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EXECUTIVE SUMMARY: STUDY ON THE EFFECTIVENESS AND THE LEGAL AND TECHNICAL MEANS OF IMPLEMENTING WEBSITE-BLOCKING ORDERS*

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INTRODUCTION

Protecting intellectual property (IP) in the digital age has become increasingly challenging in the face of rapid technological advances, leading to a rise in online copyright piracy. This global issue results in the unauthorized distribution of content, such as pirated movies, music, video games and live sports, through websites and online services. For consumers, easy access to content, which is often free or inexpensive, motivates them to engage with illegal websites and services. For criminals, the easy distribution of pirated content, the high return on investment and the low associated risk drive the growth of online copyright piracy on a commercial scale. However, the stakes extend beyond intellectual property rights (IPRs). In addition to lost revenue, online copyright piracy also causes harm through the spread of malware and contributes to other criminal activities. Effective enforcement measures against online copyright piracy are needed to combat those varied losses and threats. One widely adopted remedy is

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website blocking, where national courts or agencies instruct internet service providers (ISPs) to deny access to websites that facilitate piracy.

This study explores the effectiveness of site blocking orders and the legal and technical methods used to support their implementation. Site blocking has been adopted by more than 50 countries, spanning developed and developing economies. While it is embraced as a standard measure in some jurisdictions, in others it is considered controversial because of concerns about free speech and Internet freedom. Nonetheless, the legal framework supporting site blocking, and the technical implementation and global effectiveness of the remedy, point to evolving policies that make site blocking a dynamic and useful tool for copyright protection. To address these issues, the study examines five aspects:

- (a) The effectiveness of site blocking in reducing access to copyright piracy sites and increasing legal content consumption;
- (b) The legal basis for, and case examples of, site blocking orders;
- (c) Technical aspects of site blocking order implementation;
- (d) Fundamental rights related to site blocking;
- (e) Practical approaches to the future implementation of effective site blocking orders.

I. EFFECTIVENESS OF SITE BLOCKING

1. In measuring the effectiveness of site blocking, the study demonstrates how successful existing site blocking orders have helped to deter copyright piracy. The analysis first focuses on judicial efforts; for nearly 20 years, courts and administrative authorities have issued site blocking orders, disabling access to more than 90,000 domain names linked to over 27,000 pirate websites. Additionally, the study refers to other research showing that, when implemented across many pirate websites, site blocking has a positive impact by reducing visits to illegal sites and increasing traffic to legal content services.

2. Site blocking orders in Brazil and India, for instance, highlight the tangible benefits. In Brazil, orders issued in 2021 to block 174 pirate websites led to a 5.2 per cent rise in legal content consumption. Similarly, in India, the blocking of 380 websites in 2019 resulted in an 8.1 per cent increase in the use of legal services, with additional blocking orders in 2020 leading to a further 3.1 per cent rise. Both countries experienced sharp declines in traffic to the blocked sites, accompanied by substantial shifts to legitimate media platforms.

3. A study conducted in 2023 in the Asia-Pacific region by the Coalition Against Piracy showed that 62 per cent of consumers in Indonesia and 64 per cent in Malaysia altered their viewing habits due to effective site blocking. Singapore, one of the earliest adopters of judicial site-blocking measures, now has the lowest consumer piracy rate in the region, with only 39 per cent of users consuming pirated content after nearly a decade of such measures. In Indonesia, more than 3,500 piracy sites have been blocked since 2019, leading to a significant reduction in piracy and a rise in consumption of legitimate content.

4. Research on site blocking orders in Europe has shown similar results. For instance, the use by Denmark of dynamic blocking orders, which allow for rapid updates to blocked domains, has also proven highly effective, reducing illegal service visits by 70 percent in the months following court rulings in 2019.

5. Overall, research consistently shows that, when applied comprehensively to major pirate websites, site blocking significantly reduces illegal content consumption and drives users to legal platforms. The cases conclude that site blocking orders become more effective as countries refine and expand their blocking systems. Therefore, site blocking has proven to be a valuable tool for combating online copyright piracy.

