

Unpacking the value of “All Rights Reserved” on websites

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Abstract

Copyright notices such as “© 2025 Company Name. All rights reserved” are widely used on commercial websites, despite their formal legal necessity being eliminated under international law. This paper investigates the actual value of such notices in legal, UX, behavioral, and marketing contexts. Based on an empirical study of 347 websites, we identify patterns in notice content, structure, and placement, as well as mismatches with legal ownership data. We analyze the evolving relevance of copyright notices under EU law, particularly in the context of Article 4 of Directive 2019/790 and text and data mining (TDM). The results reveal that copyright notices still serve multiple meaningful functions. Our findings indicate that while the traditional legal purpose of notices has diminished, they may still function as signals with implications for, among other things, compliance and innovation, highlighting the need for further research on their role in the context of generative artificial intelligence (AI) and large-scale TDM.

Keywords

copyright notice, text and data mining, artificial intelligence, digital platforms

1. Introduction and Related Works

Contemporary websites act as digital showcases for organizations and individuals, as well as platforms for communication and information exchange. Content creators or rights holders frequently include unilateral copyright statements, typically in the lower section of a page (the footer), in a conventional format such as:

[copyright symbol] [owner’s name] [year] [rights statement].

The phrase “All rights reserved” originates from the Buenos Aires Convention of 1910, which required this wording to formally reserve rights. Interestingly, the convention was signed only by the United States and several Latin American countries. After those countries acceded to the Berne Convention in the 1970s, the formal requirements of Buenos Aires lost their legal significance – under the Berne Convention, copyright protection arises automatically upon creation and requires no formalities.

Despite that, the statement is still widely used today. What value does it provide to rights holders? Some scholars argue that the © symbol functions as a deterrent, fulfilling a behavioral and social role [1–3], and helps eliminate the “innocent infringer” defense by evidencing intent [3].

* AISSE-2025: The International Workshop on Applied Intelligent Security Systems in Law Enforcement, October, 30–31, 2025, Vinnytsia, Ukraine

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On the one hand, such “little texts” are often not designed for active engagement. They present demands without explanation, restrict user/AI action without interaction, and embed legal requirements into visual noise [1]. Furthermore, footer notices in small font are typically perceived as invalid – until proven otherwise [4].

Research suggests that the effectiveness of a notice depends less on format (e.g., symbol, structure, or phrasing) and more on clarity, contextual relevance, and user perception [5]. The architectural integration of the notice at the bottom of the page makes it significant both historically and in terms of user experience [4]. Online platform architecture itself can regulate user behavior de facto, regardless of formal law [6]. Moreover, visual compactness and cognitive simplicity increase the likelihood that users will process and respond to such information [7].

Thus, the scholarly view affirms the prevailing behavioral value of copyright notices. Copyright is also an engine of standardization – by shaping routines and expectations, it facilitates mutually beneficial transactions in digital markets [8]. Designers can also be seen as following a standard UX convention – the phrase is simply expected to be present as a marker of professional competence. In addition, a limited legal effect is acknowledged: the presence of a notice may shift infringement from unintentional to willful (17 U.S.C. § 401(d)). But is such typology precise and exhaustive?

To address that question, we now examine the frequency and quality of copyright notices in real-world website practice. This paper critically examines why copyright notices like “All rights reserved” remain widely used on websites and what functions they fulfill in the digital environment. In the current era of rapid AI development, TDM has become a central mechanism of innovation and knowledge extraction. The capacity of algorithms to learn from vast corpora of online texts and images has transformed the very meaning of copyright boundaries. Within this new context, the simple textual notice “All rights reserved” gains renewed significance: it may determine whether content can lawfully be used in AI training datasets. Thus, examining how such notices function and are perceived today is essential for understanding the evolving relationship between copyright law, digital design practices, and the governance of generative AI.

2. Methodology

The methodological framework (Figure 1) outlines the sequential stages of data selection, coding, and analysis used to identify functional patterns in website copyright notices.

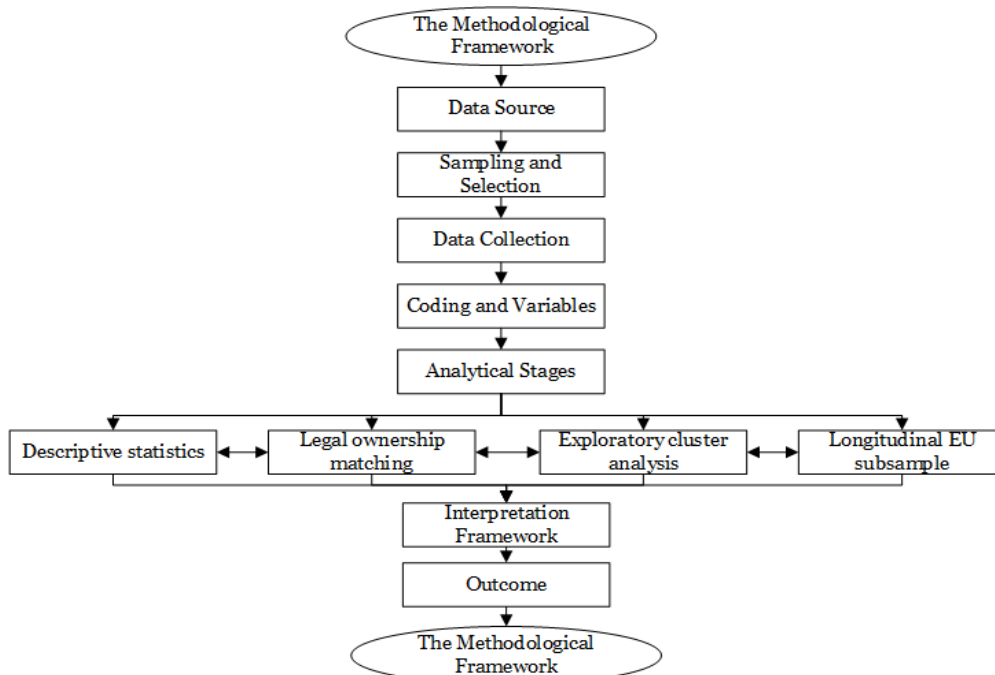


Figure 1: Methodological Framework of the Study.

