The Register of Copyrights of the United States of America
United States Copyright Office · 101 Independence Avenue SE · Washington, DC 20559-6000 · (202) 707-8359

The Honorable Patrick Leahy
Chair
Subcommittee on Intellectual Property
Committee on the Judiciary
United States Senate
437 Russell Senate Building
Washington, D.C. 20510

The Honorable Thom Tillis
Ranking Member
Subcommittee on Intellectual Property
Committee on the Judiciary
United States Senate
113 Dirksen Senate Office Building
Washington, D.C. 20510

December 20, 2022

Dear Senator Leahy and Senator Tillis:

I am writing in response to your June 24, 2021 letter requesting that the Copyright Office convene a representative working group of relevant stakeholders to evaluate the landscape of technical measures used voluntarily to identify or protect copyrighted works online.[1] This letter provides a summary of the consultations convened in response to your request, and discusses considerations material to the stakeholder experience with technical measures as currently deployed, in addition to setting out possible next steps.

I. Background

The Copyright Office's 2020 Report, *Section 512 of Title 17* ("Section 512 Report"), acknowledged the important role that voluntary technical measures play in addressing internet piracy. While the unauthorized uses of copyrighted material online have evolved alongside

[1] Letter from Sen. Patrick Leahy, Chair, and Sen. Thom Tillis, Ranking Member, Subcomm. on Intell. Prop. of the S. Comm. on the Judiciary, to Shira Perlmutter, Register of Copyrights, U.S. Copyright Office, at 2 (June 24, 2021) ("Request Letter").

technological developments, stakeholders have engaged in a range of voluntary collaborations and have developed a number of technical measures that supplement the statutory notice-and-takedown framework.[2]

Following the Section 512 Report, you sent the June 2021 letter, requesting that the Copyright Office "convene a representative working group of relevant stakeholders to achieve the identification and implementation of technical measures."[3] You emphasized that, as the Senate Judiciary Committee noted more than twenty years ago with the passage of the Digital Millennium Copyright Act ("DMCA"), "voluntary technology is likely to be the solution to many of the issues facing copyright owners and service providers."[4]

On December 22, 2021, the Copyright Office issued a Notice of Inquiry announcing a series of consultations on technical measures to identify or protect copyrighted works online and sought public input on a number of questions.[5] The Office received over 6,000 comments and over 40 statements of interest to participate in the consultations.[6] We held the first public plenary session on February 22, 2022, a series of moderated sessions in June 2022,[7] and a concluding public plenary session on October 4, 2022.[8]

This inquiry focuses on the voluntary use of technical measures and is separate from yet complementary to the Office's inquiry on standard technical measures (STMs) as defined in section 512(i) of the DMCA, which also responds to your June 2021 letter.[9]

Drawing on the information gathered during the consultation process, we outline below the present landscape of technical measures and discuss the relevant issues as articulated by the participants. We begin with a description of points of commonality material to stakeholder experiences crafting successful initiatives. We then analyze both technology-neutral and

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[2] *See* U.S. COPYRIGHT OFFICE, SECTION 512 OF TITLE 17 at 27–47 (2020) (''Section 512 Report''), https:// www.copyright.gov/policy/section512/section-512- full-report.pdf.

[3] Request Letter at 2.

[4] *Id*.

[5] Technical Measures: Public Consultations, 86 Fed. Reg. 72638 (Dec. 22, 2021).

[6] In order to participate in the consultations, parties must have submitted a statement of interest and answered a question in response to the December 2021 Notice of Inquiry, or have been invited by a participant as their designated guest technologist. *See* Public Comments, https://www.regulations.gov/document/COLC-2021-0009-0001/comment. Staff of the U.S. Department of Commerce agencies including the U.S. Patent and Trademark Office (USPTO), the National Telecommunications and Information Administration (NTIA), and the National Institute of Standards and Technology (NIST) were invited to observe all of the consultations.

[7] In order to promote discussion, the June 2022 consultations included six moderated sessions and six office hours held under Chatham House Rules; therefore, specific attributions to individuals attending those sessions will not be shared in this letter.

[8] Recordings of the first and concluding plenary can be found here: https://www.copyright.gov/policy/technical-measures/recordings/.

[9] Letter on Standard Technical Measures from Shira Perlmutter, Register of Copyrights, U.S. Copyright Office, to Sen. Patrick Leahy, Chair, and Sen. Thom Tillis, Ranking Member, Subcomm. on Intell. Prop. of the S. Comm. on the Judiciary (Dec. 20, 2022) ("STM Letter").

technology-specific issues**,** ending with a discussion of international developments and potential next steps for the Copyright Office and stakeholders. While more points of disagreement than consensus emerged during the consultation process, the wide range of perspectives and experiences that were shared can inform future conversations.

II. Points of Commonality

A common thread throughout the consultations was the consideration of context as an important element for a productive conversation. The relevant context involves the specific circumstances of any decision or action related to technical measures, including the discrete problem to be addressed, the nature of the measure's planned deployment, and the key players. According to one participant, understanding the appropriate context during the development of a technical measure helps to avoid downstream challenges with its deployment.[10] Identifying the appropriate incentives for the development and deployment of technical measures is equally important. These incentives may derive from several sources, including financial interests as well as legal rights and obligations.[11]

A number of examples of productive initiatives involving the development of technical measures were discussed throughout the consultations. Such initiatives typically featured four points of commonality: inclusivity, collaboration, communication, and transparency. Conversely, many participants expressed frustration when these elements were missing from stakeholder interactions or present in only limited circumstances. In the Office's view, future initiatives to develop and deploy voluntary technical measures should benefit from taking these elements into account.

A. Inclusivity

Today's internet landscape features diverse individuals and businesses using various models, both for-profit and nonprofit, to support their offerings.[12] A number of stakeholders described the prevalence of an exclusive rather than inclusive approach to the development and deployment of technical measures.[13] Small and medium-sized platforms and rightsholders

[10] June 2022 Consultations.

[11] *See* Devlin Hartline, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 4 (Feb. 8, 2022) ("Hartline Comments").

[12] The consultation participants reflect this diversity. Agendas of both plenaries, including lists of participants, are available on the study webpage: https://copyright.gov/policy/technical-measures/.

