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HOW COPYRIGHT DRIVES INNOVATION IN SCHOLARLY PUBLISHING

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ABSTRACT

Today, copyright policy is framed solely in terms of a trade off between the benefits of incentivizing authors to create new works and the losses from restricting access to those works. This is a mistake that has distorted the policy and legal debates concerning the fundamental role of copyright within scholarly publishing, as the incentive-to-create conventional wisdom asserts that copyright is unnecessary for researchers who are motivated for non-pecuniary reasons. As a result, commentators and legal decision-makers dismiss the substantial investments and productive labors of scholarly publishers as irrelevant to copyright policy. Furthermore, widespread misinformation about the allegedly “zero cost” of digital publication exacerbates this policy distortion.

This paper fills a gap in the literature by providing the more complete policy, legal and economic context for evaluating scholarly publishing. It details for the first time the \$100s millions in ex ante investments in infrastructure, skilled labor, and other resources required to create, publish, distribute and maintain scholarly articles on the Internet and in other digital formats. Based on interviews with representatives from scholarly publishers, it reveals publishers’ extensive and innovative development of digital distribution mechanisms since the advent of the World Wide Web in 1993. Even more important, this paper explains how these investments in private-ordering mechanisms reflect fundamental copyright policy, as copyright secures to both authors and publishers the fruits of their productive labors. In sum, copyright spurs both authors to invest in new works and publishers to invest in innovative, private-ordering mechanisms. Both of these fundamental copyright policies are as important today in our fast-changing digital world as they were in yesteryear’s world in which publishers distributed scholarly articles in dead-tree format.

HOW COPYRIGHT DRIVES INNOVATION IN SCHOLARLY PUBLISHING

Adam Mossoff*

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I. INTRODUCTION

Today’s public policy debates frame copyright policy solely in terms of a “trade off” between incentivizing new works against the social deadweight losses imposed by the access restrictions imposed by these (temporary) “monopolies.”¹ Unfortunately, this policy framing has led scholars, commentators and ultimately legal decision-makers to discount the value-added function of scholarly publishers in distributing reliable, high-quality, standardized, networked, and accessible research that meets the differing expectations of readers in a wide-ranging variety of academic disciplines and fields of research. Of course, copyright does incentivize the

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¹ One of the most common citations for this proposition is the famous article by William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 JOURNAL OF LEGAL STUDIES 325 (1989). Another is Glynn S. Lunney, Jr., *Reexamining Copyright’s Incentives-Access Paradigm*, 49 VANDERBILT LAW REVIEW 483 (1996). For a few recent examples of this reductionist claim that copyright policy is solely about balancing the incentive to create new works against access restrictions on these works, see John M. Owen, *Graduated Response Systems and the Market for Copyrighted Works*, 27 BERKELEY TECHNOLOGY LAW JOURNAL 559, 611 (2012) (“Striking the correct balance between enforcement costs . . . and the benefits of providing incentives to create new works lies at the center of copyright protection policy concerns.”); Aaron Perzanowski, *Digital Exhaustion*, 58 UCLA LAW REVIEW 889, 921 (2011) (stating that “the goal of the copyright system is to balance incentives to create new works with the public’s ability to use and enjoy them”).

creation of new works, securing to authors the fruits of their labors.² But as courts have repeatedly recognized, this is not the sole justification for copyright—copyright also incentivizes intermediaries like scholarly publishers to invest in and create innovative legal and market mechanisms for publishing and distributing articles that report on scholarly research.

These two policies—the incentive to create and the incentive to commercialize—are interrelated, as both are necessary in justifying how copyright law secures the dynamic innovation that makes possible the “progress of science.”³ If the law does not secure the fruits of labors of publishers who create legal and market mechanisms for disseminating works, then authors’ labors will go unrewarded as well.⁴ This is not merely an academic inquiry into the metaphysics of copyright, as the improper framing of copyright policy as concerned solely with the “incentive to create” distorts the policy debates about the function of copyright law and its key role in the innovative distribution of scholarly research.

Contrary to popular belief, the fundamental role that scholarly publishers serve in distributing research through their development and maintenance of innovative distribution mechanisms is as necessary and important today in our new digital age as it was in the now seemingly antiquarian age of traditional print media. Many people think otherwise, because scientific researchers generally are not incentivized by copyright or its economic rewards; instead, they seek intellectual recognition for their research efforts, academic or industry positions, and prestigious awards and

² See *Princeton University Press v. Michigan Document Services, Inc.*, 99 F.3d 1381, 1399 (6th Cir. 1996) (“Copyrights provide an incentive for the creation of works by protecting the owner’s use of his or her intellectual creation, allowing creators to reap the material rewards of their efforts.”); see also *New York Mercantile Exchange, Inc. v. IntercontinentalExchange, Inc.*, 497 F.3d 109, 118 (2d Cir. 2007) (observing that “the objectives of the copyright law ... [are] to promote the advancement of knowledge and learning by giving authors economic incentives (in the form of exclusive rights to their creations) to labor on creative, knowledge-enriching works.”).

³ U.S. Constitution, Article I, Section 8, Clause 8. See Mark Schultz, *Copyright, Economic Freedom and the RSC Policy Brief*, Copyright Alliance Blog (Nov. 20, 2012), at <http://www.copyrightalliance.org/2012/11/copyright-economic-freedom-and-rsc-policy-brief> (explaining that copyright’s constitutional mandate is rooted in both utilitarian and natural rights theory, which justify why copyright is a valid property right secured both to creators and to the private firms who disseminate their works).

⁴ See *Bond v. Blum*, 317 F.3d 385, 396 (4th Cir. 2003) (recognizing that assessing the impact “upon the potential market for or value of the copyrighted work” of an alleged fair use is fundamentally important because this “touches most closely upon the author’s ability to capture the fruits of his labor”).

accolades (e.g., Nobel Prizes).⁵ The mistaken belief that copyright is justified solely as an incentive to create thus excludes from the policy debates any analysis of how copyright incentivizes the *business models* necessary for converting a new scientific discovery or technical invention into a reliable, standardized, and high-quality article that effectively communicates this information to other scholars and researchers. Instead, the incentive-to-create conventional wisdom informs people that scholars receive none of the incentive-to-create benefits but suffer all of the so-called access-restriction costs of copyright.⁶

The mistaken incentive-to-create conventional wisdom is further reinforced by misinformation or simple ignorance about the economics of scholarly publishing in our new digital era.⁷ Many people now believe that scholarly publishers are no longer necessary because the Internet has made moot all such intermediaries of traditional brick-and-mortar economies. As the now-classic saying goes: on the Internet, everyone can be both a writer and a publisher. Lastly, a recent rise in significant anti-copyright rhetoric on both the political left and right has further muddied the policy and legal waters.⁸

This climate has prevented an informed and effective policy debate about digital distribution of scholarly works from taking place, and the results have been consequential. In 2008, Congress enacted legislation

⁵ See *Weissmann v. Freeman*, 868 F.2d 1313, 1324 (2d Cir. 1989) (observing that “in an academic setting, profit is ill-measured in dollars,” and that “what is valuable is recognition because it so often influences professional advancement and academic tenure”); Michael W. Carroll, *The Role of Copyright Law in Academic Journal Publishing*, in *Working Within the Boundaries of Intellectual Property* 149-157 (Rochelle Dreyfuss, Harry First & Diane Zimmerman, eds., Oxford U. Press, 2010).

⁶ Professor Pamela Samuelson, a prominent intellectual property scholar, writes that “copyright has become the single most serious impediment to access to knowledge. Academic authors, among others, should use the Internet as a medium through which access to knowledge can be greatly expanded.” Pamela Samuelson, *Aaron Schwartz: Opening Access to Knowledge*, SAN FRANCISCO CHRONICLE, Jan. 25, 2013, available at <http://www.sfgate.com/opinion/article/Aaron-Swartz-Opening-access-to-knowledge-4224697.php#ixzz2JEOeZLnJ>

⁷ See *infra* notes 49-51 and accompanying text.