II. LEGAL BASIS FOR SITE BLOCKING ORDERS

6. The study outlines the legal framework for implementing site blocking and case law at the international and national level. At the international level, site blocking is grounded in several key treaties, including the World Intellectual Property Organization (WIPO) Copyright Treaty (WCT) and the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). Those agreements set minimum enforcement standards for copyright protection, emphasizing the importance of swift remedies to prevent future infringement. They provide the foundation for implementing site blocking to address online copyright violations.

7. In the European Union (EU), the framework has been in place since the adoption of Directive 2001/29/EC on the harmonization of certain aspects of copyright and related rights in the information society (Information Society, or InfoSoc, Directive), which implements the obligations of the WCT. Article 8(3) of the Directive allows rights holders to obtain injunctions against intermediaries whose services are used by third parties to infringe copyright, without holding intermediaries themselves liable. This no-fault injunction approach has facilitated site blocking orders against ISPs, hosting providers, search engines and domain registrars across the EU. At the level of EU member States, which had to implement the Information Society Directive in their national laws, some, like Greece, Italy and Portugal, have also adopted administrative site blocking orders, offering faster and more cost-effective remedies for rights holders than judicial processes. Moreover, in its judgement on *UPC Telekabel v. Constantin Film*, the Court of Justice of the European Union (CJEU) upheld site blocking as a proportionate remedy and established a set of fundamental principles concerning site blocking orders.

8. In the Asia-Pacific region, nine countries have adopted site blocking to combat online piracy. Australia's Copyright Act allows courts to issue no-fault injunctive site blocking orders against ISPs, targeting not only websites that are copyright infringing, but also those that facilitate copyright infringements. Unlike Australia, India has no specific provisions in its Copyright Act that address site blocking or no-fault injunctive relief against Internet intermediaries. Rather, India has adopted a robust site blocking regime based solely on general injunctive relief provisions of its copyright law. The Republic of Korea employs an administrative site blocking approach, supported by the Korea Copyright Protection Agency and the Ministry of Culture, Sports and Tourism (MCST), to target notorious piracy sites.

9. In Latin America, at least nine countries have implemented measures to block websites, with Argentina, Brazil and Uruguay serving as key examples. Argentina was the first country in the region to introduce site blocking orders and has continuously refined its approach, particularly in addressing piracy relating to Internet Protocol television (IPTV) services. Here, IPTV refers to online services that deliver live broadcasts and on-demand video over the Internet, allowing users flexible access to a wide range of pirated content. Brazil has also taken significant steps by issuing numerous site blocking orders through its courts and the National Telecommunications Agency. Those orders mainly focus on illegal IPTV services and piracy applications, which are unauthorized platforms that allow users to stream or download copyrighted content, sidestepping legal channels and violating IPRs.

10. Some fundamental conclusions have emerged from the review of treaties, statutory and legislative provisions and case law.
11. Site blocking orders are generally considered a civil remedy for online copyright piracy but are also often issued in conjunction with criminal copyright cases.
 - (a) Site blocking orders may be issued on the basis of statutory/legislative provisions that provide for no-fault injunctive relief against Internet intermediaries for copyright infringement, or specific laws that authorize site blocking orders against ISPs. But such statutory provisions are not necessarily a prerequisite for site blocking. In some jurisdictions, courts may also issue site blocking orders on the basis of more general copyright laws that provide for injunctive relief. In addition, site blocking orders have also been issued by courts on the basis of criminal laws involving copyright infringement or the sale of illegal devices, such as illicit IPTV boxes or applications.
 - (b) Laws that provide liability protections or “safe harbors” for Internet intermediaries neither preclude nor limit the granting of site blocking orders against ISPs.
12. Websites and online services primarily devoted to facilitating or promoting copyright piracy are suitable for site blocking on the basis of their primary purpose or primary effect. They do not need to solely engage in or facilitate infringing activity. They do not need to host the infringing content and can instead be indexing sites, linking sites or similar. They can also include online applications or services or websites devoted to the sale of products that promote and facilitate copyright infringement. Moreover, the primary purpose can also be derived from, for instance, the promotional statements of the website or service, efforts to avoid identification, lack of effective response to requests to remove infringing content or links to such content, and past legal actions brought against the website or service.
 - (a) Site blocking can be accomplished via court orders or administrative procedures. More often, site blocking orders are issued by courts.
13. Rights holders have often found administrative procedures to be faster, less burdensome and less costly than civil litigation before courts to obtain site blocking orders.
14. Rights holders seeking a site blocking order need to establish that they hold rights to content that is subject to infringement by the website or service. There is no need, however, for all or even a substantial portion of the relevant rights holders of all the content being infringed by the website or service to be part of the action. Rather, those seeking the site blocking order need to establish that the primary purpose or primary effect of the site or service is to facilitate copyright piracy.
15. The costs of technically implementing site blocking orders are usually borne by the ISPs. Site blocking orders sometimes prescribe the blocking method to be used and sometimes leave it to the discretion of the ISPs. A reasonable balance is generally sought between effectiveness and the cost of implementation.
16. Dynamic orders that readily and quickly permit the addition of new domain names and/or IP addresses of websites or services that have already been subject to a blocking order are possible with regard to site blocking orders issued by both judicial and administrative agencies. Such dynamic orders allow rights holders to submit the new domain names and/or IP addresses under an accelerated process that permits them to be quickly blocked in addition to the original domain names and/or IP addresses identified in the original blocking order.