[13] *See* Copyright Alliance, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 4 (Feb. 8, 2022) ("Copyright Alliance Comments") ("Some technical measures have been adopted through voluntary agreements among industry stakeholders. While OSPs have publicly expressed a willingness to work with the copyright community to develop technical measures to address online piracy, in practice they have not worked with stakeholders to implement tools that are widely accessible and effective. Instead, when they do make technological measures available, they are often foisted on the creative communities in take-it-or-leave it fashion with little regard for the creative communities' input or needs. Further, individual creators and small copyright owners have largely been left out of voluntary agreement discussions."); June 2022 Consultations.

reported challenges participating in the initial or subsequent conversations leading to the development or deployment of technical measures, which impacted their access to those measures.[14] Some noted that technical measures are frequently developed and deployed in the context of private agreements, making them at least initially accessible only to those party to the agreements.[15] Generally, as the use of a particular technical measure may impact a broad range of stakeholders, those who are affected by the measure should be encouraged to participate in the development processes, in order to find solutions that minimize unanticipated outcomes. Throughout the consultations, stakeholders emphasized the significance of having the appropriate participants at the table when developing technical measures, as well as at the Office's consultations.[16]

B. Collaboration and Cooperation

During the consultations, many stakeholders provided examples of how cooperation improved the development and deployment of technical measures.[17] These examples demonstrated that a symbiotic relationship exists among cooperation and incentives: incentives must be aligned to collaborate while collaboration can further align incentives. However, stakeholders also noted that misaligned incentives, often derived from an imbalance of market positions, can present barriers to collaboration.[18] The acknowledgement of appropriate

[14] Copyright Alliance Comments at 4; June 2022 Consultations.

[15] *See, e.g.*, Recording Industry Association of America ("RIAA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 5 (Feb. 8, 2022) ("RIAA Comments") ("Most of the technical measures noted above, though widely adopted in the industry, have been adopted in connection with bilateral voluntary agreements between industry stakeholders."). Individual rightsholders reported that they do not have the market power to be a party to these licensing agreements. *See* Music Artists Coalition ("MAC"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 3 (Feb. 8, 2022) ("MAC Comments") ("Many of the technical measures offered by OSPs result from voluntary agreements with specific industries and are only available to select partners, leaving many artists and creators on the outside looking in.").

[16] *See, e.g.*, Electronic Freedom Foundation ("EFF"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 5 (Feb. 8, 2022) ("EFF Comments") ("Accordingly, these consultations must include all of the different sectors that rely on the services that will be affected. They must also consider the many types of copyright owners that would be affected by any such measures, from large movie studios to vidders to YouTube creators to musicians to teachers to political organizers to ordinary people just posting the proverbial cat videos.").

[17] *See generally* Meta Platforms, Inc. ("Meta"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("Meta Comments"). Participants anecdotally shared that on platforms where there is cooperation between creators and platforms there are fewer takedowns and lower costs. June 2022 Consultations. Similarly, in the Section 512 Report, the Office outlined five guiding principles for the study, one of which noted that Congress intended to incentivize cooperation between online service providers and rightsholders, but that cooperation cannot be the only answer. Section 512 Report at 66-68.

[18] *See generally* Future of Music Coalition ("FMC"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("We would appreciate the opportunity to elaborate on our view that some basic power disparities and misaligned incentives present the biggest obstacle to widespread adoption—in some cases access to STMs is withheld from music creators for opaque and/or arbitrary reasons; in other cases technology is available but creators can't afford access."); Pex, Comments Submitted in Response to U.S. Copyright

incentives was identified as both an initial step and an ongoing challenge for productive conversations about technical measures. Incentives and goals may also evolve as mutually beneficial options arise through collaborative interactions.

C. Communication

Efforts to develop technical measures benefit from communication among stakeholders. Participants noted a range of benefits resulting from communication, including addressing imbalances in access to knowledge, improving the development and deployment of technical measures, and aiding in enforcement efforts.[19] They mentioned different types of information to be shared, such as ownership and licensing information from rightsholders and information about the availability and accessibility of technical measures from service providers. Service providers stressed that feedback from rightsholders and users of technical measures plays an important role in assessing the efficacy of any particular measure.[20]

D. Transparency

During the consultations, participants did not reach consensus on the scope or level of transparency that is advisable regarding the development of technical measures. Some rightsholders called for increased transparency from service providers about available measures, deployment, and implementation.[21] Several individual commenters shared their personal experiences with a lack of transparency having adversely impacted their livelihoods.[22] Several

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Office's Dec. 22, 2021, Notice of Inquiry at 4 (Feb. 8, 2022) ("In particular, OSPs have a financial disincentive when it comes to copyright protection, attribution, and licensing. The broad liability limitations of section 512 enable OSPs to safely profit from user engagement with even unlicensed content. Were that content properly identified and attributed, some of those profits would go to creators and copyright holders. The OSPs may therefore view attribution- and license-enabling technologies as both increasing costs and reducing revenues. That limits the widespread adoption of powerful content identification technology.").

[19] *See, e.g.*, Meta Comments at 3 ("Our collaboration with rights holders is, in fact, a central component of our approach to stopping IP infringement, as it provides insight into trends and developments that we address through our enforcement measures.").

[20] *See, e.g.*, Meta Comments at 5 ("Each feature available in Rights Manager is the result of a voluntary collaboration between Meta, rights holders, and many other stakeholders. Often, Meta will actively solicit feedback and input from the rights holder community to determine what features to add or change in Rights Manager, and to offer detailed education about the functions and practices within the tool.").

[21] *See, e.g.*, Artist Rights Alliance, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("We also believe online platforms should be more transparent and share more information with artists and songwriters about the technical measures they use to protect music online and the tools they make available to creators large and small.").

[22] *See* Josh Pierce, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 6, 2022) ("There is also no transparency on how they work. Getting a false positive result reversed can take a very long time and result in losing all of your creative works and revenue because YouTube will delete your account. When it's inevitably reversed, I will have lost weeks of revenue from that video because it all went to the corporation that flagged it."); June 2022 Consultations.

service providers warned that increased transparency could benefit bad actors.[23] Despite these diverging views, participants broadly agreed that transparency can influence the efficacy of a technical measure.

III. Technology-Neutral Issues

Discussions during the consultations explored many issues that were specific to a particular technical measure used to identify or protect copyrighted works online. Two distinct issues relating to resources and access spanned the various types of technologies and experiences. The discussion, however, did not reach consensus on any solutions or paths forward regarding these issues.