⁸ For instance, Derek Khanna, the former staffer for the Republican Study Committee, asserted in the now-retracted *RSC Policy Brief: Three Myths About Copyright Law and Where to Fix It* (Nov. 16, 2012) that “Copyright violates nearly every tenet of laissez faire capitalism.” On the left, John Perry Barlow coined one of the mantras of the Internet Age—“information wants to be free”—in a famous 1994 article in *Wired* magazine, “The Economy of Ideas,” available at <http://www.wired.com/wired/archive/2.03/economy.ideas.html>.

authorizing the National Institute of Health (NIH) to adopt an “open access” mandate for all peer-reviewed journal articles reporting on NIH-funded biomedical research,⁹ and calls for similar regulatory and legal initiatives have only intensified in recent months. On February 14, 2013, the Fair Access to Science and Technology Research Act was introduced in Congress, which would require all agencies to mandate free public access for peer-reviewed journal articles reporting on federally-funded research,¹⁰ and on February 22, 2013 the Obama Administration’s Office of Science and Technology Policy issued a memorandum calling for agencies to implement a similar “agency public access plan.”¹¹ Lastly, in the Supreme Court’s decision in *Kirtsaeng v. John Wiley & Sons* on March 19, 2013, Justice Breyer’s opinion went far beyond the narrow statutory issue presented to the Court in resolving two conflicting provisions of the Copyright Act in asserting that the “Founders” sought to only “grant an author a limited right to exclude competition.”¹² These regulatory initiatives and legal decisions are motivated in various ways by the incentive-to-create conventional wisdom, misunderstanding of the economics of scholarly publishing, and anti-copyright rhetoric, all of which has become more and more pervasive in recent years.

Given these increasingly important legal and policy debates, this research paper provides a more complete legal, policy and factual context for evaluating scholarly publishing and its role in creating and investing in innovative distribution mechanisms for reliable, high-quality, standardized, networked, and accessible articles reporting on path-breaking research. First, it reintroduces the vital commercialization policy back into the public policy debates about copyright, identifying how the Supreme Court and commentators have long recognized that copyright secures to intermediaries

⁹ See Consolidated Appropriations Act, 2008, P.L. 110-161, § 218, 121 Stat. 1844 (Dec. 27, 2007) (authorizing the NIH to mandate that all “peer-reviewed manuscripts” published by scholarly journals that report on research that received NIH funding must be submitted “to the National Library of Medicine’s PubMed Central ... to be made publicly available no later than 12 months after the official date of publication,” but only if “the NIH shall implement the public access policy in a manner consistent with copyright law”).

¹⁰ See Fair Access to Science and Technology Research Act, H.R. 708, 113th Cong. (2013).

¹¹ See John P. Holden, Director OSTP, *Increasing Access to the Results of Federally Funded Scientific Research*, http://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf.

¹² *Kirtsaeng v. John Wiley & Sons*, No. 11-697, 2013 WL 1104736, at *22 (U.S. Mar. 19, 2013).

like scholarly publishers the fruits of their labors in their innovative development of distribution mechanisms that distribute scientific, technical and medical research. Second, it reports for the first time economic and other empirical data on scholarly publishing, showing how scholarly publishers exemplify copyright’s commercialization policy by successfully investing \$100s millions in innovative distribution mechanisms that disseminate high-quality, peer-reviewed, reliable research to researchers throughout a wide range of academic disciplines. As is detailed at great length, scholarly publishers have invested in and continue to pay \$100s millions in digital infrastructure, personnel and other administrative and transaction costs in distributing the millions of scholarly articles published each year.¹³

The empirical data is particularly important, because it belies the widespread claim today that there is virtually “no cost” in creating, operating and maintaining online and digital platforms for peer-reviewed scholarly articles. This basic economic fact—dynamic development of innovative distribution mechanisms require substantial investment in both people and resources—is what makes the commercialization policy an essential feature of copyright law (and of all intellectual property doctrines). And it is for this reason that copyright law has long promoted and secured the value that academics and scholars have come to depend on in their journal articles—reliable, high-quality, standardized, networked, and accessible research that meets the differing expectations of readers in a variety of fields of scholarly research.

II. COPYRIGHT PROMOTES AND SECURES COMMERCIAL DISTRIBUTION OF SCHOLARLY WORKS

Commercial publication of copyrighted works has been a fundamental policy concern in copyright law since the Founding Era,¹⁴ despite Justice Breyer’s claim to the contrary in his recent opinion in *Kirtsaeng*.¹⁵ This essential commercialization policy is built into the

¹³ See H. Frederick Dylla, *One Publisher’s Journey through the Public Access Debate*, 32 INFORMATION SERVICES AND USE, 65, 66 (2012) (reporting that in 2009 almost 1.5 million articles in just the scientific, technical and medical fields were published by over 2,000 different publishers).

¹⁴ See Thomas Nachbar, *Constructing Copyright’s Mythology*, 6 GREEN BAG 2d 37, 44 (2002) (“The scope of copyright protection existing at the time of the framing” focused on “publication, not creation,” and thus this “is inconsistent with claims [today] that copyright must promote creative activity in order to be valid.”).

¹⁵ See *Kirtsaeng*, 2013 WL 1104736, at *22.

structure of copyright doctrine, as reflected in longstanding provisions in the federal copyright statutes that secure to authors the right to transfer their copyrights to third-parties, such as publishers.¹⁶ Before the 1976 Copyright Act, publication was in fact the “dividing line between common law and [federal] statutory protection,”¹⁷ which reveals the extent to which *publication* of copyrighted works has long been the foundation on which rests the entire structure of federal copyright protection. The copyright system thus promotes authors to make use of the division of labor in an advanced commercial economy by benefiting from the efficiencies of labor specialization—authors write and publishers distribute.¹⁸ The commercialization policy in copyright law supporting and promoting the publication and distribution of copyrighted works remains as viable and as important in the digital age as it was in the era of traditional print media.

Given the dominance in recent years of the mistaken incentive-to-create conventional wisdom in copyright policy, the U.S. Supreme Court repeatedly has had to point out that this has never been the sole justification for the copyright system. In its 2003 decision in *Eldred v. Ashcroft*, for instance, the Court observed the basic truth that “copyright law celebrates the profit motive, recognizing that the incentive to profit from the exploitation of copyrights will redound to the public benefit by resulting in the proliferation of knowledge. . . . The profit motive is the engine that ensures the progress of science.”¹⁹ This understanding of copyright is fundamentally at odds with the unduly reductionist incentive-to-create story, because it is the “the exploitation of copyrights” in the marketplace—

¹⁶ The current copyright statute secures the right to commercialize a work by “sale or other transfer of ownership, or by rental, lease, or lending.” 17 U.S.C. § 106(3). The right to transfer a copyright was expressly secured in the first copyright statute enacted in 1790, which provided that authors or “persons . . . who hath or have purchased or legally acquired the copyright” had the “sole right and liberty of printing, reprinting, publishing and vending.” Copyright Act of 1790, § 1, ch. 15, 1 Stat. 124 (codified as amended at 17 U.S.C. §106).

¹⁷ *Harper & Row, Publishers, Inc. v. Nation Enterprises*, 471 U.S. 539, 552 (1985) (quoting House Rep., at 129 U.S. Code Cong. & Admin. News 1976, p. 5745).

¹⁸ An author “commonly sells his rights to publishers who offer royalties in exchange for their services in producing and marketing the author’s work.” *Harper & Row*, 471 U.S. at 547. See also *American Geophysical Union v. Texaco, Inc.*, 802 F. Supp. 1, 27 (S.D.N.Y. 1992), *affirmed*, 60 F.3d 913 (2d Cir. 1994) (“Authors recognize that publishers have little incentive to assume the financial risks of publishing unless the publisher is protected from copying. Accordingly, it is commonplace for authors to assign their rights of authorship to publishers....”).

¹⁹ *Eldred v. Ashcroft*, 537 U.S. 186, 212 n.18 (2003) (quoting *American Geophysical Union*, 802 F.Supp. at 27).

the commercial publication, sale and distribution of authored works among the relevant consumers—that makes possible the “proliferation of knowledge.” In short, the *Eldred* Court recognized that fundamental copyright policy promotes both *authors* and *publishers* to proliferate knowledge, because the profit motive drives the willingness to invest *ex ante* time and resources in creating both copyrighted works and the means to distribute them.

If there was any doubt about this point, it was dispelled by the Supreme Court’s decision in *Golan v. Holder* in early 2012.²⁰ In *Golan*, the Court was faced with another legal challenge to a copyright statute rooted in the incentive-to-create conventional wisdom about copyright policy,²¹ and again the Court had to point out that “Nothing in the text of the Copyright Clause confines the ‘Progress of Science’ exclusively to ‘incentives for creation.’ Evidence from the founding, moreover, suggests that inducing *dissemination*—as opposed to creation—was viewed as an appropriate means to promote science.”²² As the *Golan* Court explicitly pointed out, it is publishers, not authors, who conceive of, invest in and thus create the successful market mechanisms that convert authors’ manuscripts into the books and articles that are transmitted via print or digital distribution channels to consumers of these works.