To interpret the different patterns and functions of copyright notices, the empirical part of the study was based on the Forbes Global 2000 list (2024 edition), which served as the initial population. We selected websites of the world's largest companies because their online practices are often considered benchmarks in design [9], reputation signaling [10], and other organizational best practices. Companies were reviewed sequentially, starting from the top of the list. For each entry, we attempted to access the official corporate website. A company was included in the sample only if its homepage was publicly accessible and functioning properly at the time of review. Websites were excluded if access was restricted or lacked a discernible homepage.

Data collection was conducted in June 2025. We adopted a static snapshot approach to capture dynamic website content at a fixed point in time, enabling cross-sectional analysis.

We prioritized global .com domains when multiple regional versions were available, reflecting the international scope of the corporations and their preference for globally consistent branding. This choice may also indicate a strategic intent to reduce perceived dependence on national legal systems. However, such prioritization may underrepresent country-specific legal nuances and regional adaptation of copyright notices. Therefore, while the study reflects only a limited regional context, it demonstrates an internationalized approach to copyright notice practices.

No mobile versions were included.

The final sample consisted of 347 websites. Each homepage was manually examined to document the presence, structure, and content of copyright notices. The analysis focused on five predefined elements: (i) the © symbol, (ii) the word "Copyright", (iii) the phrase "All rights reserved", (iv) the year or range of years, and (v) the name of the copyright holder. To ensure systematic data collection, we examined website footers and (for other cases) performed on-page keyword searches using the following terms: ©, "copy", "rights", and "reserved" without spaces.

We applied a deductive coding approach based on these elements, iteratively refined during data collection. Coding and documentation were performed using spreadsheets [11], enabling structured comparison and frequency analysis. In the presence of multiple elements, we noted co-occurrence patterns and accuracy of legal identifiers. Records included binary presence/absence of elements and textual string of the notice.

We also recorded additional features where present, including references to other forms of intellectual property, licenses, explicit mention of affiliated entities within the copyright notice etc.

To assess ownership transparency, we matched the named copyright holder on each website with the actual trademark owner. Trademark ownership data was retrieved from public database "TMview". In our trademark search strategy, we applied a three-step filtering sequence: (1) search for trademarks matching the company name from the Forbes Global 2000 list; (2) filter by the company name; (3) filter by country of registration, corresponding to the headquarters' country (if needed). The process was iterative and continued until a legal entity name could be confidently established. Records associated with individuals or lacking clear links to the company were excluded.

While trademark ownership does not perfectly reflect copyright ownership, for large multinational corporations these portfolios are often centrally managed by the same legal entities, making trademarks a reasonable proxy for identifying the corporate structure of rights holders. This approach, however, introduces certain limitations, as discrepancies may still occur in cases where copyright is held by subsidiaries or external contractors.

An exploratory subgroup analysis was conducted for companies headquartered in the European Union (n = 54). For these, a longitudinal review using the Internet Archive's Wayback Machine was conducted to compare the structure and wording of copyright notices across three regulatory periods: (1) before the adoption of Directive 2001/29/EC, (2) between Directive 2001/29/EC and Directive 2019/790, and (3) after Directive 2019/790, based on the 2025 snapshot.

Content analysis focused on structural patterns. Our method was recursive and reflexive, allowing adjustments during the research process. This included repeated cycles of sampling, analysis, and comparison, particularly useful given the dynamic nature of websites.

The methodological approach draws upon classic principles of snapshot analysis in dynamic web environments [12], reflexive content analysis [13], and interface-focused keyword-driven coding [14].

The study employed descriptive statistics and qualitative interpretation to identify prevailing patterns and deviations in copyright notice design. Based on the total population of 2,000 companies. We computed the margin of error using the finite population correction:

$$e = Z * \sqrt{((p * (1 - p) / n) * ((N - n) / (N - 1)))} \quad (1)$$

where $Z = 1.96$ – critical value corresponding to a 95% confidence level,

$p = 0.5$ – assumed maximum variability (most conservative estimate),

$n = 347$ – sample size used in the study,

$N = 2000$ – total population size (Forbes Global 2000 list).

This yields $e = 0.048$ ($\pm 4.8\%$), confirming that the sample achieves the standard 95% confidence level.

Several limitations must be acknowledged. First, the study analyzed only the main publicly accessible version of each corporate homepage, primarily in the .com domain. As such, region-specific legal disclosures or adaptations on localized versions (e.g., .de, .jp) were not captured, potentially omitting local legal compliance nuances. Second, while data collection occurred at a specific point in time (June 2025), websites are dynamic media. Although screenshots were not taken during data collection, the findings remain verifiable through archival tools such as the Internet Archive’s Wayback Machine. Finally, although efforts were made to verify the legal entity listed in notices through trademark databases, the accuracy of associations may be limited by database completeness and naming discrepancies.

3. Results

Among the analyzed companies, 8% of homepages did not contain any copyright notice; statistics for those that did are presented in Table 1.