A. Resources

Resource-intensive technical measures remain a challenge for both rightsholders and service providers. A variety of open-source, scalable, and free technical measures are widely available.[24] In many cases, however, rightsholders need substantial resources to monitor for infringement online and develop tools to communicate ownership information, while service providers expend substantial resources to develop and implement technical measures. While dealing with online infringement may be viewed as a cost associated with the operation of the online marketplace,[25] not all stakeholders have access to the same amount of resources, including financial and human capital.[26]

The primary point of contention about resources centered on whether expectations regarding access and availability of technical measures should be adjusted according to a stakeholder's size. Some participants asserted that small service providers, including startups, may not have the capital available to invest in expensive technical measures, and therefore

[23] *See, e.g.*, Digital Media Association ("DiMA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 6 (Feb. 8, 2022) ("DiMA Comments") ("[T]echnical measures are most effective when they are not broadly known or advertised. In order to keep one step ahead of piracy and circumvention, the best defenses and newly developed technical measures ought to be kept out of the public eye. Requiring broad adoption of certain measures publicly may unintentionally backfire and harm services, rightsholder, creators, and consumers alike. Clearly delineating the contours of how copyrighted material is to be protected by legitimate services may arm sophisticated parties with vital information necessary to circumvent such measures.").

[24] *See, e.g.*, June 2022 Consultations.

[25] *See id.*

[26] *See* Internet Archive, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022); Organization for Transformative Works ("OTW"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 1 (Feb. 8, 2022) ("OTW Comments") ("Like most other online services outside of the dominant sites, the OTW does not have, could not build, and—if it were technologically feasible, would almost certainly not be able to afford—technologies that could identify unauthorized, infringing works and distinguish them from non-infringing works."); June 2022 Consultations.

should not be held to the same expectations as larger, more established platforms.[27] Some also argued that certain platforms, due to the nature of their services, should be excused from implementing technical measures because they do not frequently encounter instances of potential infringement.[28]

Other participants countered that size and resources should not excuse a service provider from implementing technical measures if the platform distributes content to the public.[29] One participant warned that a cycle may develop where platforms may be too small to afford and implement technical measures but then grow too large to effectively manage infringing content without them.[30] Within this continuum of resources needed versus resources available, medium-sized service providers are in a challenging position; they do not have the resources of larger service providers but may encounter more meaningful levels of infringing content than smaller ones.[31]

B. Access

The importance of access to technical measures so that creators can protect their copyrighted works online was raised in nearly every consultation.[32] Rightsholders reported that in addition to size and resource constraints,[33] access to a particular measure can depend on being

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[27] Engine, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 3 (Feb. 8, 2022) ("Engine Comments") ("Creating either a mandate or expectation that startups be able to do what larger incumbents already do (or are expected to do in the future) would frustrate their ability to fundraise, launch, and succeed."). *See, e.g.,* Computer and Communications Industry Association ("CCIA"), First Plenary, Feb. 22, 2022; June 2022 Consultations.

[28] *See* Engine Comments at 2 ("Of course, startups cannot afford those amounts, especially not to catch the very, very few (if any) instances of possible infringement… [M]ost of the startups surveyed reported that they did not yet 'use technology as part of their moderation process, because moderation technologies were unwarranted due to scale, were prohibitively expensive, and [] ultimately imperfect.'"); June 2022 Consultations.

[29] *See, e.g.,* ACT | The App Association, First Plenary, Feb. 22, 2022; Motion Picture Association ("MPA"), First Plenary, Feb. 22, 2022.

[30] MPA, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 8 (Feb. 8, 2022) ("MPA Comments") ("Small OSPs also argue that implementing technical measures is costly, and they should not have to use the same technology that a larger company does. We believe this is a red herring. Any site with so few infringing files that the volume can be addressed efficiently through manual review should not be required to deploy a technological solution. But any site with a large volume of infringements that cannot be effectively addressed in a timely manner should deploy a technical measure – even if the OSP is a small business. Unauthorized access to copyrighted works should not be a legitimate engine for an OSP's growth, regardless of its size.").

[31] *See* June 2022 Consultations.

[32] For the purposes of this section, access is defined as the ability to use or interact with a technical measure from the perspective of the rightsholder. From the point of view of a service provider, access discussions may focus on resource considerations, as discussed in Section III.A.

[33] *See, e.g.,* American Association of Independent Music ("A2IM"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 3 2022) ("A2IM Comments") ("Furthermore, and of the utmost importance to the independent sector, even when tools are provided to rightsholders, they are often not presented at all, or in a robust manner, to smaller creators.").

party to a specific licensing agreement.[34] Individual rightsholders expressed particular frustration in navigating access to technical measures, as they are not positioned like larger rightsholders to join such agreements.[35]

While generally calling for increased access, individual rightsholders also noted that access to a technical measure may not always provide a meaningful benefit.[36] For example, one artist noted that fees incurred to gain access to a technical measure deployed by a large service provider were generally more than he could expect to make through online income.[37]

Calls for increased access were met with caution from other stakeholders. Some service providers explained that not every tool is appropriate for every rightsholder, and that limiting access to a technical measure can avoid misuse and abuse.[38] Others noted that intentional or unintentional misuse of a tool can have a negative impact by restricting lawful expression.[39]

IV. Technology-Specific Issues

The June 2021 letter requested examples of technical measures used by industries to identify and protect copyrighted works online. In written comments, stakeholders identified a wide range of technologies, including but not limited to:

- encryption
- automated content recognition technologies

[34] *See* Section II.A.

[35] MAC Comments at 3 ("Many of the technical measures offered by OSPs result from voluntary agreements with specific industries and are only available to select partners, leaving many artists and creators on the outside looking in. OSPs have not operated in good faith to implement widely accessible tools.") (citing *The Role of Private Agreements and Existing Technology in Curbing Online Piracy: Hearing before the S. Subcomm. on Intell. Prop.*, 116th Cong. 3 (2020) (written statement of Keith Kupferschmid). *See* A2IM Comments at 2; Copyright Alliance Comments at 4; Copyright Alliance, Closing Plenary, Oct. 4, 2022; June 2022 Consultations.

[36] *See generally* Music Workers Alliance ("MWA") Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("MWA Comments"); June 2022 Consultations.

[37] June 2022 Consultations.

[38] *See* CCIA, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2-3 (Feb. 8, 2022) ("CCIA Comments") ("The more powerful and widely deployed the copyright management tool, the greater the risk of abuse. Digital services must therefore balance these concerns so that the risk of abuse and misuse is as low as possible. Services take different approaches to balancing these concerns. For example, some services may limit certain features so that only trusted rightsholders with proven track records of appropriate use have access to the most powerful tools."); Internet Infrastructure Coalition ("i2C"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("i2C Comments") ("Industry has explored trusted notifier programs that have been successful on a small scale, where expectations are clear that due process is to be expected and information is to be accurate.").