The Supreme Court’s emphasis in *Eldred* and *Golan* on the fundamental commercialization policy in copyright law was neither radical nor novel, as courts have long been emphasizing commercialization as core copyright policy. In *Harper & Row v. Nation Enterprises* (1985), the Supreme Court explicitly relied on this vital commercialization policy in copyright law to reject *The Nation*’s fair use claim to publish without authorization material from President Gerald Ford’s soon-to-be-published memoir. Justice Sandra Day O’Connor, writing for the Court, observed that “Where an author and *publisher have invested extensive resources* in creating an original work and are poised to release it to the public, no

²⁰ 132 S. Ct. 873, 888 (2012).

²¹ In this case, Golan challenged as unconstitutional Section 514 of the Uruguay Round Agreements Act, 108 Stat. 4976 (codified at 17 U.S.C. § 104A, 109(a)), because it restored the copyright in foreign works that had fallen into the public domain in the United States due to failure of foreign authors to follow procedural requirements under now-defunct federal copyright law, such as registration of the work in the U.S. Copyright Office. Golan’s argument in part was rooted in the policy claim that restoring copyright protections in previously created works does not incentivize the creation of new works and thus the statute was a violation of core copyright policy.

²² *Golan*, 132 S. Ct. at 888.

legitimate aim is served by pre-empting the right of first publication.”²³ As the Court made clear, copyright rewards the labors of publishers just as much as it rewards the labors of authors.

Even more important, in rejecting *The Nation*’s additional claim to a free speech interest in reporting on a newsworthy person like former President Ford, Justice O’Connor explained that “In our haste to disseminate news, it should not be forgotten the Framers intended copyright itself to be the engine of free expression.”²⁴ This statement by Justice O’Connor is extremely famous, and it is oft-quoted today even by many advocates of the incentive-to-create conventional wisdom. But, unfortunately, many have forgotten the even more important sentence that follows it: “By establishing a *marketable right* to the use of one’s expression, copyright supplies *the economic incentive to create and disseminate ideas*.”²⁵ In discussing longstanding copyright policy, Justice O’Connor recognized that *publishers*, the firms who create the legal and market mechanisms to distribute works, stand on equal policy footing with the *authors* whose works are distributed by them.

This commercialization policy—that intermediaries like publishers should be rewarded for their labors in creating the legal and market mechanisms necessary to disseminate works—is essential to the American copyright system. In fact, it’s so basic in copyright doctrine that many people do not notice the key role that it plays in determining the application of copyright law in both the case law and in the statutes themselves. There are so many examples that there are too many to review in a single research paper dedicated to scholarly publishing, and thus we will briefly touch on two examples in each area—case law and the copyright statutes themselves.

In the copyright statutes, commercialization policy was an explicit part of Congress’ extension of additional copyright protections in digital content when it enacted the Digital Millennium Copyright Act (DMCA) in the late 1990s.²⁶ The DMCA provided greater certainty to the firms who commercialize copyrighted works, whether music, books, articles or other media, that their property would be legally secured against the ease with which people can pirate these works in digital formats.²⁷ As some

²³ *Harper & Row*, 471 U.S. at 557 (emphasis added).

²⁴ *Id.* at 558.

²⁵ *Id.*

²⁶ *See* Pub. L. No. 105–304, 112 Stat. 2860 (1998).

representatives from the creative industries explained in an article published at the DMCA's ten-year anniversary:

At its core, the DMCA enables copyright owners to protect their works against theft. The DMCA recognizes that thriving networks and network-based dissemination of information, whether movies or software, need two things: trust and rewards for good actors. . . .

Without the assurances written into the law, copyright holders would have been more than hesitant to distribute their content in digital form, and to cut the deals with the electronics industry that have allowed the decade's explosion in the portability that is so desired by an increasingly mobile society.²⁸

Support for the DMCA is found not only in the arguments of the firms who commercially benefited from the legal protections secured to them by the DMCA. The courts have also recognized the fundamental commercialization policy that justified enactment of the DMCA in our new digital age. In one of the first DMCA cases, the court soundly rejected the defendant's claim that the DMCA is unconstitutional, recognizing that the DMCA is firmly rooted in the fundamental commercialization policy that animates copyright law:

[T]he DMCA furthers an important government interest—the protection of copyrighted works stored on digital media from the vastly expanded risk of piracy in this electronic age. The substantiality of that interest is evident . . . from the significance to our economy of trade in copyrighted materials. Indeed, the Supreme Court has made clear that

²⁷ See Matthew Schonauer, *Let The Babies Dance: Strengthening Fair Use And Stifling Abuse In DMCA Notice And Takedown Procedures*, 7 I/S: JOURNAL OF LAW & POLICY FOR THE INFORMATION SOCIETY 135, 151-52 (2011) (“In a broad sense, the DMCA has largely been a success, providing both ISPs and rights holders with more certainty regarding liability and enhanced protection, respectively.”).

²⁸ Dan Glickman & Robert Holleyman, *The Copyright Act a Decade Later*, 138 BROADCASTING & CABLE 44, 44 (2008). See also David Kravets, *10 Years Later, Misunderstood DMCA is the Law that Saved the Web*, WIRED (Oct. 27, 2008), available at <http://www.wired.com/threatlevel/2008/10/ten-years-later> (“Based on first-hand experience, the studios would not have embraced the DVD technology, at least not as quickly as they did. . . . There was tremendous concern in releasing movies in this greatly improved format that could not be protected against duplication.”).

copyright protection itself is ‘the engine of free expression.’”²⁹

The careful reader will have noticed that the court relied here on Justice O’Connor’s famous statement in *Harper & Row* that copyright is “the engine of free expression.” As explained above, this is not merely a paean to free speech, it is a declaration of the fundamental commercialization policy in copyright law, which creates “a marketable right” that “supplies the economic incentive to create and disseminate ideas.”³⁰ The DMCA was enacted by Congress and applied by the courts precisely because it furthers this core copyright policy.

In court decisions, one can easily recognize the commercialization policy at work in how the courts apply the doctrine of fair use set forth in § 107 of the Copyright Act. It is particularly evident in the fourth prong of the multi-factor test in § 107, which requires a court to assess “the effect of the use upon the potential market for or value of the copyrighted work.”³¹ In fact, the fourth factor has long been regarded as “the single most important element” in fair use analysis, revealing how fundamental commercialization is in the copyright system.³² The importance of the fourth factor is confirmed by empirical analyses of fair use cases, which reveal that the fourth factor has been the fulcrum by which courts engage in a policy balancing test to assess the strength of the infringer’s claim to “fair use” relative to “the impact of that use on the incentives of the plaintiff.”³³ Of course, the incentive motivating *publishers* in creating distribution mechanisms for articles is fundamental to this assessment when the plaintiff is a publisher.

Even later studies that contend that the commercialization justification for the fourth factor have been displaced by other tests, such as the “transformative use” test,³⁴ confirm implicitly the salience of the

²⁹ *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294 (S.D.N.Y. 2000), *affirmed*, *Universal City Studios v. Corley*, 273 F.3d 429 (2d Cir. 2001).

³⁰ *Harper & Row*, 471 U.S. at 558.

³¹ 17 U.S.C. § 107(4).

³² *Harper & Row*, 471 U.S. at 566; *see also* *A.V. ex rel. Vanderhuy v. iParadigms, LLC*, 562 F.3d 630, 642 (4th Cir. 2009) (quoting *Harper & Row*); *Princeton University Press v. Michigan Document Services, Inc.*, 99 F.3d 1381, 1385 (6th Cir. 1996) (en banc) (noting that “the Supreme Court has said that the most important factor is the fourth,” citing *Harper & Row*).

³³ Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 549, 621 (2008).

³⁴ *See Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 591 (1994).

commercialization policy in applications of the fair use doctrine.³⁵ In the past two decades, courts have increasingly considered the *transformative nature* of an unauthorized use of a work when assessing whether the purpose and character of that use justifies a finding of fair use.³⁶ A transformative use employs part of the original work “in a different manner or for a different purpose from the original.”³⁷ By definition, then, a transformative use is not a “market substitute” for the copyrighted work.³⁸ Courts do not consider a work transformative if it would undermine a current or a substantially likely potential commercial market for the original work.³⁹ A transformative use thus fulfills a different demand from the original work by significantly departing from the manner or purpose of the use of the same material in the original work. In sum, there is no threat to the investments and rewards secured to publishers under copyright law when a use is sufficiently transformative—the core commercialization policy remains the guiding principle.