Table 1

Frequency of Common Phrases and Symbols Used in Website Copyright Notices

Element Included in Notice	Percentage of Websites	Notes
© symbol	93%	three websites used @ instead of “©”
The word “Copyright”	32%	Subset of the above
Both © symbol and the word “Copyright”	27%	
Phrase “All rights reserved”	51%	
No date included	21%	

To quantify the uncertainty of this estimate, we calculated a 95% Wilson confidence interval for the observed proportion of websites using the phrase “All rights reserved”.

$$p_w = (p + (z^2 / (2 * n))) / (1 + (z^2 / n)) \quad (2)$$

$$SE_w = (z / (1 + (z^2 / n))) * \sqrt{((p * (1 - p) / n) + (z^2 / (4 * n^2)))} \quad (3)$$

$$CI = p_w \pm SE_w \quad (4)$$

where $p = 0.47$ – observed proportion of websites containing the phrase “All rights reserved”,
 $p = 0.5$ – assumed maximum variability (most conservative estimate),
 $z = 1.96$ – critical value corresponding to a 95% confidence level,
 CI is $[0.42, 0.52]$ – resulting lower and upper bounds of the confidence interval.

This indicates that between 42% and 52% of corporate websites in the population are expected to include the phrase “All rights reserved.” Formulas (2)–(4) provide statistical validation by establishing a Wilson confidence interval for the observed frequency of “All rights reserved,” ensuring that the measured prevalence of this phrase across websites reflects a reliable and interpretable range rather than a point estimate.

Among the copyright notices that did include a date, the formatting varied. Table 2 summarizes the types of date formats used and their respective frequencies.

Table 2

Date Formats Used in Copyright Notices

Type of Date Format	Percentage of Websites	Notes
Single year (2025 only)	78%	
Date range (e.g., 2003–2025)	20%	
Final year not 2025	2%	In 40% of cases, the year was 2024

The identification of rights holders in copyright notices revealed significant inconsistencies. While most websites included a name, discrepancies between the listed entity and the actual legal owner were common. In 283 cases, we were able to use a trademark database to identify the legal owner. Table 3 summarizes the accuracy and types of name attribution found in the notices.

Table 3

Identification of Rights Holders in Copyright Notices

Type of Rights Holder Attribution	Percentage of Websites	Notes
Notices with no rights holder specified	2%	
Notices with identified legal owner via trademark database	283 websites	Out of 347 total
Notices where listed name ≠ trademark owner	51% (of 283)	See breakdown below
Minor differences (e.g., legal form variation)	50% (of mismatched cases)	

Trademark / website / other name instead of legal entity	50% (of mismatched cases)
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Four companies listed multiple alternative legal entity names. Some (5%) companies (mostly Chinese) included (ICP) license numbers. In seven cases, affiliates / subsidiaries were specified.

In nine cases, the notice additionally referred to trademark rights, in three cases – to patents; in one case – to industrial design rights.

A k-means cluster analysis revealed four dominant structural configurations of website copyright notices (Figure 2). The minimalistic cluster, characterized by the use of only the © symbol, reflects the UX-related convention of visual simplicity and professional standardization. The traditional cluster, featuring the full formula including “All rights reserved,” aligns with the legal function of explicit rights reservation. The brand-focused cluster, which combines the © symbol with a trademark or brand name, embodies the marketing and reputational function of copyright notices. Finally, the hybrid cluster merges legal and branding elements, corresponding to the mixed functional type. These results indicate that the structure of copyright notices reflects deliberate organizational choices balancing legal signaling, user experience, and brand communication goals.

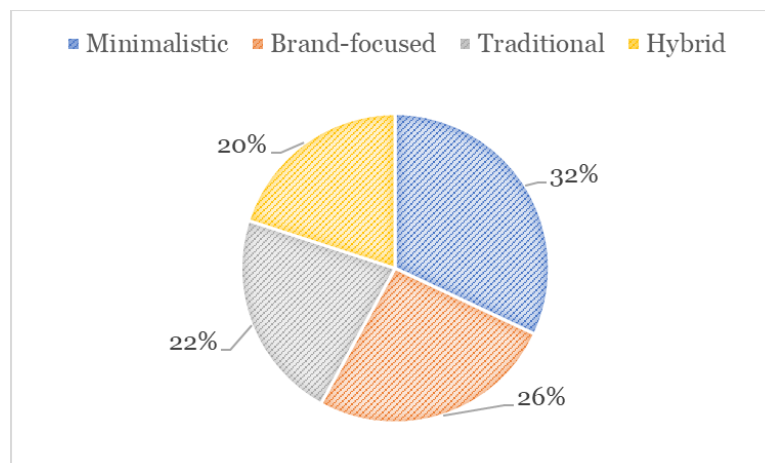


Figure 2: Distribution of Website Copyright Notice Clusters.

Although copyright notices are primarily designed for human users, the analysis shows that most are technically machine-readable due to their placement in HTML footers and use of standard text encoding. This means that, from a technical standpoint, such notices can already be detected and parsed by automated systems without requiring additional metadata formats. Consequently, plain-text copyright statements may function as a basic layer of machine-readable rights reservation, bridging legal intent and digital accessibility. This finding reinforces the technical feasibility of textual copyright reservations as practical indicators for automated TDM compliance and AI dataset governance.

To examine the historical evolution of copyright notice practices, a longitudinal review of corporate websites was conducted for those associated with companies headquartered in the European Union. Out of the full sample, 54 websites were linked to companies headquartered in the EU. Using the Internet Archive’s Wayback Machine, we analyzed archived versions of these websites at three key stages:

- Before the adoption of Directive 2001/29/EC,
- Between Directive 2001/29/EC and Directive 2019/790, and
- After the adoption of Directive 2019/790, based on the current dataset.

Archived versions were successfully located and analyzed for 48 websites in the intermediate period and for 32 websites in the pre-Directives period.

Table 4 provides a comparative overview of copyright notice features across these three stages.