[39] *See* Library Copyright Alliance ("LCA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("LCA Comments") ("[I]f all rightsholders had access to powerful tools such as YouTube's ContentID, far more fair uses would be blocked."); Meta Comments at 9 ("Through experimentation and collaboration, we have found that our approach of limiting access to sensitive features, and using the mix of tactics listed above, amongst others, has a proven track-record of effectively striking the balance between protecting lawful speech and preventing abuse and errors."); June 2022 Consultations.

- application programming interfaces (APIs)
- watermarking
- web crawlers
- standardized metadata and metadata messaging
- digital rights management (DRM)
- authentication tools
- true streaming protocols
- website demotions
- limited use URLs
- territorial filtering tools.[40]

The comments did not universally endorse any specific technology, but raised various issues regarding available measures, which were expanded upon during the consultations.[41] Stakeholders paid particular attention to the bespoke nature of tools designed to achieve specific purposes in specific contexts, with a focus on identification-related technologies.

A. Customization of Design

Echoing the Office's observation in its Section 512 Report regarding the "inappropriateness of one-size-fits-all technologies,"[42] participants noted that the variety of types of copyrighted works and online services precludes a standardized approach to all technical

[40] *See* A2IM Comments at 3; Google Inc. ("Google"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("Google Comments"); MPA Comments at 3-5; RIAA Comments at 3-5. Technologies can also be deployed in combination. ACT | The App Association, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 8 (Feb. 8, 2022) ("ACT | The App Association Comments") ("Software developers also utilize a combination of technologies such as digital rights management, firmware, encryption, obfuscation, monitoring, and analytics to protect applications from unauthorized copying and distribution."); RIAA Comments at 4 ("These [DRM] systems, often used by streaming services, use a combination of encryption, key management techniques, and business rules to protect and control access to the music.").

[41] For example, several commenters mentioned watermarking. Some stakeholders highlighted the identification functionality of watermarks. *See* MPA Comments at 4-5 ("Watermarks are also used to identify the recipient of a downloaded copy so that the origin of an infringing copy can be identified. In the streaming context, session-based watermarks can be inserted into the transmission so that an infringing copy circulating online can be traced back to the individual subscriber who unlawfully captured and redistributed it."). Others noted the potential impact of watermarking on civil society and other potential bodies of law. *See* Copia Inst., Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("Copia Inst. Comments") ("A system of watermarking, for instance, may track a document, but it also tracks the people reading it, including lawfully, and irrespective of any valid privacy interests they may have (or any other privacy regulation or Fourth Amendment consideration.)"). Other stakeholders noted contextual considerations when evaluating the deployment of different types of technical measures. *See* Microsoft Corp. ("Microsoft"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("Microsoft Comments") ("Cloud infrastructure providers, such as Microsoft, that issue encryption keys to customers to address privacy and security concerns may not be able to implement technical measures utilized in other contexts to address allegedly infringing materials.").

[42] Section 512 Report at 67.

measures.[43] Many service providers have developed and implemented custom tools reflecting the particular use and presentation of potentially infringing content on their services.[44] Participants mentioned movies, video games, and apps as forms in which "layers of content" dictate the need for different technical measures.[45] As one commenter stated, "[it] is routine… to employ more than one technical measure in a way that is tailored to each specific circumstance."[46] The necessity for customization of technical measures represented one area of consensus.

B. Measures to Identify Works

In multiple consultation sessions, two components were identified as functionally significant to the ability to identify and protect works in the digital environment: metadata and databases.[47] These discussions underscored the importance of authoritative information and the challenges its absence can present.[48]

1. Metadata

Throughout the consultations, stakeholders stressed the importance of metadata, which generally contains rights management information, to the ability to manage creative works online

[43] *See* Cloudflare Inc. ("Cloudflare"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 3 (Feb. 8, 2022) ("The fact that a technical approach has been or can be successfully deployed across a social media platform, for example, does not mean that it can or should be deployed by infrastructure providers, where the approach comes with fundamentally different costs and risks."); DiMA Comments at 4 ("Music streaming is not a closed ecosystem and one size does not fit all. The system must support use of technical measures, but allow for innovative diversification simultaneously, as it does now. To prescribe a common method and employ technical measures in a one-size-fits-all fashion would risk stifling the collaboration already in existence and yet to come, while undermining the overlapping incentives of service providers and rightsholders."); Microsoft Comments at 1 ("[A] one-size-fits-all approach to technical measures intended to address online copyright piracy would create challenges for different stakeholders who have varying technical capabilities."); CTIA, First Plenary, Feb. 22, 2022. *See generally,* First Plenary, Feb. 22, 2022; June 2022 Consultations.

[44] Pinterest, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("We believe there are platform-specific considerations."); June 2022 Consultations.

[45] June 2022 Consultations.

[46] DiMA Comments at 6.

[47] However, some stakeholders expressed that their voluntary measures relied less on databases and focused on connecting rightsholders with the alleged infringer. *See, e.g.*, June 2022 Consultations.

[48] *Cf.* Samantha Lochre, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 6, 2022) ("The worst experience I had was when someone stole and re-posted my artwork, but because they had slapped their own watermark on it, the filters didn't catch it. Getting the re-post taken down was a month long process, because the website was using automated filters instead of real human beings who could have helped.").

in accordance with business needs.[49] A variety of metadata standard identifiers exist,[50] and the metadata for a work may contain some, all, or none of these identifiers.[51]

Several stakeholders discussed the challenges of preserving metadata as well as ensuring its authoritativeness.[52] While metadata may be added to a work at various times, it may be incomplete or outdated.[53] Static metadata may not reflect subsequent licensing agreements or other copyright status changes.[54]

One participant cited the preservation of metadata as the single greatest challenge for visual artists, a concern shared by other creators and rightsholders to various degrees.[55] The presence of metadata was viewed as an important link between the rightsholder and use of the work in the digital space. Available technical measures can aid in preserving or reattaching metadata, including image recognition tools that compare scanned works to a database of similar works and attach relevant metadata if a match is found. [56] Technologists indicated, however, that metadata stripping may be a common practice for a variety of reasons, including load time, ease, and privacy concerns.[57] Privacy considerations surrounding certain types of metadata, for example pertaining to location, may determine whether the stripping of such metadata is appropriate.[58]

2. **Databases**

Databases with authoritative and current information play an important role in the effective use of technical measures to identify works. Stakeholders identified several challenges

[49] *See* Copyright Alliance Comments at 4; DiMA, Closing Plenary, Oct. 4, 2022; June 2022 Consultations.