In the digital era, the commercialization policy has been particularly evident in the courts consistently rejecting fair use claims by peer-to-peer (P2P) file sharing services responsible for the unlawful distribution of millions of copies of copyrighted songs and movies. These cases are important because they directly address the question of whether changes in technology alter the fundamental commercialization policy that animates copyright doctrine. Given that scholarly publishing faces the same question of whether digital technology changes the legal calculus required by copyright’s commercialization policy—whether easy access to digital databases of scholarly articles justifies in part the adoption of public access

³⁵ See Neal Weinstock Netanel, *Making Sense of Fair Use*, 15 LEWIS & CLARK LAW REVIEW 715 (2011).

³⁶ See, e.g., *Campbell*, 510 U.S. at 579 (noting that “the more transformative the new work, the less will be the significance of other factors, like commercialism, that may weigh against a finding of fair use”).

³⁷ Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARVARD LAW REVIEW 1105, 1111 (1990). This seminal article by Federal Judge Pierre Leval proposed the transformative test that now dominates fair use jurisprudence.

³⁸ See, e.g., *BMG v. Gonzalez*, 430 F.3d 888, 890 (7th Cir. 2008) (rejecting defendant’s claim to fair use in illegally downloading MP3 files of musical works because “Music downloading for free from the Internet is a close substitute for purchased music”).

³⁹ See, e.g., *Kelly v. Arriba Soft Corp.*, 336 F.3d 811, (9th Cir. 2003) (holding it to be fair use for a search engine to convert digital art images into thumbnails in part because “[t]he thumbnails would not be a substitute for the full-sized images because the thumbnails lose their clarity when enlarged”).

mandates—the consistent avowal of the commercialization policy in the P2P-file-sharing cases is revealing.

In the first, well-known court decision at the turn of the century involving an unauthorized music service, the court observed that, even if the defendant was correct in its self-serving claim that its online service allegedly benefited the music labels (music publishers), this “in no way frees defendant to usurp a ... market” in the “plaintiffs’ copyrighted works,” especially when “plaintiffs have adduced substantial evidence that they have in fact taken steps to enter that market.”⁴⁰ In the many P2P-file-sharing cases that have followed since, courts have consistently focused on the economic harm imposed on the music labels’ business models by P2P services like Napster, Grokster, and BitTorrent. As a result, they consistently and soundly rejected the defense that P2P users were engaging in fair use. In the famous *A&M Records v. Napster* decision, for instance, the court observed that

the record supports the district court's finding that the “record company plaintiffs have already expended considerable funds and effort to commence Internet sales and licensing for digital downloads.” Having digital downloads available for free on the Napster system necessarily harms the copyright holders’ attempts to charge for the same downloads.⁴¹

Accordingly, the court recognized that even if “free” downloading of digital music files conferred benefits to society or to the music labels themselves, the “harms [to] the market for copyrighted musical compositions and sound recordings” justified a finding of liability under the copyright laws.⁴² In short, copyright does not just protect authors’ incentives to create works, it also secures the incentives for commercial intermediaries to invest in, create and maintain the market mechanisms for distribution of these works.

In economic terms, the basic truth that courts repeatedly emphasize is that copyright is a property right, and like all property rights, it serves the important function of promoting the creation of new legal and market mechanisms that make possible the transfer of valued assets from creators to consumers. Copyright policy secures the fruits of labors of both authors

⁴⁰ *UMG Recordings, Inc. v. MP3.com, Inc.*, 92 F. Supp. 2d 349, 352 (S.D.N.Y. 2000).

⁴¹ *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1017 (9th Cir. 2001) (quoting *A&M Records v. Napster, Inc.*, 114 F. Supp. 2d 896, 915 (N.D. Cal. 2000)).

⁴² *Id.* (quoting *A&M Records*, 114 F.Supp.2d at 915).

and intermediaries—both the creators of works and the publishers who distribute these works. Thus, authors and publishers both serve a necessary role in fulfilling the ultimate goal of copyright to “promote the progress of science.”⁴³

III. DYNAMIC INNOVATION BY SCHOLARLY PUBLISHERS IN DISSEMINATING RESEARCH

The commercialization policy in copyright is not just theory. It reflects the economic realities of the real-world creation and distribution of copyrighted works, especially in the context of scholarly articles, and empirical data and statistics confirm this fact. As the Sixth Circuit recognized in 1996 in *Princeton University Press v. Michigan Document Services*: “It is the [scholarly] publishers who hold the copyrights, of course—and the publishers obviously need economic incentives to publish scholarly works, even if the scholars do not need direct economic incentives to write such works.”⁴⁴ Copyright provides the necessary incentives for scholarly publishers to create, invest in, and sustain the business models that make possible the dissemination of reliable, high-quality, standardized, networked, and accessible research that meets the differing expectations of readers in a wide-ranging variety of academic disciplines and fields of research.⁴⁵ This part presents for the time both industry-wide and publisher-specific data and statistics, providing unique insights into the essential role scholarly publishers serve in the innovative dissemination of scholarly research.

For many people today, this reasoning may sound surprising, if not just plain wrong. This is in part a result of the unique nature of the authors who both produce and consume scholarly articles; their focus is on what economists call the “status goods” of scholarly activities—who is publishing, how much, in what journals, and what are they saying—and not on conventional economic goods like how much profit an author makes from the sale of a copyrighted work. Accordingly, academics and scholars have little knowledge or interest in the traditional “business” details of journal publication. As Professor Mark McCabe recently remarked in a

⁴³ U.S. Constitution, Article 1, Section 8, Clause 8.

⁴⁴ *Princeton University Press v. Michigan Document Services, Inc.*, 99 F.3d 1381, 1399 (6th Cir. 1996).

⁴⁵ See *American Geophysical Union*, 802 F. Supp. at 16 (“Copyright protection is vitally necessary to the dissemination of scientific articles This is not because authors insist on being compensated. To the contrary, copyright protection is essential to finance the publications that distribute them.”).

research paper, among academics in economics, biomedicine, and chemistry, among others, there is “acute awareness of journal quality but little or no knowledge of other seemingly important product characteristics.”⁴⁶ As an economist, Professor McCabe joked that he and his fellow academic “economists knew the value of their journals, but not their prices.”⁴⁷

This natural and understandable disinterest by scholarly researchers in the commercial details of the scholarly journal market is compounded by the mistaken incentive-to-create conventional wisdom.⁴⁸ Accordingly, what most people hear from academics and other commentators is that publishers are intermediaries who impose costly (and unnecessary) restrictions on access to works, and in a new digital world, who have failed to innovate or are just no longer needed at all in a new digital world.⁴⁹ As one professor

⁴⁶ Mark J. McCabe, *Online Access and the Scientific Journal Market: An Economist’s Perspective* 2 (June 2011), available at <https://blogs.commonsgorgetown.edu/copyrightnrc/files/NRC-Copyright-McCabe-NAS-Report-draft2.pdf>.

⁴⁷ *Id.*

⁴⁸ *See supra* note 1 and accompanying text.

⁴⁹ *See, e.g.*, Jerome H. Reichman & Ruth L. Okediji, *When Copyright Law and Science Collide: Empowering Digitally Integrated Research Methods on a Global Scale*, 96 MINNESOTA LAW REVIEW 1362, 1461 (2012) (asserting that “once costly front-end publishing function has increasingly been reduced to desktop publishing and automated formatting, while the peer-review function, of great importance to the integrity of science, is performed gratis by scientists”); Diane Leenheer Zimmerman, *Authorship Without Ownership: Reconsidering Incentives in A Digital Age*, 52 DEPAUL LAW REVIEW 1121, 1135 (2003) (“The fact that copyright was important to nineteenth century publishers, however, tells us very little about the importance of copyright to successful on-line publishing. Much of what the traditional publishing industry does in the production of hard copy is irrelevant in the on-line context. Electronic publishing is not capital-intensive in the way print is; it needs no large investments in printing plants, paper, binderies, warehouses, or shipping facilities.”); Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 UNIVERSITY OF CHICAGO LAW REVIEW 263, 311 (2002) (“When one recognizes that the Internet and digital technology eliminate the need for distributors and weaken their stranglehold on the public, reduce the costs of creation, and reduce the transaction costs associated with connecting artists to the public, most artists may in fact be far better off in a world without copyright.”); Public Library of Science, <http://www.plos.org/about/open-access/> (“Paying for access to content makes sense in the world of print publishing, where providing content to each new reader requires the production of an additional copy, but online it makes much less sense to charge for content when it is possible to provide access to all readers anywhere in the world.”).

writes in her blog, “I see locked-down journals as a form of censorship.”⁵⁰ If anyone can be a blogger or a self-publisher on the Internet, the argument goes, then scholarly research should be available for free, and access restrictions are illegitimate “censorship.”⁵¹

Of course, those familiar with the economics of starting and running high-tech or online companies—or those familiar with the economics of distribution of copyrighted works—know that such beliefs about publishing are profoundly mistaken. In fact, such overly optimistic assumptions were what created the dotcom bubble at the turn of the century, as \$100s millions in poor investments were premised on the then-widespread belief that the Internet allegedly “changed everything” by radically lowering both prices and production costs.⁵² Of course, the bubble burst as it became apparent that not everything had changed, as businesses had not been liberated from the economic realities of cost and the necessities of profit. A mere decade after the bursting of the dotcom bubble and the recession that followed, it is surprising that this same incorrect assumption is driving policy analyses of scholarly publishing and real-world regulations like public access mandates for scholarly research.⁵³

⁵⁰ Danah Boyd, *Open-Access is the Future: Boycott Locked-Down Academic Journals*, APOPHENIA (Feb. 6, 2008), available at http://www.zephorio.org/thoughts/archives/2008/02/06/openaccess_is_t.html.