Table 4

Identification of Rights Holders in Copyright Notices

Type of Date Format	Before 2001/29	Between 2001/29 and 2019/790	After 2019/790 (as of 2025)
No copyright notice phrase	53%	25%	20%
© symbol	80%	100%	95%
The word “Copyright”	60%	0%	7%
Both © and “Copyright”	40%	0%	7%
Phrase “All rights reserved”	33%	22%	23%
No rights holder indicated	13%	0%	0%
Date included	87%	53%	88%
Date range used	38%	32%	16%
Outdated year present	31%	26%	3%
If outdated: most frequent year listed instead of legal entity	2000 (75%)	2018 (40%)	2024 (100%)

4. Discussion

As the results show, the inclusion of a copyright notice is a prevailing norm (present on 93% of websites examined). However, the content and format of such notices vary significantly.

This diversity reflects the fact that copyright notices may serve multiple, partly overlapping functions, which can be grouped into four broad categories:

- legal;
- behavioral;
- UX-related;
- marketing or reputational.

As the four hypotheses represent conceptual typologies rather than statistically independent variables, their validation in this study is interpretive rather than inferential.

From a legal perspective, the notice may help establish willfulness in cases of infringement (17 U.S.C. § 401(d)), or act as a rights reservation signal under Directive 2019/790 in the EU. From a behavioral standpoint, the notice can serve as a deterrent [3], a cognitive prompt that shapes user perception [5]. UX is a visual norm that reflects design conventions in general [4], as well as usability in particular [15]. Meanwhile, the marketing function relates to signaling reputation and

wide intellectual property portfolio, copyright notices may act as low-cost indicators of brand responsibility and trustworthiness, as well as increase brand memorability.

These hypotheses are not mutually exclusive: a single notice may simultaneously fulfill all four functions. In fact, the strength of the copyright notice lies in this multi-functionality, allowing it to operate across different domains (law, behavioral economics, and branding etc.). However, there may be tensions between these roles, for example, detailed legal language may conflict with UX clarity, or visual compactness may limit legal precision.

4.1. Interface Signals

The frequency of use confirms the UX-related value and the established convention of placing the notice on a website. A copyright notice is perceived as a marker of a well-maintained website, reliable, and, conversely, a well-designed website is often perceived as an attribute of a credible rights holder – this connection has marketing implications, as visual design is known to influence user trust [16]. Still, the considerable variation in structure and wording reduces the strength of arguments about standardization and normative value. Various forms of presenting the notice as a whole, different approaches (indicating the rights holder / trade name; indicating a single year / a range of years; using © / Copyright, etc.) undermines the consistency of the notice as a standardized UX practice.

From a technical perspective, modern machine learning pipelines depend on large-scale automated extraction of online content, making the consistency and clarity of copyright notices crucial for lawful data governance.

Outdated years may negatively affect user perception and reputational value: users often infer ongoing site maintenance from a current year indication, affecting perceived credibility [17], they assess copyright holders as responsible. In this sense, the notice also serves as a proxy for administrative upkeep. However, displaying the current year does not require a copyright statement.

It has also been suggested that, while designers often feel disconnected from legal language [4], including a copyright notice helps meet cultural expectations within the design profession [3]. This may be true, but it seems unlikely that this serves as a personal branding tool for designers, as virtually no websites in the sample included the designer's name or company. Despite the inalienable nature of moral rights such as attribution, designers in our dataset did not assert such rights. This might be due to contractual agreements, since our research on smaller companies indicated that the practice of the inclusion the designer's name is common [18].

Interestingly, more than quarter of websites redundantly included both the © symbol and the word "Copyright", even though either form is widely understood. This redundancy may reduce communicative efficiency [7], especially in dense digital environments where design minimalism is valued.

The well-known rules state that increased textual density correlates with information overload [19], as do complex or ambiguous content, the number of competing brand identifiers (a pattern visible in our own data), multiple information sources, and delayed content updates [20; 21]. For instance, using @ instead of © may undermine perceived credibility, small visual cues can carry substantial legal and behavioral meaning [22].

As for the claim that the behavioral function of copyright notices is paramount, we raise several objections. First, this assumption implies that all other functions are secondary or insignificant – we challenge it below. Second, effective behavioral regulation requires directive force, even if they do not follow the syntactic or pragmatic form of prototypical directives [23] – conditions that are rarely present in standard notices. Third, placement in the footer alone does not enhance its normative power. While we acknowledge the behavioral function, we do not agree that it dominates all others.

4.2. Implications in the Context of AI and TDM

We now turn to the legal interpretation of the notice as a whole and its elements.

First, the persistent inclusion of copyright notices may reflect a misunderstanding among designers and content creators. As noted by Yezril [2], many are not fully versed in copyright law and may mistakenly believe that rights only arise if explicitly claimed. In reality, under the Berne Convention, copyright protection arises automatically upon creation and publication, without the need for formalities.

Second, some creators and rights holders appear to treat the notice as a catch-all form of protection, extending not only to copyright but also to trademarks, patents, or design rights. This is conceptually flawed: each form of intellectual property has distinct legal mechanisms and does not require a unified declaration. However, we observed that half of the notices included a commercial name (often a trademark) instead of a legal entity, and some explicitly referenced trademark, patent, or design rights. This indicates a blurring of legal categories, which may be motivated more by branding strategy [24] than legal accuracy. And the copyright notice may be a natural place to declare this.

Although some commentators previously argued – for example, Goryunov [25] – that copyright notices on websites have no legal significance, such a claim can no longer be accepted in full.

Article 5 of Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society contained certain permissions regarding the reproduction in the press, communication to the public, or making available of published articles on current economic, political, or religious topics or broadcast works or other subject matter of the same character, in cases where such use is not “expressly reserved”.

The preamble to that Directive states that: “Technological development will facilitate the distribution of works, notably on networks, and this will entail the need for rightholders to identify better the work or other subject-matter, the author or any other rightholder, and to provide information about the terms and conditions of use of the work or other subject-matter in order to render easier the management of rights attached to them. Rightholders should be encouraged to use markings indicating, in addition to the information referred to above, *inter alia* their authorisation when putting works or other subject-matter on networks”.

