With the advent of the widespread adoption of digital technologies and the commercial phase of the Internet in the late 1990s came the empowerment of individuals to copy and redistribute content. Accustomed to equating their permission to use content such as music, books, and movies with the scope of their physical use of the product, people readily took to these new technologies, applying the logic of the analog era. The result of the clash between this misunderstanding about the scope of permitted use under intellectual property laws and the possibility of use enabled by digital technologies has been an increasingly polarized debate, most notably in the music field. Yet the high-profile nature of the digital music wars has overshadowed another debate taking place as a consequence of the impact of digital technologies on protected materials. This debate surrounds the access to scientific and academic research, teaching tools, and data. Creative Commons and its recently launched Science Commons project aim to promote balance in both debates.

Creative Commons
Since its inception in 2002 in response to the stand-off between the content industries and the online communities, the nonprofit organization Creative Commons (http://creativecommons.org/) has made available free legal and technical tools. These tools enable creators, or authors, to publish their content more easily, to have their creative works found by others more readily, and most important, to have their creative works used on more flexible terms than the traditional "all rights reserved" approach of default copyright protection. Creative Commons released a set of standard licenses that allow authors to decide (1) whether others may make commercial use of their work, (2) whether others may make derivative works, and (3) if derivative works are allowed, whether those derivative works must be made available on the same licensing terms. All licenses require attribution as specified by the author and/or licensor. In this way, authors can structure their private rights to create public goods: creative works can be set "free" for certain uses, consistent with the author's specific intent.

Once a license is selected, the author receives the license in three formats: in human-readable format (the Commons Deed); in lawyer-readable format (the Legal Code); and in machine-readable format (the Resource Description Framework metadata). The RDF metadata enables online works, licensed under a Creative Commons license, to be searched for and identified based on their licensing terms. Adopters of the Creative Commons licenses tend to fall into four general categories: the pragmatists who want to get their work distributed and known to as many people as possible; the idealists who are committed to the principle of sharing knowledge; the artists whose art form is sampling, remixing, and recontextualizing the works of others; and finally, the academics and educators.

Academics and educators recognize that they benefit from and rely on collaboration with others, that their reputations are enhanced by others citing to and building on their works, and that their objective of improving the state of learning and knowledge is furthered by promoting the distribution and sharing of their works. This sentiment was the catalyst for several significant adopters of Creative Commons licenses in the academic field. One of the earliest adopters of a Creative Commons license was the MIT OpenCourseWare initiative (http://ocw.mit.edu/), which provides access to MIT’s course materials for educators, students, and self-learners around the world to use and reuse. Another notable and early adopter of Creative Commons licenses in the scholarly arena was the Public Library of Science (http://www.plos.org). It publishes its open-access journals PLoS Biology and PLoS Medicine both in print and online under a Creative Commons Attribution License. The Connexions project provides free scholarly content. PLoS Director and co-founder Michael Eisen explained that PLoS adopted the Creative Commons Attribution License "because it ensures the optimal accessibility and usability while preserving the one thing that scientists value the most: attribution for their work." Finally, another educational institution, Rice University, made its Connexions project (http://cnx.rice.edu/) available under a Creative Commons Attribution License. The Connexions project provides free scholarly materials and free software tools to create an online environment for collaboratively developing, freely sharing, and rapidly publishing scholarly content.

Science Commons
Launched in early 2005, Science Commons (http://www.sciencecommons.org/) is designed to build on the Creative Commons approach. Science Commons
is based on the belief that science and education depend on the ability to observe, learn from, and test the work of others. Without effective access to data, materials, and publications, the scientific enterprise becomes impossible. Yet in recent years, disturbing trends point to an increase in secrecy: business models that are prefaced on restricting access to information; interlocking licensing agreements that require the added cost of legal advice as to whether they permit certain research. These trends, combined with the introduction of new laws that expand intellectual property protection and the development of technologies that can literally lock down information, have created a complex thicket that encroaches on the freedom to work on something as to validate published results, and to enjoy the scientific enterprise become impossible. Yet in recent years, disturbing trends point to an increase in secrecy: business models that are prefaced on restricting access to information; interlocking licensing agreements that require the added cost of legal advice as to whether they permit certain research. These trends, combined with the introduction of new laws that expand intellectual property protection and the development of technologies that can literally lock down information, have created a complex thicket that encroaches on the freedom to work on something as to validate published results, and to enjoy the freedom to work on something as to validate published results, and to enjoy.