⁵¹ Professor Boyd, for instance, argues that “The traditional model of journal publishing makes sense in an era where the only mechanism of distribution was paper.” She thus declares that academics should “stop being silenced by academic publishers,” and that they should “Publish only in open-access journals,” which she envisions as being run by “communities of volunteer scholars.” *Id.*

⁵² See, e.g., Tim Harford, *Don’t Judge a Book by its Cover Price: The Undercover Economist*, FINANCIAL TIMES, Aug. 11, 2012, at 44 (“Of course \$23,698,655.93, plus shipping, is a lot to pay for a book—a long way from the dream that the internet would usher in an era of perfect price transparency, in which consumers would discover the cheapest products and prices would inevitably fall to the cost of production. (Not everyone making this case in the dotcom-bubble era realized that it was inconsistent with the other touchstone principle of the time, that internet companies would be insanely profitable.)”); V. Prathaban, *SAP Banks on Current Spate of M&A’s*, BUSINESS TIMES, June 1, 2002, at 8 (“Last year, the event focused on the theme of New, New Economy in a bid to debunk myths that were closely associated with the dotcom meltdown. For instance, it was widely believed that the dotcom era would bring to an end the brick-and-mortar businesses. In addition, it was also thought that dotcoms would bring about significant changes across various industries, thus further reducing costs and providing great value to consumers.”).

⁵³ See, e.g., Elliott E. Maxwell & Kevin Brian, *The Future of Taxpayer-Funded Research: Who Will Control Access to the Results?* 30 (2012), available at http://www.ced.org/images/content/issues/innovation-technology/DCCReport_Final_2_9-

In addition to reintroducing the commercialization policy back into the policy debates concerning scholarly articles, it is thus necessary to replace mistaken rhetoric with actual facts. Given the paucity of economic data in the policy debates about scholarly publishing, we need to detail scholarly publishers' substantial *ex ante* investments of \$100s millions and their ongoing development of innovative business models in distributing reliable, high-quality, trustworthy, standardized, networked, and accessible research to a wide-ranging and diverse community of scholars. Thus, this part provides this important and necessary context for evaluating scholarly publishers' role in disseminating research in copyrighted journal articles.

Scholarly publishers have long represented the basic economic principle that the division of labor—especially the economies of scale achieved through aggregation and specialization—is fundamental to a successful and flourishing marketplace. For example, one of the largest scholarly publishers, Reed Elsevier, founded in 1880, publishes approximately 2,000 journals, including the famous *Lancet*, as well as *Cell*, *Physica*, and *The Journal of the American College of Cardiology*, among many others.⁵⁴ John Wiley and Sons (“Wiley”), which publishes approximately 1,500 journals, first entered the publishing business in 1807.⁵⁵ Even medium-sized publishers achieve economies of scale in efficient investment and distribution of scholarly articles. SAGE Publications Ltd. (“SAGE”), for instance, which was founded in 1965 and began publishing its first journal that year, *Urban Affairs Quarterly*, now publishes more than 700 journals, having recently acquired the publishing operations of the Royal Society of Medicine.⁵⁶ Also, as in all vibrant

[12.pgdf](#) (“Running a digital repository is relatively inexpensive—arXiv spends about \$7 per article.”).

⁵⁴ This is from an interview on December 17, 2012 by the author with several representatives from Reed Elsevier. Unless indicated otherwise, all information about Reed Elsevier is from this interview.

⁵⁵ Many publishers also partner with learned societies and other scholarly organizations to publish journals for these groups. Wiley, for instance, publishes 1,500 journals, but approximately 800-850 of these are published on behalf of organizations that have employed Wiley's publishing expertise, such as the American Cancer Society. For these 800-850 journals, the owners of the journals maintain editorial control and Wiley provides publication services, as well as provides the digital and other services on the backend. This is from an interview on December 19, 2012 by the author with Patrick Kelly, Publishing Director at Wiley. Unless indicated otherwise, all information about Wiley is from this interview.

⁵⁶ This is from an interview on December 13, 2012 by the author with Martha Sedgwick, Senior Manager, Online Products Team, of SAGE. Unless indicated otherwise, all information about SAGE is from this interview.

markets in which exists a diversity of producers and consumers, there also are small, specialized publishers, such as the venerable *New England Journal of Medicine*, which has been publishing its famous journal since 1812.⁵⁷ From the very beginnings of the modern copyright system, the creation of scholarly articles has exemplified the economic truth that animates all enterprises in which specialization between manufacturers and distributors—authors and publishers—creates successful products, flourishing enterprises, and happy consumers.⁵⁸

While business models and distribution mechanisms certainly have changed in the digital age, publishers' essential role in efficiently distributing vast numbers of articles remains. In 2009, for instance, almost 1.5 million articles in just the scientific, technical and medical fields were published by over 2,000 different publishers.⁵⁹ Of course, contrary to conventional wisdom about the Internet,⁶⁰ digital distribution of millions of scholarly articles published year after year is not free (something that many people are familiar with in the context of newspapers and weekly magazines). In fact, the same economic dilemma justifying the incentive-to-create conventional wisdom—authors must invest substantial time and resources in creating a new work that can be easily copied once it is publicly released in the world—is equally relevant for the distributors of these same works. Just as publishers invested in new business models and technology during the Industrial Revolution—publishers invested millions of dollars in creating and running the printing presses, creating and maintaining storage facilities, creating and maintaining supply chain and distribution channels, and in creating new business models—they are again making equally massive investments in today's digital revolution.

Scholarly publishers embraced the opportunities represented by the Internet in the very early years of the evolution of the World Wide Web after 1993, switching to digital submission and review processes as well as to digital publication. For example, one of the medium-sized scholarly publishers, the American Institute of Physics, which now publishes

⁵⁷ This is from an interview on December 14, 2012 by the author with Christopher Lynch, Vice President for Publishing, and Christine Lamb, Director of Marketing, of the *New England Journal of Medicine*. Unless indicated otherwise, all information about *New England Journal of Medicine* is from this interview.

⁵⁸ See *American Geophysical Union*, 802 F. Supp. at 4 (“Learned journals play an important role in scientific research. They serve to disseminate broadly and with reasonable rapidity the results of scientific research being conducted in many places.”).

⁵⁹ See Dylla, *supra* note 13, at 66.

⁶⁰ See *supra* notes 49-51 and accompanying text.

approximately 20 journals, switched to digital production as early as 1995, and it placed all of its journals online by 1997. The American Chemical Society, which now publishes 42 journals, launched its first digital journal in 1996, and it has been steadily increasing its digital publications since that date.⁶¹ As part of the ACS Legacy Archives project, in 2002 the American Chemical Society digitized all 465,000 articles published in its journals between 1879 and 1995. Since 1996, the American Chemical Society has responded to the explosive growth in the scientific, technical and medical disciplines by increasing the number of journals it publishes by about one per year and increasing production generally, resulting in it publishing slightly more articles in the previous seventeen years (1996-2012) than the total number of articles it published in the previous 118 years (1879-1995).⁶²

The larger scholarly publishers proved just as nimble in adopting digital technology and, as a result, incurred substantial costs in this radical shift in production processes.⁶³ In 1995, Reed Elsevier began development of its online publishing platform, *ScienceDirect*, which it beta tested throughout 1997-1998 and rolled out to its customers in 1999. The initial development costs for *ScienceDirect* were approximately \$26 million, which was a small part of the total investment in this platform, and Reed Elsevier's initial investment in creating digital archives of previously published content cost approximately \$46 million. Ultimately, over the past

⁶¹ This is from an interview on December 12, 2012 by the author with representatives from the American Chemical Society. Unless indicated otherwise, all information about the American Chemical Society is from this interview.