The current Directive 2019/790 on copyright and related rights in the Digital Single Market no longer contains such a preamble, but it introduces an important Article 4, which could revive the legal relevance of using notices on websites: Member States shall provide for an exception or limitation in respect of the reproduction and extraction of works and other subject matter to which they have lawful access, for the purposes of TDM; that exception or limitation shall apply on condition that the use of works and other subject matter referred to in that paragraph has not been expressly reserved by their rightholders in an appropriate manner, such as machine-readable means in the case of content made publicly available online.

It reinforced this logic in the context of TDM, introducing the concept of “appropriate reservation”, and importantly, referencing machine-readable means.

The mentioned article from Directive 2019/790 has been transposed into the national laws of EU Member States [26], which became an adequate response to current technological developments.

However, for example, in the United States, there are no such provisions in the law, and therefore the legal weight of the notice is more limited, but it still exists – the fact of public access and the indication of the owner of the work and/or the date of its publication. As we noted before, in U.S. law, a copyright notice may also serve an evidentiary function, particularly in establishing willfulness.

In the context of aligning Directive 2019/790 with the subject of this study, the following question remains controversial: can the phrase “All rights reserved,” placed for example in the footer of a webpage, be considered an appropriate form of such reservation?

The phrase “All rights reserved” is presented as plain text on an HTML page, which makes it accessible to any automated analysis system. Modern TDM tools are capable of extracting text from

HTML, PDF, OCR-processed images, and other sources. From this perspective, the “machine-readable” requirement is formally fulfilled.

In the context of AI, copyright notices can act as a primary signal for automated systems that scrape, index, or train on web data, determining whether such activities fall within lawful TDM exceptions.

The phrase “All rights reserved” has a well-established legal meaning in copyright law. It clearly signals that the author does not grant permissions beyond those explicitly stated, and therefore includes a prohibition on TDM unless otherwise specified.

If the phrase “All rights reserved” is placed in the footer of a website, it can be regarded as part of the terms of use of the site according to general legal understanding. The footer is a publicly accessible component of a website where legal disclaimers are traditionally located. Accordingly, a phrase in the footer can be characterized as an element of the conditions of access to the content.

Unlike links to licenses, external policies, or RDF (Resource Description Framework) descriptions, “All rights reserved” is understandable to both humans and machines without the need for additional uniform resource identifiers or formats. Legally meaningful conditions can be formulated simply as a phrase in the footer [6]. As a form of notice in the context of TDM, when an AI system or parser interacts with content, a simple text phrase may act as the very “visceral notice” that changes the system’s behavior, even if not formatted as RDF or <meta>.

The placement of a notice in the footer remains a subject of debate, as it does not always convey a clear or intentional legal meaning to human users [27], but it be interpreted differently by a machine.

The technical meaning of “machine-readable” in the context of the Directive 2019/790 remains contested. Modern forms of TDM opt-outs face the lack of a universally accepted machine-readable standard [28–30].

“Machine-readable” may include meta tags (<meta>), robots.txt files, RDF-formatted licenses, or rel=“terms” attributes in HTML.

A phrase like “All rights reserved”, without specifying context (e.g., prohibition of TDM in particular) and without linkage to conditions (terms), may not allow a machine to definitively determine which actions are prohibited. This is especially important when a rightsholder may wish to prohibit some actions (e.g., commercial use) but not others (e.g., scientific TDM).

The EU aims to create an environment where automated systems can interpret the legal status of content without human legal intervention. Text in the footer (even if technically readable) is not standardized, may be stylistically formatted, is not linked to specific objects (e.g., only videos, only text), and is not always technically accessible to parsers if embedded in dynamic or non-semantic page elements. But the effectiveness of a notice depends not only on its placement, but also on the ability of platforms or AI systems to recognize and interpret its legal significance [29].

As generative AI models increasingly rely on massive web-scale datasets, the presence or absence of clear copyright notices directly shapes the legality of data acquisition for training, especially under emerging TDM-focused regulations. The Directive 2019/790 asserts that machine-readable methods may be considered an “appropriate reservation” in relation to publicly available online content. This may, in some jurisdictions, limit the legal weight of traditional textual disclaimers if not formatted in a way suitable for machine processing. A significant regulatory gap exists between the nominal rights established under EU legislation and their actual technological implementation [30].

Even greater confusion arises from European court decisions. Across EU Member States, there is divergent judicial practice regarding what constitutes an appropriate reservation of rights in order to exclude the exception provided by Article 4 of Directive 2019/790.

In Germany (*Kneschke v. LAION*), the court recognized that a textual notice on a website may be sufficient, provided that it clearly expresses a prohibition. This increases the value of a copyright reservation notice.

In the Netherlands (*DPG v. HowardsHome*), the decisive factor was the directionality of the notice, which diminishes its legal weight unless accompanied by additional statements.

The Hungarian Court of Appeal in Case *9.Pf.20.353/2024/6-II*, which concerned TDM and the relevant provision of the Directive, did not contribute to the legal interpretation of the question at issue.

The position of courts in EU Member States indicates that the legal effectiveness of rights reservation under TDM depends not only on technical structure, but also on clarity and directionality.

The phrase “All rights reserved”, despite its clear legal meaning and technical accessibility to text-reading systems, may not formally meet the requirement of “machine-readable means” in the narrow sense used in EU legislation. Nevertheless, the position that such a phrase (especially when placed in the footer or within the terms of a website) expresses the intent of the rights holder remains logical and doctrinally sound.