Science Commons focuses on three areas: (1) licensing; (2) publishing; and (3) data. For each area, Science Commons has established a working group and a public listerv discussion group for participation by interested members of the community. In licensing, Science Commons is working with stakeholders in the field to develop model agreements to facilitate the socially responsible licensing of patented or other key research materials to promote more effective research. Unfortunately, it is beyond the scope of this article to discuss the licensing focus area; more information can be found on the Web site (http://science.creativecommons.org/licensing/).

In publishing, Science Commons is working to develop and support open-access publishing. Its first project is the recently launched Open Access Law Program, which is designed to make legal scholarship “open access”—freely available online to everyone, without undue copyright and licensing restrictions. The Open Access Law Journal Principles and the Open Access Law Author Pledge also enable both journals and authors to declare their commitment to open access. Currently, twenty-three law journals spread across the United States, Canada, and the United Kingdom have adopted the principles, or have policies consistent with them, including all of the journals published by Duke Law School and Harvard Journal of Law & Technology. Science Commons is working to expand the project across a wider range of disciplines, including agriculture, entomology, biology, and anthropology.

Finally, with respect to data, Science Commons is working to enable access to data and better research using such data. There is a real risk that scientific research data may become less available and less effectively utilized. For example, despite the fact that one of the basic tenets of copyright holds that ideas and facts are not copyrightable and despite the fact that no copyright subsists in government works, there are ongoing attempts to enact specific or de facto protection for databases. These attempts have been successful in Europe, which enacted the EU Database Directive in 1996. In the absence of specific legal protections in the United States, database providers have developed databases that so thoroughly combine copyrighted and uncopied data that getting access to unprotected factual data becomes impracticable. Thus, basic data is locked up and is made more expensive to access or more easily subjected to restrictive licensing agreements.

In addition, a wasteful data economy is evolving, one in which raw data is not made accessible to others to whom it would be useful. Scientists either are leery of the risks of losing control over their data or are subject to institutional requirements that mandate a closed approach. These requirements, premised on an “all rights reserved” mentality, dissuade research collaboration and ignore opportunities for improved learning and knowledge-sharing. Science Commons thus plans (1) to evaluate and draft open, voluntary, and interoperable legal solutions for databases, based on the “some rights reserved” philosophy of Creative Commons, (2) to promote understanding about the benefits of enhanced research opportunities in a digitally networked environment, and (3) to describe conditions to maximize such opportunities for the public good.

Creative Commons and Science Commons advocate the principles of balance, moderation, and compromise in both the cultural sphere and the scientific sphere. However, the approaches used in these two spheres differ because of the differing impacts of digital technologies to date in these respective areas. In the industrial cultures, digital technologies have led to the rampant spread of content, well beyond the dissemination permitted by the business models of the content owners. In the scientific and academic communities, the benefits that digital technologies offer in terms of facilitating the greater and more efficient dissemination of research and knowledge have not yet been fully harnessed. Thus, in the cultural sphere, Creative Commons is seeking to infuse a tone of reasonableness into the polarized, “all versus nothing” debate. In the scientific sphere, Science Commons is working to educate scientists; to provide standard contracts and technologies for institutional sharing and archiving; and to generally assist in reversing a lengthy, unintentional erosion of knowledge-sharing in the sciences and academia.

Authors can structure their private rights to create public goods: creative works can be set “free” for certain uses, consistent with the author’s specific intent.

Notes


Mia Garlick is General Counsel at Creative Commons.