⁶² The American Chemical Society does not create new journals willy-nilly, as some people mistakenly believe about scholarly publishers. Before a new journal is founded, the American Chemical Society undertakes substantial research into whether it is justified by the growth in or appearance of a scholarly discipline, including having analyses done by Ph.D.-level acquisitions editors, obtaining input from existing American Chemical Society editors, and surveying interest in the relevant scientific community. Moreover, once a journal is founded, the American Chemical Society implements internal processes to ensure quality control; for instance, each journal has an editorial advisory board, consisting of on average 20 - 50 international scientists in a specific discipline. The American Chemical Society also organizes annual board meetings for each of its 42 journals, at which these advisory boards work continually to improve the quality of the journal.

⁶³ As Patrick Kelly, Publishing Director at Wiley, explains, "it is a digital-first business," although "many customers still want print" and thus Wiley provides both print and digital versions of its journals. About 30-40 of its journals were born completely digital, and about 20-30 of its journals that were once print only are now available only in digital format, but otherwise it maintains both print and digital options. As the technology develops, there is a "print on demand" option for many customers of journals who want a print copy.

two decades, Reed Elsevier has invested \$100s millions in shifting to digital production and publication of journals, as well as scanning, archiving and making accessible in digital formats articles previously published in print format. Wiley launched its online publication platform in 1996, called *Wiley InterScience*, which was ultimately replaced by *Wiley Online Library*, which remains in use today. Wiley's and other scholarly and academic publishers' shift to online and digital archives and production in the 1990s was also the result of investments amounting to \$100s millions.⁶⁴ The American Institute of Physics, which publishes 20 journals, now has an operating budget of approximately \$50 million for its publications.⁶⁵ As tech firms can attest, such substantial investments in paying developers who code, scan, beta test, etc., as well as the substantial investments in purchasing and maintaining the hardware and software necessary to produce digital products and services, is not unusual; the Windows Vista operating system, which was by all accounts a failure in the market, cost Microsoft approximately \$10 billion to create before it sold a single copy.⁶⁶

In short, it is extremely costly to create online and other digital products and services, as investments in the initial R&D, the hardware and facilities, the personnel, and then the ongoing maintenance and further enhancement of these services are substantial. This is as true for publishers as it is for Microsoft and for Internet intermediaries, such as Google.⁶⁷ Reed

⁶⁴ The *New England Journal of Medicine* digitally archived and made accessible online in both PDF and HTML format all of its articles from its first publication in 1812 up through 1989—145,969 total articles. This digital archive project included scanning and uploading 486,434 pages, 75,649 images, and creating 610,000 cross-references in the HTML versions. Although there are no publicly available investment numbers for this project, based on similar projects by other publishers and general knowledge of the high-tech industry, it is reasonable to infer that this was a multi-million dollar investment.

⁶⁵ This is out of a total annual budget of \$75 million, which means that two-thirds of its annual budget is for running its publications. This is from an interview on December 20, 2012 by the author with H. Frederick Dylla, Executive Director and CEO, of the American Institute of Physics. Unless indicated otherwise, all information about the American Institute of Physics is from this interview.

⁶⁶ See Dean Takahashi, *Why Vista Might be the Last of its Kind*, THE SEATTLE TIMES (Dec. 4, 2006), available at http://seattletimes.com/html/business/technology/2003460386_btview04.html.

⁶⁷ Google, currently the world's largest search engine, invested \$890 million in the first quarter of 2011 in updating its data centers. See Rich Miller, *Google Invests \$890 Million in Data Centers* (Apr. 15, 2011), available at <http://www.datacenterknowledge.com/archives/2011/04/15/google-invests-890-million-in-data-centers/>. It's important to realize that, unlike publishers of scholarly and academic journals, Google's primary business is to provide a search engine (its famous search

Elsevier, for example, now maintains over 90 terabytes of digital storage capacity from which an average of 10 million active users from 120 different countries download nearly 700 million articles per year. In 2012, Internet users downloaded 80 million articles from the American Chemical Society's 42 journals, which is an expansion by orders of magnitude from the merely one million downloads that occurred the first year after the American Chemical Society made all of its journals available online in electronic editions. The digital revolution has not eliminated transaction costs in distributing content between researchers and readers, it has only shifted these costs from physical resources like factories running printing presses and warehouses stocked with journals to the new physical resources in our digital age, such as massive "server farms" and the software and highly trained personnel required to create and maintain them (not to mention the costs of operating traditional machines required to run such facilities, such as, among many things, the air conditioning required to keep the computers from overheating).

The digital revolution has also made it possible for publishers to receive and review vastly more manuscript submissions, which is no longer done via snail mail, and to increase vastly their publication of articles as well. As noted earlier, more than 1.5 million articles in the science, technical, and medical fields alone were published in 2009,⁶⁸ an annual total publication rate by scholarly publishers likely thought impossible just fifty years ago. Along with the shift to online distribution of journal articles in the 1990s, scholarly publishers shifted to online and email submission, review, and production processes for manuscripts and articles. Unsurprisingly, author submissions have increased dramatically, too, given both the lower cost to authors in submitting manuscripts electronically and the continual expansion in the scholarly disciplines as the number of researchers grows by approximately 4% per year.⁶⁹ Reed Elsevier now receives just over 1 million manuscripts annually, a number that is the result of a steady increase of annual submissions by 12% per year. Wiley now receives approximately 460,000 – 480,000 manuscript submissions annually. Even small or single-journal publishers receive massive numbers of manuscript submissions; the American Institute of Physics receives slightly more than 32,000 submissions annually and the *New England*

algorithm) for people to find content on the Internet, and thus Google's basic business model does not require it to produce any of its own digital content as such.

⁶⁸ See Dylla, *supra* note 59, at 66.

⁶⁹ See Michael Mabe and Mayur Amin, *Dr Jekyll and Dr Hyde: Author-Reader Asymmetries in Scholarly Publishing*, 54 ASLIB PROCEEDINGS 149 (2002).

Journal of Medicine receives more than 5,000 research papers and over 15,000 total submissions each year.

Scholarly publishers do not merely process and publish these manuscripts. They also provide extremely important and value-added services and products to academics and other readers of their journal articles. First and foremost, they have created and continue to operate a peer review system for ensuring publication of accurate, trustworthy, reliable and high-quality articles that are published in standardized formats and which are easily accessible to the relevant scholarly communities. Studies have shown that while myriad variables influence a researcher's decision to both publish in and read a particular journal, such as its frequency of publication, the speed of the peer review process, its specialization in the field of study, etc., “the important distinguishing characteristic for the platform and its participants is the perceived scientific quality of the content.”⁷⁰ This high quality in the content of journal articles is achieved by the peer review system developed and maintained by scholarly publishers.

Further studies confirm that academics across the scientific, technical, and medical disciplines strongly believe that peer review assists in scientific communication,⁷¹ and 90% of surveyed scholars in these fields agree or strongly agree that peer review “improves the quality of the published paper” from the submitted manuscript.⁷² The commitment to peer review has largely remained unchanged through the Internet revolution of the past twenty years, as scholars—who are both producers and consumers of journal articles—have responded similarly to surveys between 1993 and 2005 that “it remained highly valued.”⁷³ In sum, peer review is a function of scholarly publishing that is widely recognized as a value-added service

⁷⁰ McCabe, *supra* note 46, at 7.

⁷¹ In a recent survey, 83% of scholars agreed or strongly agreed that peer review assists with scientific communication. See Mark Ware & Mike Monkman, *Peer Review in Scholarly Journals: Perspective of the Scholarly Community—an International Study* 11 (Publishing Research Consortium, 2008), available at <http://www.publishingresearch.net/PeerReview.htm>.

⁷² *Id.*, at 14. Similarly high rates of satisfaction with the substantive and copy-editing changes made in the peer review process are reported in other surveys, *see, e.g.*, Michael Mabe & Adrian Mulligan, *What Journal Authors Want: Ten Years Of Results From Elsevier's Author Feedback Programme*, 16 NEW REVIEW OF INFORMATION NETWORKING 71 (2011).

⁷³ Mark Ware & Michael Mabe, *The STM Report: An Overview of Scientific and Scholarly Journal Publishing* 34 (International Association of Scientific, Technical and Medical Publishers, 2012), available at http://www.stm-assoc.org/2012_12_11_STM_Report_2012.pdf.

provided by the publishers, even by advocates for “open access” publishing.⁷⁴

The peer review system is also widely misunderstood. Many people mistakenly think it consists almost entirely of volunteers who freely perform peer reviews for submitted manuscripts, and with whom publishers easily and cheaply communicate via email or websites.⁷⁵ This is profoundly mistaken. There are in fact an extensive number of publishing staff and other reviewers who are directly employed or are paid as independent contractors, especially those serving in the official “editor” positions at the thousands of journals that now exist and through which the millions of articles are now published. These editors perform substantive review of manuscripts, but they also manage the volunteer academic and scholarly peer reviewers of the tens of millions of submitted manuscripts, incurring extensive transaction costs, administrative costs, and related expenses in operating the peer review system.