A clear textual notice may increase the legal plausibility of enforcing rights under Article 4 of Directive 2019/790, its effectiveness remains conditional. Without structured formatting and standardization (as our empirical data show), its probative value is limited, but not null. Therefore, such notices may increase the rightsholder’s ability to hold unauthorized users liable, though this effect is mediated by clarity, placement, and national legal interpretation.

This reveals a tension between legal clarity and regulatory expectations for machine-interpretability required by European law. A possible solution is to recognize textual formats as “machine-readable” if they are standardized, accompanied by clear semantics, and placed within structured areas of the page. More supporting evidence from case law or clarifications in national laws is still needed.

Regardless of how many regulatory or technological questions arise, we observe an increase in the legal relevance of the copyright notice.

At the same time, only half of companies from our list actually use the phrase “All rights reserved.”

The longitudinal data from Table 4 provides additional insight into the evolving function of copyright notices within the EU context. Over time, we observe a clear shift toward UX-oriented and branding-driven patterns, for instance, increased consistency in the use of the © symbol, greater emphasis on visual minimalism (e.g., reduced mention of “Copyright”), and improved rights holder accuracy.

Paradoxically, however, the use of the phrase “All rights reserved” – perhaps, legally significant element under Directive 2019/790 – has not increased across the archived EU-based companies. Its frequency remains largely stagnant, despite its rising legal relevance in the context of TDM. This suggests a disconnect: the most doctrinally potent feature is the least responsive to regulatory change. Even more paradoxically, in the full global sample, the phrase “All rights reserved” appears more frequently than in the EU subsample. This could reflect a lag in regulatory awareness among European website operators/designers, or a broader dominance of design culture over legal incentives, or greater influence of the traditions (but not the regulations) of Pan-American law.

Notably, 89% of websites belonging to EU-headquartered companies from the sample used .com domains, which may limit the visibility of jurisdiction-specific adaptations and reduce the apparent influence of European legal frameworks on copyright notice design.

These findings could reinforce a central argument of this paper: copyright notices function as hybrid instruments. Their evolution is not linear or policy-driven; now, it is influenced by overlapping expectations from designers, marketers, legal departments, and users.

Nevertheless, we argue that textual notices such as “All rights reserved” may retain practical legal significance, especially when clearly worded, placed in a conventional legal location (e.g., the footer), and visible. Despite their long-standing presence, traditional copyright markers remain underutilized in current debates on machine-readable rights management. While researchers’ attention has shifted toward technically complex opt-out mechanisms like TDM flags, simpler textual opt-outs already embedded in digital content may provide a more immediate and effective path to enforceability.

4.3. UX, Branding, Trust, and Reputation in the Data Economy

The simultaneous use of the © symbol, the word “Copyright,” and the phrase “All rights reserved” was identified in 18% of cases. This likely reflects legal uncertainty or a lack of understanding about the specific value of each element, prompting overuse to avoid potential mistakes.

Whether to include © / “Copyright” separately or together is not subject to any legal limitation. For example, under 17 U.S.C. § 401(d), even the use of word “copr.” is allowed. The majority of the websites studied use the © symbol. A significant share also adds the textual version, which is unjustified strictly from a UX perspective, since the © symbol is widely recognizable and self-sufficient. Moreover, the © symbol can be treated as a reliable anchor for machine identification, given its standardized use and distinctive visual form. In automated content extraction such markers are critical.

As shown by our research, limited attention is paid to the identification of the rights holder: in some cases, the notice failed to name any rights holder at all; in half the cases, the name does not match the legal name; or formats are used like “copyrights owned by the website” or “copyrights owned by the trademark.”

Such inconsistencies undermine the legal reliability of the notice. Economic copyrights must belong to a clearly identified natural or legal person – this is what gives the notice legal meaning. Since the study was based on websites belonging to legal entities, the information about their legal name and organizational form should have been included. Inaccurate or inconsistent naming may reflect a lack of coordination between design teams and legal departments, particularly in larger corporate structures where intellectual property may be managed by subsidiaries.

It is often the case (including among companies in our sample) that subsidiaries are created specifically to manage intellectual property, while the notices refer to the parent companies. This suggests a lack of coordination between designers and legal departments. The approach of several companies indicating their name options is useful – this enhances the long-term value of the notice.

We additionally examined the relationship between the use of the phrase “All rights reserved” and the accuracy of legal entity identification. The results differed only slightly from the overall sample: 47% of the websites using the phrase listed an incorrect legal name, of which 54% contained only minor inaccuracies.

This issue also exposes a deeper theoretical point: copyright notices exist at the intersection of legal precision and communicative simplicity. Designers and UX professionals often prioritize clarity and aesthetics, while legal practitioners require specificity and accuracy. This tension is visible in other elements as well – such as the indication of the year.

The question of indicating the year is also controversial, as the results show. A website contains many works. From a legal standpoint, it would be accurate to specify the year the website was created (for example, as 17 U.S.C. § 401(b)(2) suggests), but this may contradict the principles of web design: as we have substantiated earlier, users might interpret it as a sign of an outdated, or inactive, or even scam website [17]. Indicating the current year clearly resolves this issue; omitting the date avoids it altogether, but loses marketing advantages. In addition, the indication of the date of creation is a standard requirement in many national copyright registration offices.

Designers often favor displaying the current year to signal recency and administrative upkeep, even if it lacks direct legal precision. A date range, in turn, implicitly extends the scope of copyright claims over time – a stronger legal signal, but less visually concise.

The use of a date range expands the scope of the copyright claim: by using a range, the website signals that it continues to assert copyright over content created during those years, not just at the time of initial publication. However, it still remains unclear when each specific work on a website was created. This also creates text overload for the small notice.