[50] Metadata and identifiers were highlighted as areas where harmonization is occurring. June 2022 Consultations.

[51] Stakeholders discussed numerous standard identifiers and noted that some industries and registries are coalescing around certain metadata markers. Specific standards mentioned included DDEX, "an international organization featuring members from across the digital music supply chain—service providers, record labels, music publishers, and collective management organizations ("CMOs")—focused on developing standardized metadata for use in in the creation and distribution of digital music." DiMA Comments at 4. Standard formats for providing metadata were also mentioned. RIAA Comments at 4 ("In addition, there are standard or de facto formats being used for providing metadata embedded in certain music standard files, such as for AAC formatted files or MP3 formatted files. The music industry regularly uses these formats to embed metadata identifying the copyrighted work in the digital file embodying the music."). International Press Telecommunications Council ("IPTC") metadata fields for images were discussed. *See generally* Google Comments at 4; Copyright Alliance Comments at 2.

[52] *See* Digital Media Licensing Association ("DMLA"), First Plenary, Feb. 22, 2022; June 2022 Consultations.

[53] *See* June 2022 Consultations.

[54] *See id.*

[55] *See id.*

[56] However, stakeholders noted that for works which are closely related image matching may be less useful and other identifiers may be required to differentiate works. *See id*.

[57] *See id.*

[58] *See id.*

relating to the presence and quality of metadata, as well as the control and preservation of the databases themselves.

As an initial matter, stakeholders noted that numerous databases are available; however, this fact itself presents challenges. Rightsholders may need to register their works in multiple places, and service providers have to make decisions about which databases to use for authentication purposes.[59] Both may face resource constraints, and if the parties have not selected the same data source, errors may occur.

Stakeholders expressed concerns about the ownership of databases, noting that commercial databases can provide market advantages that could disincentivize collaboration. They also raised questions about what could happen should the controlling entity sunset, making the database no longer available, or should the database undergo a change of control.[60]

Participants and commenters noted the potential benefits of a single, authoritative database of works.[61] However, the possibility of creating a comprehensive database of all works was generally viewed as not practically feasible, given the volume and variety of creative works protected by copyright.[62] A few specifically called for the Copyright Office to create and manage a master database of copyright protected works and associated rights information.[63] Other stakeholders pointed out that although copyright registration affords numerous benefits, it is not mandatory and thus could not provide a full catalogue of all works.[64]

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[59] *See id.*

[60] *See id.*

[61] Anonymous (COLC-2021-0009-2534), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 7, 2022) ("Right now, copyright is issued without registering the content anywhere. To have a complete and coherent database of copyrighted content, the Library of Congress would need to have a carefully organized database that classifies all elements of a piece correctly."); Anonymous (COLC-2021-0009-4827), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("Therefore, an appeals process must also be implemented, on the government level, using a database either created and supported by the government, or one of similar standing, in both completeness and accessibility. [. . . .] I have mostly been addressing the issues of digital art and media, however I believe all content would benefit from a self-submitted database system, as it could easily pertain to code strings, games, music, and patents on inventions as well."); June 2022 Consultations.

[62] *See* June 2022 Consultations.

[63] *See* Anonymous (COLC-2021-0009-4827), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("Since everything on the internet is in constant fluctuation, the government's role should not only be to create broader copyright laws, but also to create a digital database, much like the Library of Congress, which lists the media and it's first post date along with the source, thereby eliminating future copies claims to the original, and enforcement of laws. This will create transparency and allow online service providers to simply scan the database to ensure compliance, as they currently now must either trust their user base or require everything through a filter, either AI or personnel, one of which is faulty, the other is costly, both is unwieldy."). The Music Modernization Act and Mechanical Licensing Collective were raised as an example of a single authoritative database for discrete copyright information. June 2022 Consultations.

[64] Article 5 of the Berne Convention forbids the imposition of formalities such as registration as a condition of the "enjoyment and exercise" of copyrights. Berne Convention for the Protection of Literary and Artistic Works art. 5,

Although a single authoritative database was viewed as unfeasible, stakeholders agreed that a combination of embedded metadata and information stored remotely through a connected web of registries would be useful.[65] Without minimizing the importance and contributions of current databases and registries, as well as efforts to standardize identifiers, they noted that a global, networked, interoperable system of registries would create a more metadata-rich environment.[66] Interoperability would, however, require commonalities or standards across platforms, available data and databases, and resources for implementation.[67]

V. Implementation of Technical Measures

During the consultations, participants stressed that many of the issues with technical measures arise during deployment and implementation. Issues regarding automation, accuracy and error rates, and licensing were identified as particularly important.

A. Automation

Several participants described the benefits of using automated technologies, particularly for identifying potentially infringing content online.[68] They explained that automated searching, for example, is a practical necessity because the volume of online infringement renders human monitoring unfeasible.[69] For rightsholders, automated tools also provide a more efficient alternative to manually identifying and sending takedown notices.[70]

Other participants criticized the reliance on automation, particularly in the context of takedown notices. They reported that automation has led, in some circumstances, to "bots on bots": that is, bots taking down content in response to automated requests.[71] Several explained that while current technology can determine the exact match for a work, it cannot determine "whether such matches are infringements,"[72] as distinguishing lawful from unlawful uses

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Sept. 9, 1886, *as revised* July 24, 1971, *and as amended* Sept. 28, 1979, S. TREATY DOC. NO. 99-27, 1161 U.N.T.S. 3 (1986) 5. *See also* June 2022 Consultations.

[65] June 2022 Consultations.

[66] Copyright Alliance (Guest Technologist), Closing Plenary, Oct. 4, 2022.

[67] June 2022 Consultations.

[68] *Id.*

[69] *See, e.g.*, Copyright Alliance Comments at 6 ("Both OSPs and copyright owners agree that the notice and takedown system has come under strain, in part because of the high volume of notices that are sent."); June 2022 Consultations.

[70] *See* National Music Publishers Association ("NMPA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 7, 2022) ("NMPA Comments"); June 2022 Consultations.

[71] *See* LCA Comments at 2; June 2022 Consultations.