A peer review system that successfully filters millions of manuscripts into a select number of high-quality, reliable, standardized, published articles is neither free nor cheap. Each publisher employs legions of internal and external editors, as well as other academics and scholars located throughout the world in its peer review system to process the millions of submitted manuscripts received annually. Thus, as studies have confirmed, this is one of the few business operations performed by

⁷⁴ See, e.g., Maxwell & Brian, *supra* note 53, at 15-16 (“Peer review is a crucial part of the process that publishers utilize to certify the quality and importance of the scholarly work that they choose to publish, from among a large number of submissions.”); Janet Finch, *Accessibility, Sustainability, Excellence: How To Expand Access to Research Publications*, REPORT OF THE WORKING GROUP ON EXPANDING ACCESS TO PUBLISHED RESEARCH FINDINGS (“The Finch Report”) 5 (June 2012) (“For it is clear that many benefits could result if we were to move world-wide to an open access regime, complete with peer review and with effective search, navigation and other value-added services currently provided by publishers, libraries and others.”).

⁷⁵ This is true even among those scholars who recognize the value-added benefits of scholarly publishers. For instance, John Willinsky claims that scholarly publishers could reduce their costs up to 75% by shifting to online-only journals, employing volunteers as editors and reviewers, using open source publishing software, and having universities donate overhead and infrastructure. This reveals a profound ignorance of the actual economics of creating and maintaining a publishing enterprise, even with “volunteer editors and reviewers.” See John Willinsky, *Scholarly Associations and the Economic Viability of Open Access Publishing*, 4 JOURNAL OF DIGITAL INFORMATION (2004), available at <http://journals.tdl.org/jodi/index.php/jodi/article/view/104>.

publishers in which “there are no economies of scale.”⁷⁶ Reed Elsevier’s budget for its peer review system is over \$100 million per year. This is consistent with recent reports that the peer review system costs approximately £1.9 billion annually for the scholarly publishing industry writ large.⁷⁷ Other studies have reached similar results; for instance, the 2012 *PEER Report* found that peer review costs \$250 per manuscript for salary and fees only, exclusive of infrastructure and overhead expenses.⁷⁸

Publishers’ operational data further substantiates why the peer review system is so costly. The American Chemical Society, for instance, one of the smaller scholarly publishers, receives via its digital submission process approximately 100,000 manuscripts annually, out of which it publishes approximately 40,000 articles. In addition to the Editors-in-Chief that the American Chemical Society employs for each of its 42 journals (which entails a time- and labor-intensive vetting and interviewing process), it also employs as independent contractors another 320 associate editors. The associate editors provide both substantive peer review services and manage the peer review process with the thousands of academics who provide additional review services.

Similarly, the *New England Journal of Medicine* publishes 210 research articles from the 5,000+ submissions it receives annually, which is entirely a result of its own extensive peer review system. To maintain this highly exclusive 4-5% acceptance rate, the *New England Journal of Medicine* employs an internal staff of 10 full-time physician editors who do substantive reviews and another 10 associate editors who also do substantive reviews and “quarterback” a multi-stage review process undertaken by thousands of external reviewers. For the 7% of submitted manuscripts that make it through this intensive internal and external review process, the *New England Journal of Medicine* employs a staff of 4 statistical reviewers to do a final substantive review of the articles, winnowing down the finalists to those few manuscripts officially accepted for publication.

The larger publishing firms, such as Reed Elsevier, operate a similar multi-stage peer review process that is just as extensive and time intensive and that also involves both internal and external editorial personnel. Of the 1 million manuscript submissions received at Reed Elsevier journals each

⁷⁶ Julia Wallace, *PEER Project: Final Report 10* (2012), available at http://www.peerproject.eu/fileadmin/media/reports/20120618_PEER_Final_public_report_D9-13.pdf.

⁷⁷ Ware & Mabe, *supra* note 73, at 36.

⁷⁸ Wallace, *supra* note 76, at 10.

year, approximately 350,000 are published as articles. In maintaining this 35% acceptance—or 65% rejection rate, depending on your perspective—Reed Elsevier employs 950 publishers and related staff who also support and work with 8,000 external editors and over 90,000 external editorial board members. Publishing staff work closely with editors in performing a tremendous amount of substantive work in screening out approximately 35% of the submitted manuscripts before sending the remaining manuscripts to the academic and scholarly peer reviewers. Reed Elsevier editors then work with and manage 541,500 academics and scholars who volunteer their time to do peer review of the manuscript submissions. This is anything but a low-cost or simple enterprise to operate and manage, even in our digital era, especially given the 1.3 million peer review reports annually received, reviewed and acted upon by Reed Elsevier editors.

In addition to the extensive peer review process and its tremendous transaction costs, publishers incur extensive costs, either internally or paid to external vendors, in formatting and editing articles for digital publication. One recent study concluded that “Digital content publication involves many labour-intensive activities, including formatting, editing, typesetting. Cost of publishing (including metadata) ranges between 170 to over 400 USD per article. . . .”⁷⁹ Assuming this number is correct, it is quite extraordinary. Thus, in addition to the millions of dollars invested in and expended annually in maintaining the digital infrastructure necessary to publish articles and to provide access to archives of millions of previously published articles, publishers spend \$100s of millions per year just on the allegedly simple activities of the digital equivalent of type-setting the articles. Importantly, such expenses are exclusive of the many post-publication services provided by scholarly publishers (more on this shortly).

Many publishers provide subscribers with the option of receiving articles in multiple formats, such as PDF and HTML, which further increases productions costs. The *New England Journal of Medicine*, for instance, converts to PDF in text format, as opposed to image scanning, so that the article is searchable. As everyone who uses computers well knows, conversions between formats must be double-checked and edited, as words and specially formatted features, such as tables, graphs and images, which are commonplace in scientific, technical and medical publications, often do not survive such conversions unscathed. Additionally, the HTML versions of articles provide added benefits to subscribers, such as hypertext linking for citations both to and from the articles, a labor-intensive coding process

⁷⁹ Centro ASK, Università Bocconi, *PEER Economics Report* 40 (Nov. 2011), at http://www.peerproject.eu/fileadmin/media/reports/PEER_Economics_Report.pdf.

in creating the articles. For example, the American Chemical Society, a medium-sized scholarly publisher with only 42 peer-reviewed journals, retains a staff of twelve full-time employees dedicated to digital product development, production and maintenance, who are themselves supported by an information technology (IT) team of 125 employees who focus on additional technological issues, such as security.

Production costs for journal articles likely range even higher for some journals that have acquired a reputation for extremely high-quality images and other graphical features that are central to their articles, such as the *New England Journal of Medicine*. As with any well-deserved reputation for quality, such as the high-quality articles produced through the peer review system, there are substantial, behind-the-scenes investments that create this highly important value. The *New England Journal of Medicine*, for instance, employs its own staff of award-winning medical illustrators who redraw and recompose all images submitted by the authors.⁸⁰ These in-house illustrators ensure a consistent style and tone throughout the *Journal's* many articles and volumes, ensuring for readers the same high-quality, standardized presentation of information. Moreover, as with the many other value-added features of the digital revolution embraced by publishers, the *New England Journal of Medicine* now creates video animations of the images in its articles, in which 3D images can be rotated along multiple axes for different perspectives, an extremely important capability for medical and biochemical researchers.

The costs of formatting, editing and related article production processes are just the tip of the iceberg, as there are also ongoing investments in developing and maintaining a vast array of online and digital services for both authors and readers of published articles. For authors, Reed Elsevier, SAGE, Wiley, and others, provide email alerts and immediate updates to citation reports as follow-on articles cite to earlier articles. Wiley also provides authors with up-to-date “metrics” for its online articles, reporting total number of downloads, citations by follow-on articles, and even references in blogs or in social media (increasingly important mechanisms in information distribution on the Internet). For readers, scholarly publishers have invested in new technological distribution services in response to the revolution in recent years in smart phones and tablets. Reed Elsevier, the American Chemical Society, SAGE,⁸¹ and

⁸⁰ Some publishers, such as the American Institute of Physics, employ third-party vendors for image production.