Thus, the choice of how to present dates reflects both legal and behavioral considerations. An outdated year may undermine credibility, while a date range may suggest historical depth or continuous protection. Yet none of these conventions are standardized or legally mandated by

consensus in the online environment, but in practice the current date prevails significantly. This reinforces the dual nature of the notice: it is simultaneously a legal assertion and a symbolic marker that communicates trustworthiness, professionalism, or legal awareness to users.

Some companies (often due to licensing agreements) include copyright attributions under every image, particularly when using stock photos. This may enhance legal traceability but creates visual clutter and inconsistency, especially if similar attributions are not provided for textual content. Such cases highlight a lack of holistic intellectual property approach at the design level.

In conclusion, the use of unilateral copyright notices is a complex and debatable practice. The presence of a copyright notice may act as a low-cost signal that reduces information asymmetry between content providers and users. Standardized copyright declarations can lower transaction costs by clarifying ownership, reducing the need for legal verification, and enabling smoother use in TDM contexts. Yet in the Digital Age, it gains new meaning and legal consequences – the rights holder can shape these outcomes positively or negatively, depending on whether the notice is formulated competently or poorly.

To structure our findings, we analyzed the empirical evidence in light of four main hypothetical functions of copyright notices: legal, behavioral, UX-related, and marketing-oriented. Table 5 below summarizes how each of these hypotheses aligns with observed indicators, the strength of supporting evidence, and the limitations encountered. This typology helps disentangle overlapping motivations behind the use of copyright notices and provides a clearer analytical framework for interpreting their role in the digital environment.

Table 5
Summary of Notice Functions

Hypothesis	Consistent Observations	Inconsistent Observations	Limitations
Legal	Some use of “All rights reserved”; includes legal names and years in notices; supports doctrinal intent; simultaneous use of multiple legal indicators suggests an attempt to maximize legal signaling or ensure compliance; © may be recognized by a machine; strengthens the evidence base in some jurisdictions.	Legal owner name often missing or incorrect regardless of the use of “All rights reserved”; inconsistent years.	Legal effects depend on national interpretation and formatting; lack of structured metadata; machine-readability rarely confirmed.
Behavioral	Use of copyright symbols to deter unlawful copying; presence of notices aligns with user behavior theories.	Notices often vague or redundant; lacking directive clarity; placement alone does not ensure behavior change.	Behavioral impact not directly measurable; mixed signals may reduce deterrent effect.
UX-related	Profession standard; high prevalence of © symbol; consistent footer placement with other legal statements; efforts to avoid outdated	Design conventions vary widely; redundant or outdated formats.	Difficult to separate UX from behavior / branding; evolving design norms.

	years or visual clutter.		
Marketing or Reputational	Use of brands in place of legal names; space used to highlight other IP to clients and partners; notices reinforce general perception.	Inconsistent branding logic; limited visual customization for brand.	Often not clearly motivated by marketing; may be incidental rather than intentional; only few explicit cases of IP portfolio signaling.

The legal and behavioral functions often reinforce each other – both rely on signaling deterrence, either through legal formalism or cognitive cues. Similarly, UX and marketing functions align through emphasis on design quality and credibility. However, tensions emerge between legal and UX aims: precise legal statements may clutter visual design. Likewise, behavioral clarity may conflict with marketing-driven ambiguity or branding flexibility. These intersections highlight the hybrid and sometimes contradictory nature of copyright notices in digital environments.

5. Conclusions

This study confirms that copyright notices continue to hold multifaceted value as a legal instrument, UX convention, behavioral cue, and branding tool. Their frequency of use reflects institutional and professional adherence rather than mere legal necessity.

The study also confirmed the behavioral and UX-related functions of the notice (albeit to a lesser degree than in previous research). We have discussed the new legal relevance of the notice, particularly within the EU context, especially in relation to Article 4 of Directive 2019/790 and the notion of “machine-readable” reservations. However, the effectiveness of plain-text notices remains uncertain, and judicial interpretations vary across Member States.

We recognize that some of the hypothetical functions (particularly the legal ones) require further empirical validation. The extent to which notices improve enforcement outcomes, such as in TDM contexts, remains to be proven. We avoid assuming causality where the evidence remains ambiguous. We also identified a separate marketing function, which lies in using this space to inform users about the brand and intellectual property rights, and to strengthen the reputation of a legally responsible company. From an economic perspective, copyright notices function as branding assets that support reputational capital.

Overall, the study contributes to bridging doctrinal copyright analysis with empirical web data, offering evidence that seemingly minor textual conventions play a measurable role in shaping AI-era data governance.

Clarifying how textual copyright reservations are interpreted by AI systems is therefore critical, both to prevent unlawful scraping and to enable responsible TDM-based innovation in generative AI research. Future research should further examine how courts across different EU jurisdictions interpret the machine-readability requirement under Article 4 of Directive 2019/790, particularly in relation to plain-text notices. It would also be valuable to examine this issue in other jurisdictions, in light of technological and regulatory developments. In addition, future work could develop typologies of usage contexts and test which formulations most effectively fulfill each of these overlapping goals.

Declaration on Generative AI

During the preparation of this work, the authors used Chat-GPT-5 in order to: Grammar and spelling check.