[72] Meta Comments at 7; *see also* U.S. Technology Policy Committee of the Association for Computing Machinery ("USTPC"), Comments Submitted in Response to U.S. Copyright Office's Dec.22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("USTPC Comments") ("Specifically, while determining an exact match with a copyrighted work may be relatively straightforward to automate, if there are any differences – ranging from trivial to complex – it may

requires legal and factual context.[73] For example, they stated that transformative works present challenges for matching tools as the similarities between the copyrighted content and the derivative work are inherent in the creative process.[74]

Moderated discussions during the consultations revealed that the criticisms about automation are primarily related to the response subsequent to the identification of potentially infringing content. Depending on the context, some stakeholders asserted that a degree of human intervention, especially in determining the appropriate response to an automated identification, may be necessary to avoid the over-blocking of content.[75] Software industries reported that automatic takedowns in certain instances have led to harmful outcomes because of the interdependencies of software.[76] Following this perspective, some participants emphasized the importance of flexibility to choose what action to take once an automated measure flags potentially infringing content.[77] In sum, they argued that while automation may be appropriate or necessary in certain circumstances, consideration of the context and flexibility to tailor the process is critical.[78]

B. Accuracy and Error Rates

During the consultations, participants from across industries agreed that the accuracy of a technical measure significantly affects rightsholders, service providers, and users.[79] False negatives, which occur when there is a failure to detect infringing content, hinder the ability of

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become difficult to impossible to detect whether the content in question is a partial or essentially complete duplicate of a copyrighted work. Relying on machine learning to solve this problem may not be feasible, and even if it were so, the actual reasons for determining an infringing match are likely to be difficult to understand, if not entirely unknowable.").

[73] *See* EFF Comments at 4.

[74] *See* OTW Comments at 1 ("[T]he name of a copyrighted work or an author is simply not enough to identify a work or determine whether a posted work infringes. This is particularly true for fair-use derivative works."); June 2022 Consultations.

[75] *See* EFF Comments at 2.

[76] GitHub, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("GitHub Comments") ("In modern software development, programmers write code that 'depends' on other tested, proven, and widely accessible software – usually open source software – written by third parties. All types of software, from phone apps to enterprise software run by corporations and governments, rely on these 'dependencies.' When even a single dependency is removed from a software collaboration platform like GitHub in response to an infringement complaint, its removal can break the software of an exponential number of other programs that depend on that code."); June 2022 Consultations.

[77] *See* June 2022 Consultations.

[78] *See* Software and Information Industry Association ("SIIA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022) ("SIIA Comments") ("Our members also use web crawlers to identify the location of potential infringing copies, and then conduct human review before sending a notice. Still others have no automated takedown at all: each request receives human review. The practices followed depend heavily on the nature of the service provider and the area in which it operates: a platform that provides interactive courseware for a K-12 school will have different needs from a search engine."); June 2022 Consultations.

[79] *See generally* June 2022 Consultations; *see also* i2C Comments at 2.

rightsholders to protect and enforce their copyrights online. On the other hand, false positives, which occur when content is mistakenly flagged as infringing, may "inaccurately and unjustly penaliz[e] users or OSPs,"[80] and potentially block free expression.[81] One participant recounted how filtering technologies have triggered false positives of copyright infringement claims for livestreams of orchestra concerts, for example, because the technology cannot distinguish between two different performances of the same public domain work.[82] Several participants noted that technologies also cannot evaluate fair use or interpret the terms of licenses.[83] As stated by one stakeholder, "[t]he core problem is this: distinguishing lawful from unlawful uses often requires context."[84]

Participants did not come to a consensus over the acceptable error rate for technical measures but acknowledged that technology will never operate error free. The responsiveness and accuracy of a technical measure can be influenced by many factors, including the availability of authoritative information as discussed in Section IV of this letter. An acceptable error rate may also depend on whether the technology is detecting an entire work or a partial match.[85]

Several stakeholders, however, emphasized that some inevitable errors should not preclude the use of technical measures, including automated measures. Fair use and First Amendment considerations do not appear in every context that involves automation, such as automated systems identifying exact or near-exact copies—the basis of the vast majority of takedown notices. Additionally, one participant described automation as superior to manual review because machines, unlike humans, cannot engage in malicious acts or fraud.[86] The accuracy and error rate of technical measures will continue to be points of discussion as more technologies are developed and deployed.

[80] USTPC Comments at 3.

[81] *See* CCIA Comments at 4; EFF Comments at 2-4.

[82] Orchestra Music Licensing Association ("OMLA"), First Plenary, Feb. 22, 2022; OMLA, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 3 (Feb. 8, 2022) ("[T]echnologies used to identify infringements of sound recordings appear[] to be highly inaccurate when it comes to classical and other orchestral music…. But because no actual review or other human intervention apparently occurs, these false positives automatically trigger a false copyright infringement claim on the affected video….This disruption, when it happens, is devastating to the orchestras, especially with respect to livestreamed events.").

[83] *See, e.g.*, Copia Inst. Comments at 2; Wikimedia Foundation, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 2 (Feb. 8, 2022).

[84] EFF Comments at 4.

[85] *See* USTPC Comments at 3; June 2022 Consultations.

[86] June 2022 Consultations.

C. Licensing

Many of the conversations during the consultations involved the ways in which technical measures can enhance a well-functioning digital marketplace.[87] Rightsholders, particularly those in the music industry and to some extent the software industry, explained that when an unauthorized work is identified the goal is not necessarily removal, but may be remediation, potentially in the form of a license.[88] Numerous examples of connections between technical measures and license facilitation were provided in the written comments and during the consultations.[89]

Not all rightsholders, however, share an expectation for licensing when copies of their works are identified online.[90] Some noted that their business models involve licensing earlier in the creative process, so licensing is not a preferred response at the point when their works are identified online.[91] Others cited other business interests such as marketing or audience connections.[92] Ultimately, a rightsholder may prefer flexibility depending on the intended use of

[87] *See* DiMA, Closing Plenary, Oct. 4, 2022. Additionally, rightsholders shared their observations of the relationship between a lack of licensing opportunities and the absence of technical measures on a platform and suggested that improving the licensing market could by extension improve the scope of voluntary technical measures available. June 2022 Consultations.

[88] *See, e.g.*, GitHub Comments at 2 ("When even a single dependency is removed from a software collaboration platform like GitHub in response to an infringement complaint, its removal can break the software of an exponential number of other programs that depend on that code."); June 2022 Consultations.

