making sure that the rules are fair and clear. Generated content and tokenization are both important parts of the digital economy and we need to get them right.

Conclusion

The digital exhaustion principle and the open licensing regimes are only manifestations of a far-reaching structural change in the IP system which is triggered by the dematerialization of markets and the new network economy. The theory of analog IP law is based on a material economy where the doctrine of exhaustion could be applied in an unproblematic way since ownership, possession and transfer of goods could be easily proven on the material level. In the digital economy, however, the material conditions of copies and sales are lost, and in place of the latter conditional licences to use digital goods are more and more frequently introduced. The right holders can thus extend the period of generating income from their works, and a number of uncertainties are introduced regarding the protection of consumers, secondary trade and the long term preservation of knowledge.

The move to more open proprietary terms is accompanied by new open licenses, which deal with this shift. These licenses attempt to give the creators of intellectual property more choices over which terms they make their work available under, thus showing that exclusivity does not have to be 100% in order for intellectual property to retain market value. Open licensing does not necessarily resolve issues associated with exclusivity such as compliance, conflict of laws and technology incompatibility. The interplay of principles of copyright exhaustion and contractual openness points to a fundamental transformation of IP law. The rules that establish exclusive rights are now implemented through layers of regulation—public regulation, private ordering and technological restrictions—that need to be aligned to ensure doctrinal consistency.

To ensure an adequate balance for the digital era, we must ensure the effective digital exercise of the various rights, that the sales carry out a significant economic activity and that the leasing of copyrighted works is possible in a way that does not compromise the economic stability of the cultural sector. In this sense, it is essential to achieve transparency in online contracts in order to protect the capacity of decision of the consumers and to avoid distortions in the information process. It is also important to ensure that the technical measures that are implemented in order to guarantee the interoperability of devices that use digital works do not obstruct the exercise of the rights recognised by law. Finally, it is essential that the competition rules are applied in such a way as to avoid the increase in monopolies arising from the permanent availability of copyrighted works in digital format.

The harmonization of copyright laws at the international level is as important as ever. As we are all aware, the digital copying and transmission of works takes place instantaneously all over the world. Different copyright rules in different countries will inevitably lead to legal uncertainty, abuse of rights and discrimination in respect of the protection of copyright works. An international debate on this subject could take place within WIPO with the aim of achieving a degree of harmonization of copyright laws at the

[373] Atzori, Marcella. "Blockchain technology and decentralized governance: Is the state still necessary?." Available at SSRN 2709713 (2015).

international level, while at the same time allowing each country to pursue its own cultural, economic and social development course through adequate national policies.

The future of digital IP law will have to be a hybrid model, with both closed and open components. IP law has to develop an adaptive capacity to adapt to technological change over time. The law must take into account the dynamically changing technology of the time, as well as the corresponding societal values. These values should promote equity, innovation and access in order to secure a just and innovative digital world.

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