References

- [1] L. Portmann, Crafting an audience: UX writing, user stylization, and the symbolic violence of little texts, *Discourse, Context & Media* 48 (2022) 100622. doi:10.1016/j.dcm.2022.100622.
- [2] F. Yezril, Somewhere beyond the (Copyright Symbol): Copyright and Design, *NYU Journal of Intellectual Property and Entertainment Law* 5(1) (2015) 43.
- [3] S. A. Hook, Protecting Content Online: The Interface of Copyright and Design for Websites, Apps, and GUIs, in: *AIPLA Spring Meeting*, 2016.
- [4] C. M. Gray, R. Gairola, N. Boucaud, M. Hashmi, S. S. Chivukula, A. R. Menon, J. N. Duane, Legal trouble?: UX practitioners' engagement with law and regulation, in: *Companion Publication of the 2024 ACM Designing Interactive Systems Conference*, 2024, pp. 106-110. doi:10.1145/3656156.3663698.
- [5] R. Calo, Against notice skepticism in privacy (and elsewhere), *Notre Dame Law Review* 87(3) (2011) 1027-1072.
- [6] I. M. Palmieri, A. Reid, Copyright and shareability: A contractual solution to embedding via social media, *Communication Law and Policy* 28(2) (2023) 152-190. doi:10.1080/10811680.2023.2185405.
- [7] E. Dickhaut, A. Janson, M. Söllner, J. M. Leimeister, Lawfulness by design – development and evaluation of lawful design patterns to consider legal requirements, *European Journal of Information Systems* 33(4) (2024) 441-468. doi:10.1080/0960085X.2023.2174050.
- [8] C. Handke, Copyright's Functions in Complex, Digital Markets, *Review of Economic Research on Copyright Issues* 20 (2023) 11-37.
- [9] J. Koch, M. Laszlo, A. Lucero, A. Oulasvirta, Surfing for inspiration: Digital inspirational material in design practice, *Design Research Society International Conference: Catalyst (DRS International Conference Series)* 3 (2018) 1247-1260. doi:10.21606/dma.2018.35.
- [10] C. J. Fombrun, C. B. Van Riel, *Fame & fortune: How successful companies build winning reputations*, FT Press, 2004.
- [11] D. Shmatkov, Copyright notices on websites, *Mendeley Data* V1 (2025). doi:10.17632/rg8hhjrkr3.1.
- [12] N. Brügger, Web history and web archiving, in: J. Hunsinger, L. Klastrup, M. Allen (Eds.), *International Handbook of Internet Research*, Springer, 2011, pp. 349-364.
- [13] C. Hine, Digital ethnography and reflexivity, in: J. Hunsinger, L. Klastrup, M. Allen (Eds.), *International Handbook of Internet Research*, Springer, 2011, pp. 17-36.
- [14] R. Gibson, The internet and the political process, in: J. Hunsinger, L. Klastrup, M. Allen (Eds.), *International Handbook of Internet Research*, Springer, 2011, pp. 425-442.
- [15] A. Morales-Vargas, R. Pedraza, L. Codina, Website quality in digital media: literature review on general evaluation methods and indicators and reliability attributes, *Revista Latina de Comunicación Social* 80 (2022) 39-63. doi:10.4185/RLCS-2022-1515.
- [16] W. Hartzog, Website design as contract, *American University Law Review* 60(6) (2011) 1635-1671.
- [17] A. Abbasi, Z. Zhang, D. Zimbra, H. Chen, J. F. Nunamaker Jr, Detecting fake websites: The contribution of statistical learning theory, *MIS Quarterly* 34(3) (2010) 435-461. doi:10.2307/25750686.
- [18] D. I. Shmatkov, D. V. Pashniev, O. V. Khlietkov, S. O. Kolomiitsev, The legal relevance of unilateral copyright statements on websites, *Bulletin of Kharkiv National University of Internal Affairs* 107(4) (2024) 231-243. doi:10.32631/v.2024.4.21.
- [19] T. D. Lee, S. Lee-Geiller, B. K. Lee, Are pictures worth a thousand words? The effect of information presentation type on citizen perceptions of government websites, *Government Information Quarterly* 37(3) (2020) 101482. doi:10.1016/j.giq.2020.101482.
- [20] C. Y. Li, Why do online consumers experience information overload? An extension of communication theory, *Journal of Information Science* 43(6) (2017) 835-851. doi:10.1177/0165551516670096.

- [21] M. Chen, Improving website structure through reducing information overload, *Decision Support Systems* 110 (2018) 84-94. doi:10.1016/j.dss.2018.03.009.
- [22] J. A. Mitchell, Putting some product into work-product: corporate lawyers learning from designers, *Berkeley Business Law Journal* 12(1) (2015) 1.
- [23] N. Allott, B. Shaer, Some linguistic properties of legal notices, *Canadian Journal of Linguistics* 58(1) (2013) 43-62. doi:10.1017/S0008413100002516.
- [24] D. Shmatkov, Intellectual Property Management of Industrial Software Products: The Case of Triol Corp., in: 2021 IEEE 8th International Conference on Problems of Infocommunications, Science and Technology (PIC S&T), IEEE, 2021, pp. 108-112. doi:10.1109/PICST54195.2021.9772237.
- [25] E. Goryunov, All Rights Reserved: Does Google's Image Search Infringe Vested Exclusive Rights Granted under the Copyright Law, *John Marshall Law Review* 41(2) (2008) 487-526.
- [26] C. Sganga, M. Contardi, P. Turan, C. Signoretta, G. Bucaria, P. Mezei, I. Harkai, Copyright flexibilities: mapping and comparative assessment of EU and national sources, SSRN (2023). Available at: <https://ssrn.com/abstract=4325376>.
- [27] W. A. Logan, J. Linford, Contracting for Fourth Amendment privacy online, *Minnesota Law Review* 104 (2019) 101-170.
- [28] A. R. Puig, Reglamento de inteligencia artificial y derechos de autor, *Revista Jurídica de les Illes Balears* 26 (2024) 45-72. doi:10.36151/RJIB.2024.26.02.
- [29] P. Mezei, A saviour or a dead end? Reservation of rights in the age of generative AI, *European Intellectual Property Review* 46(7) (2024) 461-469.
- [30] J. L. O. Font, Derechos de autor y entrenamiento de sistemas de IA generativos: las obligaciones de transparencia y la minería de textos y datos en la normativa europea, *IDP. Revista de Internet, Derecho y Política* 42 (2025) 1-13. doi:10.7238/idp.v0i42.431327.