[89] *See, e.g.*, A2IM Comments at 3 ("Properly implemented technical measures improve creators' ability to protect copyright, but they also are one of the first steps toward building technology that can help build a healthy licensing economy for the creators on user uploaded content (UUC) platforms."); Google Comments at 4 ("Google Image Search recognizes and displays structured data or IPTC (International Press Telecommunications Council) metadata for images when right[s]holders use it to mark up the images on their websites. When a photographer specifies license information for the images on their website, the image can display with a licensable badge on image thumbnails in Google Images. This badge tells people that license information is available for the image, and provides a link to the license in the Image Viewer, which offers more detail on how someone can use the image."); June 2022 Consultations.

[90] *See* Emily Butler, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022) ("I also don't have any choice about what content is taken down on my behalf. If a fan makes a video using my music, or posts a live video of my performance, I might WANT it to stay up even if they didn't license it from me. Algorithmic copyright enforcement makes it almost impossible for me to greenlight specific works on behalf of people sharing this content that benefits me, since they're taken down before I'm even aware.").

[91] June 2022 Consultations.

[92] *See, e.g.*, Starlight Comics, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 9, 2022) ("Take, for example, one of our comics. If our fanbase draws fan art of our comic book characters and posted it online then would that fanart be flagged as infringement and be removed? That would hinder our growth as that fan might have introduced hundreds of customers to our comic through his art, but now his art is removed and instead we may loose [sic] that fan.").

the work by the potential licensee.[93] And licensing may not be well-suited to a context where the content appears in an incidental or infrequent fashion.[94]

VI. International Experience

Attempts to address the role of technical measures take place in numerous jurisdictions. Consultation participants primarily discussed recent approaches in the European Union, notably in its 2019 Digital Single Market Copyright Directive ("DSM Copyright Directive"). Article 17 of the DSM Copyright Directive sets out obligations for entities that meet the statutory definition of an online content-sharing service provider regarding the use of protected content on their services.[95] This article is still in the process of implementation in several Member States.[96]

Although participants agreed that the global nature of platforms means that the DSM Copyright Directive will have an impact outside the EU,[97] they disagreed on whether it is too early to draw any lessons from Article 17 implementation, and the extent to which any such lessons would be relevant to the United States given our differing free speech safeguards.[98] Stakeholders who believed it was appropriate to learn from the implementation identified the issues of standardization, common practices, transparency, and global harmonization.[99] Those who felt it was too early noted in particular a recent decision by the Court of Justice of the European Union[100] and its impact on ongoing Member State implementation.[101]

VII. Next Steps

During the consultations, potential follow-up actions by stakeholders and the Office were discussed. In particular, four ideas were considered: copyright education, catalogues of technical

[93] ACT | The App Association, Closing Plenary, Oct. 4, 2022.

[94] June 2022 Consultations.

[95] Directive EU 2019/790 of the European Parliament and of the Council of 17 Apr. 2019 on Copyright and Related Rights in the Digital Single Market and Amending Council Directives 96/9/EC and 2001/29/EC, art. 17(4), 2019 O.J. (L. 130/92).

[96] General information on national transposition of the DSM by EU Member States is available on Eur-Lex. Document 32019L0790, EUR-LEX (last visited Dec. 15, 2022), https://eur-lex.europa.eu/legal-content/EN/NIM/?uri=CELEX:32019L0790.

[97] *See* June 2022 Consultations.

[98] *See id.*

[99] *See id.*

[100] *See* Case C-401/19, *Poland v. Parliament and Council*, ECLI:EU:C:2022:297 (Apr. 26, 2022) (finding that "the obligation on online content-sharing service providers to review, prior to its dissemination to the public, the content that users wish to upload to their platforms [. . . .] has been accompanied by appropriate safeguards by the EU legislature in order to ensure [. . . .] respect for the right to freedom of expression and information of the users of those services [. . . .] and a fair balance between that right, on the one hand, and the right to intellectual property [. . . .] on the other.").

[101] *See* June 2022 Consultations.

measures, the formal recognition of technical measures, and a potential role of the Office as a convener.

A. Education

The importance of copyright education was stressed throughout the consultations, with most stakeholders[102] agreeing on its value. While there was enthusiasm for education programs available to all those who engage with copyright protected works,[103] stakeholders emphasized that they should be targeted and specific based on the intended audience as well as the role of the education provider.[104]

The wealth of current resources and expertise available was noted, and many additional educational opportunities were identified in both the consultations and comments. Some focused on the information trade associations could communicate to their members, and others on increased education for small or independent creators.[105] One idea that garnered positive responses involved "decision tree" processes or rules engines[106] that offer tools and paths at various content touchpoints, which would not only inform stakeholders but also help the user acquire authorized access to the work.[107]

Stakeholders also discussed the role of the Copyright Office in providing educational material.[108] Some noted that reliable and accurate general education on technical measures provided by Office would be a useful resource.[109] Others cautioned, however, that even such general education might not remain sufficiently neutral and could be perceived as offering some type of imprimatur for certain technologies.[110]

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[102] *See* Matthew Adams (VetIt Ware), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 3, 2022); June 2022 Consultations.

[103] June 2022 Consultations.

[104] *Id.*

[105] *See* Brian Chen, Comments Submitted in Response to U.S. Copyright Office's Dec.22, 2021, Notice of Inquiry (Feb. 6, 2022) ("Better education and messaging about the mechanisms of copyright takedowns would benefit all parties."); Joseph Mahon, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 7, 2022) ("Access to high-quality education about copyright is paramount. Many small creators are taken advantage of by these systems (whether being mistakenly accused of piracy themselves, or deliberately targeted by parties with malicious intent) because they don't know their rights or how to engage with them. More public education about these topics would be useful, especially if there was a way to ensure creators on large platforms (e.g. Youtube) would have access to this knowledge by default.").

[106] June 2022 Consultations.

[107] *Id.*

[108] *See, e.g.*, USTelecom, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 1 (Feb. 8, 2022) ("USTelecom Comments") ("USTelecom anticipates that the Copyright Office can play a useful role, consistent with its neutral advisory remit, by sharing information, cataloguing and educating the public about existing or future technical measures for the protection of online copyright works.").

[109] June 2022 Consultations.