17. In recent years, some countries have expanded the legal reach of their site blocking regimes to include orders to Internet intermediaries beyond just access-providing ISPs. This expanded approach increases the effectiveness of such site blocking orders. That is particularly the case where the orders against multiple intermediaries, along with the ISPs, can be issued in a consolidated manner on the basis of a single complaint submitted by the rights holder.

III. TECHNICAL MEANS OF SITE BLOCKING

18. The three most commonly used methods of deploying site blocking are: domain name blocking, IP address blocking and uniform resource locator (URL) blocking. In the fight against online piracy, ISPs employ various technical approaches to restrict access to websites or content that infringe copyright laws. The study examines how each method is applied, focusing on its scope, granularity, effectiveness and feasibility.

19. Domain Name System (DNS) blocking is the most common approach, whereby ISPs block access to infringing websites by disabling the domain name's resolution into its corresponding IP address, making the website unreachable. DNS blocking is highly efficient and cost effective, as it can block entire domains and subdomains with minimal technical effort. However, users can circumvent DNS blocks by switching to external DNS resolvers or using virtual private networks (VPNs). Even so, DNS blocking has effectively reduced traffic to pirate websites.

20. IP address blocking restricts website access by blocking the specific IP addresses associated with infringing sites. While it can be effective, particularly for sites that use dedicated IP addresses, it may result in over-blocking when multiple legitimate websites share the same IP address on a shared hosting service. Pirate website operators can evade this method by switching to new servers with different IP addresses, although dynamic blocking orders can address that issue by quickly updating the blocked IP addresses.

21. URL blocking is the most precise method, as it can block access to specific pages or content within a website. URL blocking targets individual URLs rather than entire domains or IP addresses, offering greater precision. However, it is labor-intensive for ISPs to implement, especially against large-scale piracy operations where numerous URLs must be blocked. Moreover, pirate website operators can easily alter URLs, making this method more challenging to enforce without constant updates.

22. Each method has its challenges. DNS blocking is the most common because of its low cost and ease of implementation, IP address blocking appears more appropriate for dedicated servers and URL blocking, although offering the highest precision, can be costly and easily circumvented. To counter the adaptability of pirate website operators, dynamic blocking orders that quickly target new domains, IP addresses and URLs are essential for effective enforcement.

IV. FUNDAMENTAL RIGHTS

23. A challenging question associated with site blocking is the potential to encroach on fundamental rights, particularly on free speech and freedom of information. Courts worldwide tend to address site blocking orders based on the principle of proportionality, weighing the enforcement of IPRs against potential restrictions on Internet users' individual rights.

24. For example, in its judgement on *UPC Telekabel v. Constantin Film*, the CJEU stressed that site blocking measures must be targeted and proportional, ensuring that they do not prevent lawful access to information. Nevertheless, the CJEU did not require that a website be entirely devoted to piracy in order to be subject to a site blocking order. The High Court of Delhi, in *UTV Software Communications Ltd. And others v. 1337X.To and others*, confirmed that site blocking in piracy-related cases does not violate the principles of the open Internet.