⁸¹ SAGE invests in substantial marketing research and in longitudinal studies to determine how best to develop its technological capabilities in response to changes in the digital environment. For instance, it first developed a mobile version of its website in 2011

Wiley, among others, have developed mobile versions of their websites and specific apps for the iPhone, iPad and Android mobile platforms. Similar to scholarly publishers' embrace of the innovative development of the World Wide Web in the early 1990s, publishers continue to respond quickly to ongoing technological innovation with their own continued investments in and development of new services for authors and new distribution mechanisms for readers.

Lastly, in addition to their investment and deployment in new technology in both the online and mobile environments, scholarly publishers have also innovated new business models that have made it possible for more efficient access to and distribution of information published in the digital era. Similar to pre-digital-era innovative developments, such as creating the Copyright Clearance Center for efficient approval and licensing of the use of articles,⁸² publishers recognized early on the interlinking capabilities for citations in scholarly articles published on the Internet. Thus, at the turn of the twenty-first century, scholarly publishers, including Wiley, the American Institute of Physics, and several others, met at the Frankfurt Book Fair and created and funded CrossRef. As described on its website, CrossRef is

A not-for-profit network founded on publisher collaboration, with a mandate to make reference linking throughout online scholarly literature efficient and reliable. As such, it is an infrastructure for linking citations across publishers, and the only full-scale implementation of the Digital Object Identifier (or DOI) System to date.⁸³

The significance of the creation and success of CrossRef is manifold. First, it represents (again) the behind-the-scenes investment in and development of digital resources by scholarly publishers in providing a product—their articles—that maximizes the value of the digital format, such as hypertext linking of citations among publishers. Second, it represents the development of innovative business models by private firms that are dedicated to the creative innovation secured by intellectual property

in response to these studies. In 2010–2011, SAGE revamped its entire web platform, which was first launched in 2004. Before 2004, SAGE relied on a third-party-vendor journal aggregator website for its online publications.

⁸² See *American Geophysical Union*, 802 F. Supp. at 7-9 (explaining the creation and function of the Copyright Clearance Center as “a nonprofit, central clearing-house established in 1977 by publishers, authors and photocopy users”).

⁸³ <http://www.crossref.org/01company/16fastfacts.html>.

rights, such as cross-licensing and other aggregation business models.⁸⁴ CrossRef states simply on its website, “Scholarly publishers developed CrossRef,”⁸⁵ and while the immediate focus of CrossRef’s website is on its innovative technology and services, it bears emphasizing that the creation of this service itself was an innovative business model developed in response to the problem of how to internalize the costs of providing interlinking services to the readers of scholarly articles published on the Internet. Third, such innovative developments and investments continue, as CrossRef has lead to FundRef, and, more recently, ORCID, which was initially capitalized by scholarly publishers in 2011 at the Frankfurt Book Fair.⁸⁶ As Frederick Dylla, Executive Director and CEO of the American Institute of Physics, explains, CrossRef and its progeny are a “prime example of an industry-led initiative.”⁸⁷

In addition to innovative business models and technologies such as CrossRef, scholarly publishers have also innovated in and developed other business models in the online and digital environment. In the 1990s, for example, Reed Elsevier developed TULIP, an online journal distribution project involving more than 80 journals in partnerships with 17 universities and that lasted for four years. The American Chemical Society collaborates with its sister division, the Chemical Abstract Service (CAS), and with numerous third-party vendors, including PubMed and Google. More recently, publishers, such as Reed Elsevier, Wiley and many, many others, partnered with DeepDyve.com, which provides access to scholarly articles on a per-article-fee basis, similar to the business models pioneered by Apple’s iTunes.

Scholarly publishers have also long been developing a variety of different business models in response to the changes in both technology and

⁸⁴ Privately created consortia and cross-licensing business models have been quite common in the efficient commercialization of intellectual property assets. As previously mentioned, the Copyright Clearance Center is one such example. There was also ASCAP/BMI in the context of music licensing, see *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*, 441 U.S. 1 (1979) (describing creation of ASCAP/BMI licensing organizations and their efficiencies). In patent law, cross-licensing organizations were first created by patent-owners in the mid-nineteenth century (called “patent pools”), see Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine War of the 1850s*, 53 ARIZONA LAW REVIEW 165 (2011). Today, patent pools continue to serve an important function in commercializing new technological innovation, such as JPEG, MPEG, DVD, and Lasik eye surgery technology, among many others.

⁸⁵ <http://www.crossref.org/01company/16fastfacts.html>.

⁸⁶ Interview with Fred Dylla, *supra* note 65.

⁸⁷ *Id.*

to the consumption and intellectual demands of their various consumers. This includes a variety of paid-for “open access” journals in which authors pay for publication of articles (called “gold open access” in publishing parlance).⁸⁸ Of course, given the economic realities of publishing, particularly on a massive scale in which millions of articles are published in the thousands of different scholarly disciplines and sub-disciplines, each with differing demands of both authors and readers, such efforts are predicated on the basic economic fact that investments in diverse and innovative publishing and business models must be supported in some way with an expectation of a return on these investments.⁸⁹ As a result, there are now 7,600 open-access journals worldwide that “are highly heterogenous [in] nature and scope.”⁹⁰

Unfortunately, scholarly publishers have labored outside of the public limelight, especially in their massive and innovative investments in and creation of online and digital distribution platforms in the last twenty years. Details of their business enterprises are surprisingly unknown even to the academics and scholars who produce and consume their product, i.e., journal articles. As one court observed sardonically: “It is not surprising that [scholarly] authors favor liberal photocopying But the authors have not risked their capital to achieve dissemination. The publishers have.”⁹¹

As the preceding discussion reveals, scholarly publishers have indeed risked substantial resources in both creating and maintaining innovative distribution mechanisms in both online and other digital formats. When the Internet revolution began in earnest in the early 1990s, they invested \$100s millions in creating the resources necessary for digital distribution of scholarly research—setting up server farms, creating websites, creating software for online publication, coding newly published articles and images, archiving old publications, and providing ongoing

⁸⁸ See Martin J. McCabe, Christopher M. Snyder & Anna Fagin, *Open Access Versus Traditional Journal Pricing: Using a Simple 'Platform Market' Model to Understand Which Will Win (and Which Should)* 22 (Nov. 2012), available at <http://ssrn.com/abstract=2201773> (recognizing that “standard market forces will likely leave room for both traditional and open access pricing models”).

⁸⁹ See, e.g., *id.*, at 20 (observing that “the Public Library of Science, whose flagship [open access] journals, *PLoS Biology* and *PLoS Medicine*, are now among the most highly cited in their fields, was founded with a \$9 million grant from the Moore Foundation. In spite of the substantial subsidy, author fees are still relatively high (\$2,900 per accepted article) for these journals.”).

⁹⁰ Finch, *supra* note 74, at 32.

⁹¹ See *Princeton University Press v. Michigan Document Services, Inc.*, 99 F.3d 1381, 1391 (6th Cir. 1996) (quoting *American Geophysical Union*, 802 F. Supp. at 27).

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digital services, such as hypertext linking for citations, email alerts, and apps for mobile devices, among many other services. They created and sustain to this day peer review systems that ensure quality and trustworthiness in academic scholarship, especially in the scientific, technical, and medical fields. Moreover, it was scholarly publishers who conceived, created and maintained private consortia, such as the Copyright Clearance Center and, in the modern digital era, CrossRef and its many progeny, which have ensured efficient access to works and a vastly expanded interconnection of knowledge. It is only because of these massive investments, financial and otherwise, that scholars today can so easily access and situate research within a global network of accumulated knowledge in ways that were unimaginable just two decades ago.

IV. CONCLUSION

Academic and scholarly discourse is often referred to as a “marketplace of ideas.” Scholarly publishing represents a unique combination of a marketplace in both goods and ideas—and publishers continue in the modern age to serve the important function of ensuring efficient, high-quality distribution of ideas through the digital mechanisms they have created. As a result, new research is now delivered to scholarly consumers through websites, push technology via email, and new mobile platforms with apps for smart phones and tablets.

When the bias created by the incentive-to-create conventional wisdom is stripped away, it is clear that copyright law secures to both creators and publishers the fruits of their productive labors. Understanding the commercialization policy is important, because it brings into focus the degree to which scholarly publishers are exemplars of the foundational policies that animate the American copyright system. Given that scholarly researchers are not motivated by traditional copyright incentives in writing their articles, the creation and dissemination of their published research in formats that are accessible, standardized, reliable and networked is entirely the result of the investments in innovative business models by scholarly publishers. Scholarly publishers thus serve an essential function in copyright law by making the investments in and creating the innovative distribution mechanisms that fulfill the constitutional goal of copyright to advance the “progress of science.”

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