[110] *Id.*

B. Catalogues of Technical Measures

Participants considered but did not reach consensus on various proposals for the Copyright Office to share information about specific technical measures. Distinct from the more general topic of education, these proposals involved the Office identifying certain categories of technical measures,[111] cataloguing and sharing information about existing measures on its website,[112] or creating a clearinghouse or central repository of such measures.[113] Supporters argued that the Copyright Office executing such tasks would lend transparency and market accessibility to existing measures, especially for individual rightsholders.[114]

Other participants disagreed, arguing that negative implications outweighed any potential benefits. One participant emphasized that the success of these information-sharing proposals depends on accurate information, which may be difficult for the Office to verify.[115] While some proposed creation of a Chief Technology Officer position at the Office to support this endeavor, others questioned whether a single person would possess the necessary expertise due to the wide range of technical measures in use.[116] Similarly, participants warned that sharing information about technical measures could also implicate other areas of the law, such as communications and privacy.[117] Finally, some maintained that information provided by the Copyright Office, even without any evaluation, would risk interfering with the market by giving an imprimatur to specific technical measures.[118]

C. Formal Recognition

In comments submitted to the December 2021 Notice of Inquiry, some stakeholders called for the Copyright Office to formally recognize and mandate specific technical measures (or aspects thereof) via regulation[119] or a standards-setting process, and included proposals for ways in which this could occur.[120] According to these stakeholders, these proposals would support transparency, innovation, and availability of technical measures.[121]

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[111] *See* Pex Comments at 7.

[112] *See* Association of American Publishers ("AAP"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 4 (Feb. 8, 2022) ("AAP Comments"); June 2022 Consultations.

[113] *See* USTPC Comments at 4; Independent Film & Television Alliance ("IFTA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 1 (Feb. 8, 2022) ("IFTA Comments"); USTelecom Comments at 1; RIAA Comments at 7.

[114] *See* A2IM Comments at 3; IFTA Comments at 1; June 2022 Consultations.

[115] June 2022 Consultations.

[116] *Id.*

[117] *Id.*

[118] *Id.*

[119] *See* STM Letter.

[120] *See* Hartline Comments at 4; A2IM Comments at 3; MPA Comments at 8; MWA Comments.

[121] *See* A2IM Comments at 3; MPA Comments at 8.

Other participants, however, opposed such proposals, on similar grounds to the information-sharing or cataloguing proposals.[122] These stakeholders warned that formal recognition or mandate by the Office of specific technologies and even measures in general could diminish the flexibility to develop and deploy technical measures while enhancing the perceived legitimacy of one over another, with negative market ramifications.[123] Most stakeholders agreed that flexibility in the design and deployment of technical measures is important for innovation and for a measured response to bad actors.[124] In our separate letter responding to the section 512(i) inquiry, we expand on considerations regarding the establishment of a government-administered STM designation process.[125]

D. Convener

Throughout the consultations, participants expressed an appreciation for the Copyright Office convening the consultations. Some described new avenues for connection that were made both within and outside of the consultations.[126] Many felt that the convener role, bringing together stakeholders from diverse perspectives, would be appropriate for the Office going forward.[127]

While there was broad support for this role, a few stakeholders cautioned the Office to take into account access and participation issues, expressing concern that the resources to

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[122] *See generally* Re:Create, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 7, 2022); Consumer Technology Association ("CTA"), Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry (Feb. 8, 2022).

[123] CCIA Comments at 4-5 ("Mandatory deployment also risks perverse secondary effects: a smaller service that needs to develop content scanning technologies will need to operate in a space where established services have been spending years developing technology."); Engine Comments at 2 ("One founder surveyed explained that if the use of filtering technology were required by law, 'it would put us out of business.'"); R Street Institute, Comments Submitted in Response to U.S. Copyright Office's Dec. 22, 2021, Notice of Inquiry at 1 (Feb. 8, 2022) ("[I]t is important to allow private firms to continue to innovate and improve technical measures within the existing framework; we do not believe that government facilitation or adoption of technical measures will generate superior outcomes to the status quo.").

[124] *See* Google Comments at 1 ("This voluntary cooperative approach is optimal because technology evolves quickly, and bad actors dedicated to infringement are constantly adapting their tactics to exploit new products and find new ways of exploiting existing products."); Microsoft Comments at 2.

[125] STM Letter.

[126] *See* June 2022 Consultations.

[127] NMPA Comments at 4 ("NMPA believes it is appropriate for the Copyright Office, along with other agencies, to convene stakeholders, as in these consultations, to discuss and identify technical measures."); IFTA Comments at 1 ("The government should convene and facilitate meaningful discussions amongst and gather information from all stakeholders with respect to these copyright protection measures so that there is transparency."); MPA Comments at 8 ("[T]he government can play a role in bringing stakeholders together to work together to find solutions."); AAP Comments at 4 ("[G]overnment may likewise have a role in facilitating discussions among private sector stakeholders in devising a range of generic technical measures that platforms can implement to reduce infringement on their sites."); SIIA Comments at 4 ("SIIA believes that the government should act as a convener, as it is in this instance, to bring differing sides together to discuss the ways in which these standards might have arisen."); June 2022 Consultations.

participate may not be equally available to all affected interests, and nonrepresentative participation could lead to unforeseen negative outcomes.[128]

Throughout the consultations, the importance of connecting policy experts with each other was stressed. To that end, stakeholders communicated a desire for interagency collaboration and cautioned against different agencies presenting inconsistent guidance or requirements.[129]

VIII. Conclusion

The diversity of the online marketplace has generated a variety of technical measures and corresponding challenges and expectations. Through the many discussions held this year, a diverse group of stakeholders examined the fundamental issues that contribute to the successful development and deployment of technical measures. The Copyright Office has heard from participants that this process has enabled and encouraged new connections that may lead to more effective technical measures due to a greater common understanding.

In sum, the Copyright Office respects the value of voluntary cooperation between interested parties to devise effective and appropriate technical measures. We appreciate the contributions of those who participated in our public consultation process.

As for next steps, the Office proposes two near-term options. The Office could continue to convene periodic public sessions for stakeholders in a discussion format similar to the ones that took place this year. Such a public process could also serve to continue facilitating private discussions between groups of interested parties. Alternatively, the Office could host periodic public events where technologists provide informational updates on new uses and experiences involving technical measures. We look forward to discussing possible next steps with you and your congressional colleagues in the upcoming 118th session of Congress.

Please do not hesitate to contact me if you would like further information.

Respectfully,

Shira Perlmutter
Register of Copyrights and Director
U.S. Copyright Office

[128] *See* June 2022 Consultations.

[129] *Id.*