25. In addition to proportionality, various jurisdictions have addressed due process principles. Notifying site operators, where feasible, is fairly standard in site blocking procedures for copyright piracy around the world. Operators of the website or online location subject to a site blocking action are usually granted the right to object to or challenge the order. Lastly, ISPs, operators of blocked websites and even users in certain jurisdictions, may appeal against a site blocking order.

V. PRACTICAL CHALLENGES

26. From a practical implementation perspective, many countries have adopted dynamic blocking injunctions, which allow updates to blocking orders without requiring new legal proceedings. Pirate operators frequently evade site blocking orders by shifting to new domains, servers or IP addresses, creating “mirror” or “redirect” sites. Dynamic injunctions enable rights holders to block new versions of pirate websites efficiently and prevent circumvention. In countries like the United Kingdom and Spain, that approach has been expanded to include “pirate brand” site blocking, which targets websites mimicking the original pirate site in name and structure, even if run by different operators, thereby reducing the need for repeated legal actions and enhancing enforcement.

27. Courts also address user circumvention methods such as VPNs and alternative DNS resolvers, extending blocking orders to cover DNS providers and content delivery networks. Countries like Argentina and Italy are broadening the scope of site blocking enforcement to combat online piracy more effectively. The rapid evolution of technology has transformed how copyrighted content is distributed online, from static website downloads to peer-to-peer (P2P) file sharing, streaming and IPTV. While those technologies support legal activities, they have also been widely abused for large-scale online piracy. Sites like The Pirate Bay illustrate how indexing and linking services make infringement more accessible. To combat this, legal and technical site blocking measures must continuously evolve. Courts are expanding the definition of pirate websites to include those that facilitate infringement, even if they do not directly host illegal content. To ensure that piracy prevention measures keep pace with technological advances, the courts in countries like Ireland, Italy and the United Kingdom have implemented live blocking orders. The future of site blocking will probably involve greater cooperation among various Internet intermediaries beyond ISPs, including search engines, VPN providers and domain registrars. Several countries are already expanding the scope of blocking orders to include those intermediaries, which will further enhance the effectiveness of blocking efforts.

28. Other measures to enhance the effectiveness of site blocking include voluntary agreements, information-sharing and user education. In countries like Denmark, Germany and Portugal, ISPs and rights holders collaborate through voluntary codes of conduct or agreements to implement site blocking efficiently and without always requiring court orders. Moreover, directing users to legal content via standardized landing pages and sharing information about infringing websites, such as through the WIPO ALERT database, further strengthens the impact of site blocking efforts.

VI. CONCLUSION

29. No definitive solution exists to stop online copyright piracy completely. However, considering its effectiveness, established legal foundation and growth potential, site blocking remains highly successful. Site blocking is often based on laws that specifically address site blocking or more general statutory language that provides for no-fault injunctive relief against Internet intermediaries for online copyright piracy. However, courts in several countries have adopted site blocking based simply on the already existing general injunctive relief provisions in their copyright laws, both civil and criminal.

30. To sustain its effectiveness, site blocking must continuously evolve to address new kinds of online copyright piracy, such as live events and stream-ripping. The legal framework for site blocking should also allow flexibility to implement dynamic and pirate-brand injunctions, as well as live injunctions to address the pirating of live broadcasts. The impact of site blocking orders is boosted when courts or administrative agencies also order other Internet intermediaries (such as VPN providers, DNS resolvers, software system operators, search engines, reverse proxy providers and content delivery networks) to take action to disable pirate websites, applications and services and site blocking circumvention paths.

31. In addition to site blocking systems that enable faster, less costly administrative actions, cooperation through voluntary agreements, such as those between rights holders and ISPs, or automated processes like Italy's Piracy Shield, further improve system efficiency and help to identify circumvention tactics. Integrating consumer education and promoting legal alternatives to pirated content increases awareness and reduces illegal content consumption.

32. As online piracy often crosses borders, a global information-sharing system could facilitate faster and more coordinated blocking efforts, helping courts and administrative agencies to implement blocking injunctions more efficiently. Where there is regional legal harmonization, such as in the European Union, the adoption of cross-border site blocking injunctions could further enhance the global impact of site blocking efforts to combat online piracy.

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